

Revised



April 16, 2008

Talin Shahbazian  
City of Paso Robles  
Community Development Department  
1000 Spring Street  
Paso Robles CA 93446

SUBJECT: APCD Comments Regarding the Paso Robles Motorcoach Resort GPA,  
PD08-001 Project Referral. (PD/CUP 08-001)

Dear Ms. Shahbazian,

Thank you for including the San Luis Obispo County Air Pollution Control District (APCD) in the environmental review process. We have completed our review of the proposed project located at Golden Hill Rd in Paso Robles. This project involves the construction of a 380 space, 47.9 acre RV resort on a 71.4 acre parcel. Two additional adjacent project parcels will be left as buffers and open space. The operational emissions from this project are due largely to vehicle traffic; these emissions are based on an ITE trip rate of 4.10 trips per day per RV site. The following are APCD comments that are pertinent to this project.

The APCD staff considered the operational impact of this proposed development by running the URBEMIS2007 computer model, a tool for estimating vehicle travel, fuel use and the resulting emissions related to this project's land uses. The project may exceed the APCD Tier I threshold of significant air quality impacts requiring mitigation.

GENERAL COMMENTS

As a commenting agency in the California Environmental Quality Act (CEQA) review process for a project, the APCD assesses air pollution impacts from both the construction and operational phases of a project, with separate significant thresholds for each. **Please address the action items contained in this letter that are highlighted by bold and underlined text.**

CONSTRUCTION PHASE MITIGATION

Naturally Occurring Asbestos

The project site is located in a candidate area for Naturally Occurring Asbestos (NOA), which has been identified as a toxic air contaminant by the California Air Resources Board (ARB). Under the ARB Air Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, **prior to any grading activities at the site, the project proponent shall ensure that a geologic evaluation is conducted to determine if NOA is present within the area that will be disturbed. If NOA is not present, an exemption request must be filed with the District (see Attachment 1). If NOA is found at the site the applicant must comply with all requirements outlined in the Asbestos ATCM.** This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD. Please refer to the APCD web page at <http://www.slocleanair.org/business/asbestos.asp> for more information or contact Tim Fuhs of our Enforcement Division at 781-5912.

3433 Roberto Court

Exhibit C  
APCD Letter  
GPA 09-001, RZ 09-001, PD 08-001  
CUP 08-001 & PRAL 07-0293  
(PR Motorcoach)

-781-1002

#### Developmental Burning

Effective February 25, 2000, **the APCD prohibited developmental burning of vegetative material within San Luis Obispo County.** Under certain circumstances where no technically feasible alternatives are available, limited developmental burning under restrictions may be allowed. This requires prior application, payment of fee based on the size of the project, APCD approval, and issuance of a burn permit by the APCD and the local fire department authority. The applicant is required to furnish the APCD with the study of technical feasibility (which includes costs and other constraints) at the time of application. If you have any questions regarding these requirements, contact Karen Brooks of our Enforcement Division at 781-5912.

#### Dust Control Measures

Construction activities can generate fugitive dust, which could be a nuisance to local residents and businesses in close proximity to the proposed construction site. Dust complaints could result in a violation of the APCD's 402 "Nuisance" Rule. Any project with a grading area greater than 4.0 acres exceeds the APCD's PM10 quarterly threshold. **This project exceeds this threshold and shall be conditioned to comply with all applicable Air Pollution Control District regulations pertaining to the control of fugitive dust (PM10) as contained in section 6.5 of the Air Quality Handbook. All site grading and demolition plans noted shall list the following regulations:**

- a. Reduce the amount of the disturbed area where possible,
- b. Use of water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible,
- c. All dirt stock pile areas should be sprayed daily as needed,
- d. Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities,
- e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast germinating native grass seed and watered until vegetation is established,
- f. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD,
- g. All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used,
- h. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site,
- i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114,
- j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site, and
- k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads.

Water sweepers with reclaimed water should be used where feasible.

All PM10 mitigation measures required should be shown on grading and building plans. In addition, the contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. **The name and telephone number of such persons shall be provided to the APCD prior to land use clearance for map recordation and finished grading of the area.**

### Construction Permit Requirements

Based on the information provided, we are unsure of the types of equipment that may be present during the project's construction phase. Portable equipment, 50 horsepower (hp) or greater, used during construction activities will require California statewide portable equipment registration (issued by the California Air Resources Board) or an APCD permit. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to page A-5 in the District's CEQA Handbook.

- Power screens, conveyors, diesel engines, and/or crushers;
- Portable generators and equipment with engines that are 50 hp or greater;
- IC engines;
- Concrete batch plants;
- Rock and pavement crushing;
- Tub grinders; and
- Trommel screens.

**To minimize potential delays, prior to the start of the project, please contact Gary Willey of the District's Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.**

### Construction Activity Management Plan

**Develop a comprehensive Construction Activity Management Plan** designed to minimize the amount of large construction equipment operating during any given time period. The plan should be submitted to the District for review and approval prior to the start of construction. The plans should include but not be limited to the following elements:

- Schedule construction truck trips during non-peak hours to reduce peak hour emissions;
- Limit the length of the construction work-day period, if necessary; and,
- Phase construction activities, if appropriate.

### Standard NOx Control Measures for Construction Equipment

The standard construction equipment mitigation measures for reducing nitrogen oxide (NOx) emissions are listed below and in section 6.3.1 of the Air Quality Handbook. **These measures are applicable to all projects where construction equipment will be used:**

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Fuel all off-road and portable diesel powered equipment with ARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).
- Maximize, to the extent feasible, the use of diesel construction equipment meeting ARB's 1996 and newer certification standard for off-road heavy-duty diesel engines.
- Maximize to the extent feasible, the use of on-road heavy-duty equipment and trucks that meet the ARB's 1998 or newer certification standard for on-road heavy-duty diesel engines.
- All on and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5 minute idling limit.

### Best Available Control Technology for Construction Equipment (BACT)

BACT measures are needed when construction emissions exceed APCD mitigation thresholds as defined in section 6.2.1 in the Air Quality Handbook. These thresholds are when nitrogen oxide (NOx), reactive organic compound (ROG) or PM combustion emissions meet either of the following limits: more than 185 lbs/day or 2.5 ton/quarter. Because sufficient information regarding the operational phase emissions of this project is currently lacking, the specific BACT requirements can not be quantified at this time. In order to mitigate the construction emissions to a level of insignificance, BACT will be required; however

the magnitude will need to be determined once the construction emissions calculations are provided. Please contact the APCD with more specific equipment information **prior to the issuance of a construction permit**. When this information is received the APCD will determine the BACT measures applicable to this project.

## **OPERATIONAL PHASE MITIGATION**

### **Greenhouse Gas Impacts and Mitigation**

While California successfully passed Assembly Bill 32, California's Global Solutions Act of 2006, little guidance was provided to lead agencies regarding how to address greenhouse gas (GHG) impacts in the CEQA process. In the 2007 California legislative session, Senate Bill 97 was passed and required that the California Office of Planning and Research, by July 1, 2009, prepare and develop guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. As guidelines are not currently available, the APCD suggests that projects subject to CEQA should quantify project related GHG emissions and identify feasible mitigation.

The APCD staff considered the operational impact of this proposed development by running the URBEMIS2007 computer model, a tool for estimating vehicle travel, fuel use and the resulting emissions related to this project's land uses. This indicated that operational phase impacts of the greenhouse gas known as carbon dioxide (CO<sub>2</sub>) will be approximately 7277 pounds per day in the summer and 6906 pounds per day in the winter. **While statewide/global thresholds have not yet been defined for GHG impacts, SLO County APCD recommends the implementation of feasible mitigation measures that minimize project related GHG impacts.** Examples of potential measures for this development include:

- ✓ • Install on-site solar power infrastructure to offset grid-based power consumption.
- ✓ • Provide low-speed neighborhood electric vehicles (NEVs) and charging stations for internal use by resort patrons.
- ✓ • Developments within Urban Reserve Lines with walking or bicycling access to nearby commercial and transit services thus reducing automobile dependence;
- Include pedestrian amenities that provide improved connectivity to existing amenities;
- Securing shuttle services;
- Green building techniques such as:
  - Planting of native, drought resistant landscaping;
  - Use of locally or nearby produced building materials;
  - Use of renewable or reclaimed building materials; and,
  - Installing outdoor electrical outlets to encourage the use of electric appliances and tools.

### **Operational Permit Requirements**

Based on the information provided, we are unsure of the types of equipment that may be present at the site. Operational sources may require APCD permits. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to page A-5 in the District's CEQA Handbook.

- Portable generators and equipment with engines that are 50 hp or greater;
- Electrical generation plants or the use of standby generator; and,
- Cogeneration facilities.

Project Referral for Paso Robles Motorcoach Resort GPA, PD08-001, CUP 08-001

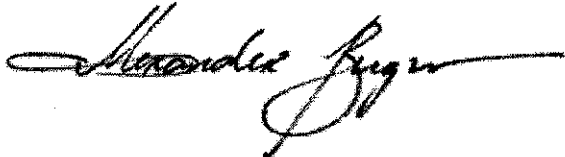
April 16, 2008

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**To minimize potential delays, prior to the start of the project, please contact Gary Willey of the District's Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.**

Again, thank you for the opportunity to comment on this proposal. If you have any questions or comments, feel free to contact me at 781-5912.

Sincerely,



Alexander Bugrov  
Air Quality Specialist

AAB/sll

cc: Mr. Doug McCurdy  
Tim Fuhs, Enforcement Division, APCD  
Karen Brooks, Enforcement Division, APCD  
Gary Willey, Engineering Division, APCD  
Andy Mutziger, Planning Division, APCD

Attachments:

1. Naturally Occurring Asbestos – Construction & Grading Project Exemption Request Form, Construction & Grading Project Form
2. Guidelines for the Development of a Construction Activity Management Plan

h:\planteqa\project\_review\3430-1\3430-1.doc



# ASSOCIATED TRANSPORTATION ENGINEERS

100 N. Hope Avenue, Suite 4, Santa Barbara, CA 93110 • (805) 687-4418 • FAX (805) 682-8509

Since 1978

Richard L. Pool, P.E.  
Scott A. Schell, AICP PTP

## Paso Robles

DEC 24 2008

## Planning Division

November 25, 2008

007115L03

Doug McCurdy  
Paso Motorcoach Resort  
1495 Creston Road # 148  
Paso Robles, CA 93446

### TRAFFIC STUDY FOR THE PASO ROBLES MOTORCOACH RESORT, PASO ROBLES, CALIFORNIA

The project has been reduced from 380 to 332 sites, this will reduce the trip generation for the project by approximately 13%. The change in trip generation is illustrated on Table 1.

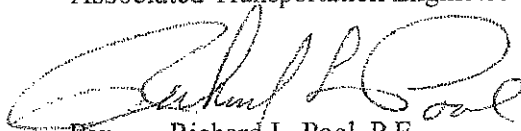
**Table 1**  
**Paso Robles Motorcoach Trip Generation Comparison**

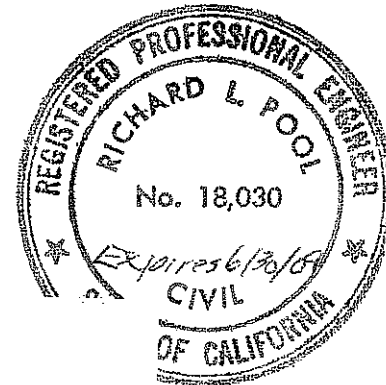
Land Use	Size	ADT	A.M. Peak Hour			P.M. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
RV Park	380 Spaces	1,406	30	46	76	99	42	141
Revised RV Park	332 Spaces	1,229	27	40	66	86	37	123

ADT = Average Daily Trips

The reduction in the trip assignment is illustrated on Figure 6 from the traffic report where the new volumes are shown for comparison to the prior trip assignment. There is a reduction in project traffic volume, however, the change is small and the previously identified mitigations are applicable. The traffic fee is based upon the project size and/or trip generation thus there would be some change in the traffic fee.

Associated Transportation Engineers

  
By: Richard L. Pool, P.E.  
President



Attachments Figure 6

Copy to: Larry Wern

Engineering • Planning

Exhibit D-1

Traffic Study

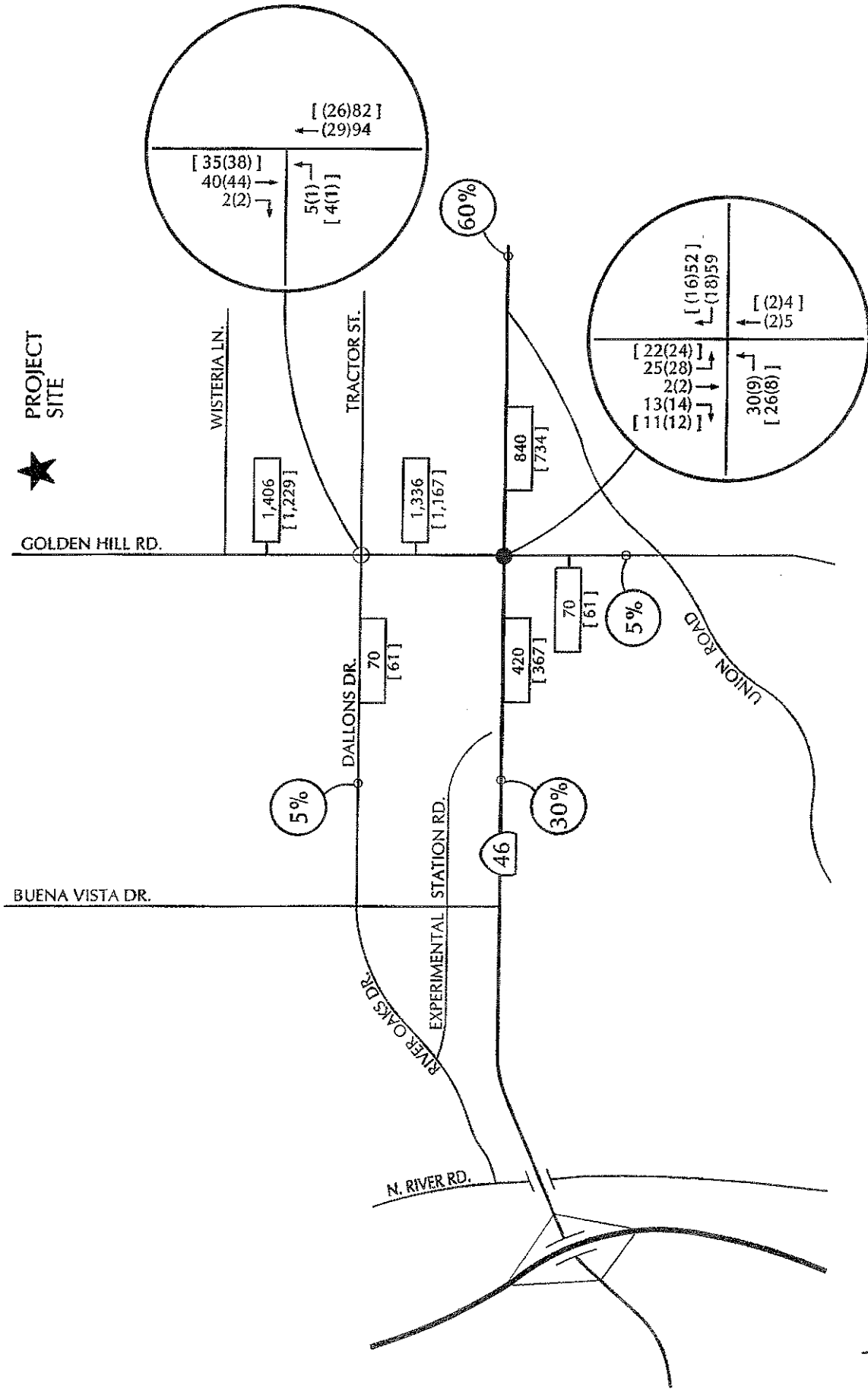
GPA 09-001, RZ 09-001, PD 08-001

CUP 08-001, & PRAL 07-0293

(PR Motorcoach)

ways • Transit

★ PROJECT SITE



**LEGEND**

- % - Distribution Percentage
- XX - (A.M.)P.M. Peak Hour Volumes
- X - Average Daily Traffic Volumes

FIGURE 6

PASO ROBLES MOTOR COACH RESORT TRIP DISTRIBUTION AND ASSIGNMENT  
[REVISED PROJECT]

JJK - #07115

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TRANSPORTATION  
ENGINEERS



NOT TO SCALE

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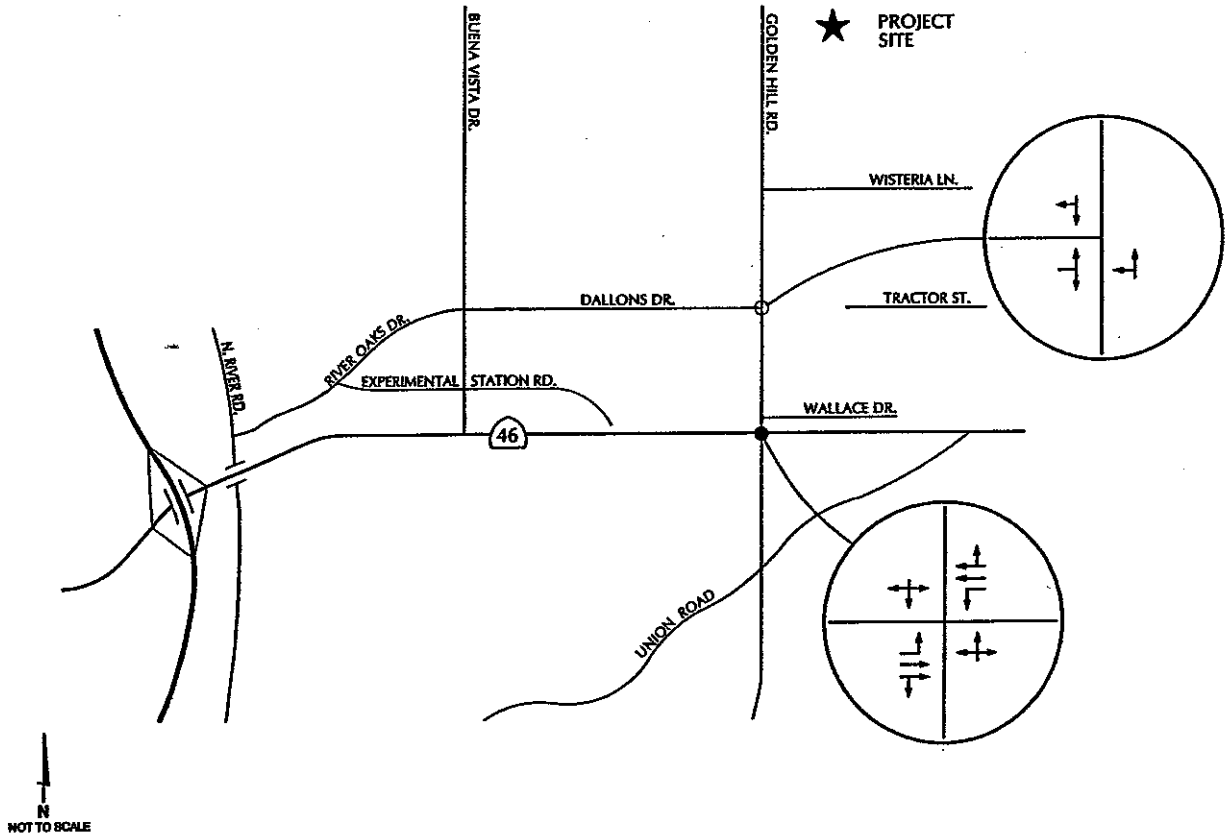
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**PASO ROBLES MOTORCOACH RESORT  
CITY OF PASO ROBLES, CALIFORNIA**

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**TRAFFIC STUDY**

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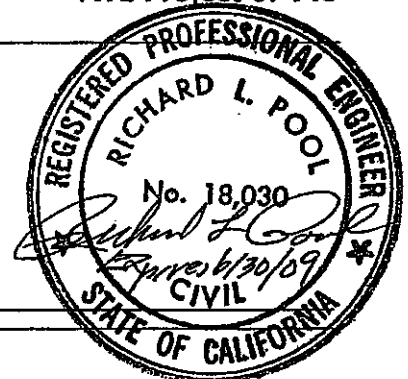
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January 11, 2008

ATE Project 07115

Prepared for:  
Doug McCurdy  
Paso Robles Motorcoach Resort  
1495 Creston Road # 148  
Paso Robles, CA 93446

Prepared by:  
Richard L. Pool, P.E.



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January 11, 2008

007115R01rpt

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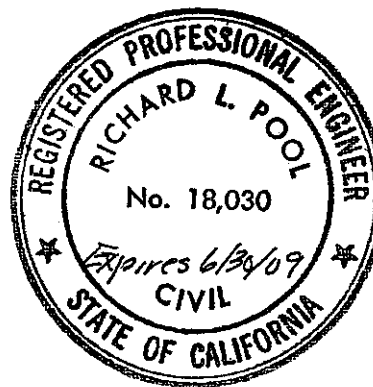
## TRAFFIC STUDY FOR THE PASO ROBLES MOTORCOACH RESORT, PASO ROBLES, CALIFORNIA

Associated Transportation Engineers is submitting this traffic study for the Paso Robles Motorcoach Resort, located on the Golden Hill Road north of State Route 46 in the City of Paso Robles, California.

We appreciate the opportunity to assist you with this project.

Associated Transportation Engineers

By: Richard L. Pool, P.E.  
President



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## EXECUTIVE SUMMARY

This traffic and circulation study contains an analysis of the affect of the Paso Robles Motorcoach Resort (PRMCR) on the Golden Hill Road corridor. The City process will include a General Plan Amendment (GPA), Zone Change and a Conditional Use Permit (CUP). The Project covers an area of 160.5 acres in three parcels. The parcel sizes are: Parcel 1 - 36 acres; Parcel 2 - 79.9 acres; and Parcel 3 - 44.6 acres. All three parcels are designated as AG/Airport Overlay in the current General Plan and are zoned RA. These parcels are located in the Paso Robles Airport Planning Area (Zones 3 & 5), regulated by the Airport Land Use Plan (ALUP). Residential units are not allowed in this area per the ALUP, thus the current RA zoning should be changed to AG. The project evaluation and consistency with the General Plan will be based upon the assumption that the AG zoning is in place. The Golden Hill Retail Center (GHRC) Traffic and Circulation report (Near-Term Cumulative) along with the off-site improvements that are contained in their conditions of the approval will be used for this traffic analysis.

The Paso Robles Motorcoach Resort project will adjust the parcel lines of the three parcels. As a result, parcel 1 will measure 55.6 acres, will be zoned AG and will be dedicated to the City as Open Space for the community. Parcel 2 will measure 71.4 acres, will be designated Park and Open Space (POS) in the General Plan and will be zoned POS, for the proposed 380 site motorcoach resort. Parcel 3 will measure 21.9 acres, will be zoned AG and will have a recorded restrictive agriculture easement. This easement will limit the development on parcel 3 to: uses like a small, boutique hotel (maximum of 35 rooms), a small restaurant, a health spa, a winery, a wine tasting facility, a wine museum and agricultural production.

Golden Hill Road will be extended to the north along the westerly boundary of parcels 1, 2 and 3 as a two lane road. Dedication to the City for Golden Hill Road will require 2.3 acres of parcel 1, 7.7 acres of parcel 2 and 1.7 acres of parcel 3.

The segment of State Route 46E between U.S. 101 and Airport Road is reported as LOS "F" in the GHRC report. The addition of a third through lane eastbound and westbound as noted in the GHRC report will attain acceptable operation level. The intersection operations for the Near-Term Cumulative scenario with roadway and intersections improvements conditioned by the City of Paso Robles as part of the GHRC the study-area intersections are projected to operate in the LOS "A" - "F" range on summertime weekdays for both the A.M. and P.M. peak hour periods. The mitigation identified in the GHRC traffic study for the Near-Term Cumulative at State Route 46/Golden Hill Road was the addition of a third through lane eastbound and westbound which provided LOS "D" in the A.M. and LOS "E" in the P.M.

The Institute of Transportation Engineers (ITE), Trip Generation, 7<sup>th</sup> Edition was used to estimate the trip generation for the PRMCR project. An estimated 1,406 average daily trips, 76 A.M. peak hour trips and 141 P.M. peak hour trips will be generated by the PRMCR project.

## EXECUTIVE SUMMARY CONTINUED

On summertime weekdays State Route 46E would continue to operate in the LOS "F" range with the addition of PRMCR traffic and with the mitigations noted in the GHRC report would attain LOS "D" or better. The PRMCR's addition to peak hour traffic at Golden Hill Road/SR 46E would have only a minor effect on vehicle delay during the A.M. and P.M. peak hours. The addition of a through lane in the eastbound and westbound directions on State Route 46E would provide 45.5 seconds/LOS "D" in the A.M. and 60.6 seconds/LOS "E" in the P.M. The Golden Hill Road/Dallons Drive intersection operation would remain in the LOS "A" range in the A.M. and in the LOS "C" range in the P.M. with the addition of traffic from the PRMCR project.

The City of Paso Roble has a traffic fee program to address future traffic and circulation needs. The project would be required to contribute to the fee program to mitigate its' incremental impact. The PRMCR project traffic contribution using the City Calculation method is as follows:

Golden Hill Road/SR 46E	1.7% A.M. and 2.3% P.M.
Dallons Drive/Golden Hill Road	6.5% A.M. and 11.1% P.M.

The evaluation of a GPA requires the development of the trip generation and distribution for the requested land use designation to be compared to the land uses allowed under the current General Plan. A reasonable level of development on the existing parcels with the appropriate AG zoning is as follows:

- General Plan Land Use Designation: AG
- Airport Safety Zones: 3 & 5
  - Airport Zone Max Non-residential Land Use Density: 150 Persons/acre
- Site Area = 160 acres

The PRMCR traffic projections are less than the Potential Project in the AG zone on the current three parcels, thus would not exacerbate the 2030 General Plan Buildout traffic conditions.

Under 2030 General Plan Buildout conditions, State Route 46 E, between Route 101 and Airport Road is forecast to operate in the LOS "F" range. Golden Hill Road, between Dallons Drive and SR 46E is forecast to operate in the LOS "E" range. The Golden Hill Road/Dallons Drive intersection operates at an acceptable LOS with the installation of a traffic signal. The mitigation proposed in the GHRC traffic analysis for Golden Hill Road/SR 46E for the 2030 Buildout was a spread diamond interchange (Type L-1). The spread diamond with dual eastbound left-turn lanes results in LOS "F" at the off-ramp intersection. In order to attain LOS "D" or better, it will be necessary to have three eastbound left-turn lanes (requiring a wider structure) or use a modified Type L-8, which would have the eastbound off-ramp as a loop ramp.

## EXECUTIVE SUMMARY CONTINUED

The 2030 General Plan Buildout analysis shows that Route 46E/Golden Hill Road intersection is forecast to exceed the City's threshold. The development of a street system north of and parallel to State Route 46E will provide an alternate route for the development in that area. Figure CE-1 of the Circulation Element illustrates a connection of Golden Hill Road to Dry Creek Road. This would provide a street system parallel to State Route 46E from Jardine Road to Golden Hill Road and via Dallons Drive to North River Road. The PRMCR project description includes the offer of dedication for the applicable right of way and will participate in the construction Golden Hill Road as a two lane roadway. The City has recently authorized a study to evaluate and facilitate the development of the parallel route. Developments within the GPA area and those projects within the area to be served by the parallel route should participate in funding of the route study.

## INTRODUCTION

This traffic and circulation study contains an analysis of the affect of the Paso Robles Motorcoach Resort (PRMCR) on the Golden Hill Road corridor. The City process will include a General Plan Amendment (GPA), Zone Change and a Conditional Use Permit (CUP). The Project covers an area of 160.5 acres in three parcels. The parcel sizes are: Parcel 1 - 36 acres; Parcel 2 - 79.9 acres; and Parcel 3 - 44.6 acres. All three parcels are designated as AG/Airport Overlay in the current General Plan and are zoned RA. These parcels are located in the Paso Robles Airport Planning Area (Zone 5), regulated by the Airport Land Use Plan (ALUP). Residential units are not allowed in this area per the ALUP, thus the current RA zoning should be changed to AG. The project evaluation and consistency with the General Plan will be based upon the assumption that the AG zoning is in place. The Golden Hill Retail Center (GHRC) Traffic and Circulation report (Near-Term Cumulative) along with the off-site improvements that are contained in their conditions of the approval will be used for this traffic analysis. Additionally, the connection of Tractor Avenue to Dallons Drive at Golden Hill Road will be included.

The Paso Robles Motorcoach Resort project will adjust the parcel lines of the three parcels. As a result, parcel 1 will measure 55.6 acres, will be zoned AG and will be dedicated to the City as Open Space for the community. Parcel 2 will measure 71.4 acres, will be designated Park and Open Space (POS) in the General Plan and will be zoned POS, for the proposed 380 site motorcoach resort. Parcel 3 will measure 21.9 acres, will be zoned AG and will have a recorded restrictive agriculture easement. This easement will limit the development on parcel 3 to: uses like a small, boutique hotel (maximum of 35 rooms), a small restaurant, a health spa, a winery, a wine tasting facility, a wine museum and agricultural production.

Golden Hill Road will be extended to the north along the westerly boundary of parcels 1, 2 and 3 as a two lane road. Dedication to the City for Golden Hill Road will require 2.3 acres of parcel 1, 7.7 acres of parcel 2 and 1.7 acres of parcel 3. The Paso Robles Motorcoach Resort (PRMCR) site plan is illustrated in Figure 1.

## STUDY AREA

The study-area roadways analyzed include State Route 46E, Golden Hill Road and Dallons Drive. The facilities analyzed are summarized on Table 2.

**Table 1**  
**Study-Area Transportation Facilities**

<b>Roadways</b>	<b>Intersection</b>
State Route 46E	State Route 46E/Golden Hill Road
Golden Hill Road	Golden Hill Road/Dallons Drive
Dallons Drive	

## EXISTING CONDITIONS

### Street Network

The project site is served by a network of major highways, arterial streets and collector streets, as illustrated in Figure 2. The following text provides a brief discussion of major components of the study-area street network.

**State Route 46E**, located south of the project site, is an east-west state highway. Within the Paso Robles area, State Route 46E extends as a four-lane divided highway from U.S. Highway 101 to east of Airport Road. State Route 46E narrows to two-lanes east of Airport Road and continues easterly to the San Joaquin Valley.

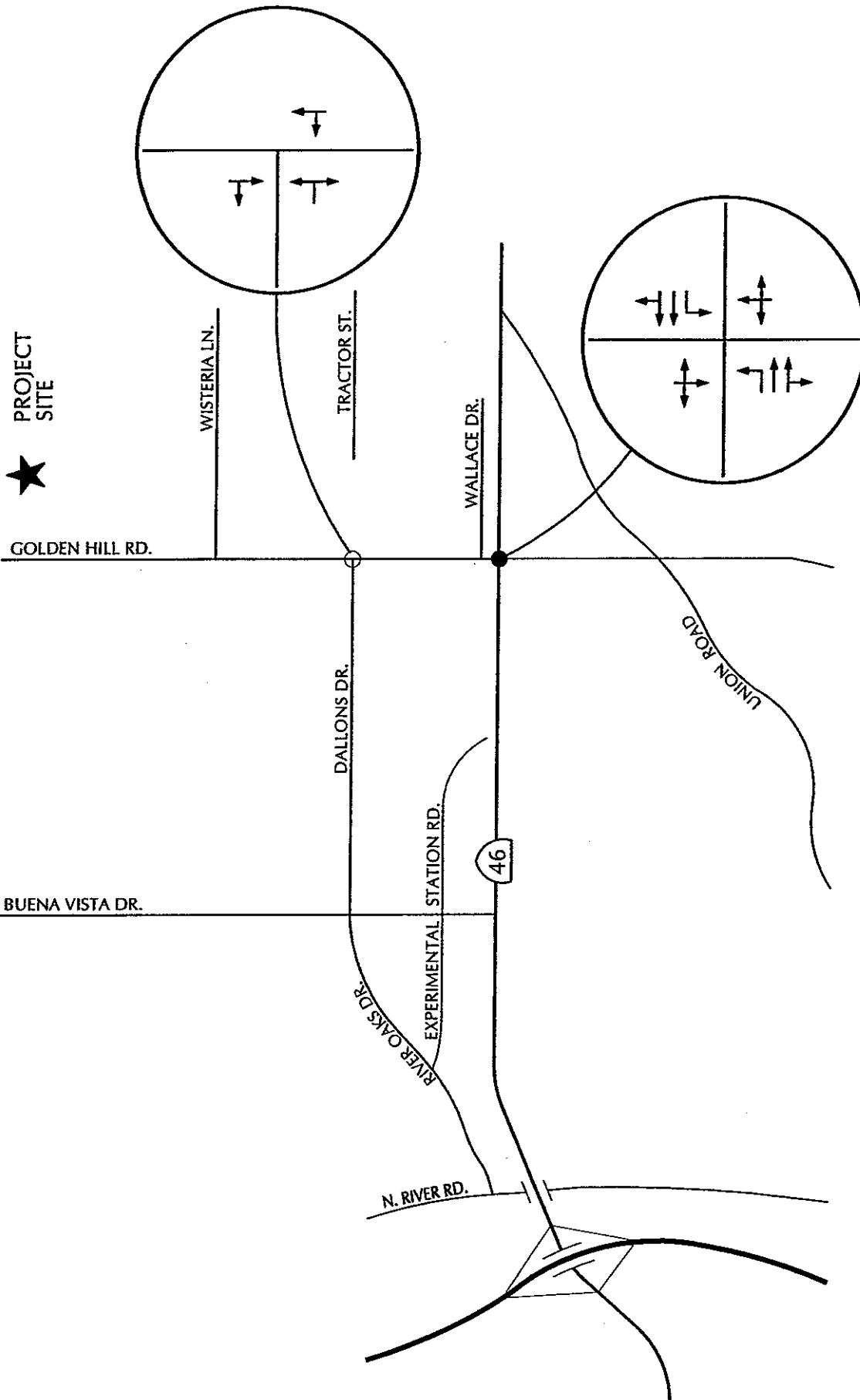
**Golden Hill Road**, located adjacent to the project site to the west, is a north-south road with a signalized intersection at State Route 46. Golden Hill Road north of State Route 46 is a two-lane paved arterial road. The portion north of Wisteria Lane is used for local property access to serve residents in the County area. Golden Hill Road south of State Route 46 is a two lane roadway that extends to Creston Road.

**Dallons Drive**, located south of the project site, is an east west roadway from Golden Hill Road to North River Road to the west. Dallons Drive is STOP--sign controlled at the Golden Hill Road intersection.

**Wisteria Lane**, located south of the project site, is an east west roadway from Golden Hill Road to the east. Wisteria Lane serves the industrial subdivision east of Golden Hill Road.







**LEGEND**

- - Signalized Intersection
- - Stopped Approach
- ↑ - Approach Lanes

FIGURE 2

JJK - #07115

EXISTING STREET NETWORK

ASSOCIATED  
TRANSPORTATION  
ENGINEERS

NOT TO SCALE

## Roadway Operations

The existing condition traffic data contained in the traffic study prepared for the GHRC was used for this report. The Existing ADT volumes are shown on Figure 3.

In evaluating roadway operating conditions, "Level of Service" (LOS) "A" through "F" are applied, with LOS "A" indicating very good operating conditions and LOS "F" indicating poor conditions (more complete definitions of level of service are contained in the Technical Appendix). The City of Paso Robles has adopted LOS "D" as the acceptable operational level.

Levels of service for the segments of State Route 46E between U.S. 101 and Airport Road are reported at LOS C in the GHRC report. State Route 46E experiences periods of high vehicle delays and congestion during summer weekends and holidays when traffic from the Central Valley travels to and from points along the Central Coast.

## Intersection Operations

Traffic flow on roadway networks is most constrained at intersections, therefore a detailed traffic flow analysis must examine the operating conditions of critical intersections during peak travel periods. The GHRC existing (2006) A.M. and P.M. summertime peak hour traffic volumes at the study-area intersections as reported in the GHRC traffic study are shown in Figure 3. The levels of service for GHRC summertime existing (2006) condition for State Route 46E/Golden Hill Road and Golden Hill Road/Dallons Drive are shown in Table 2 (worksheets are in the Technical Appendix).

The level of service definitions discussed previously for roadway segments also apply to intersection operation. Levels of service for the intersections were calculated using the operations signalized and unsignalized methodologies outlined in the Highway Capacity Manual. The computer program "Synchro" was used to analyze the operation of the intersections. The level of service calculation worksheets, along with a brief discussion of the calculation procedures used, are contained in the Technical Appendix.

**Table 2**  
**GHRC Existing Summertime Weekday Intersection Levels of Service**

Intersection	A.M. Peak Hour	P.M. Peak Hour
State Route 46/Golden Hill Rd. (S)	159.7 sec./LOS F	90.3 sec./LOS F
Golden Hill Rd./Dallons Rd. (U)	9.8 sec./LOS A	9.1 sec./LOS A

(S) = Signalized intersection;  
(U) = Unsignalized intersection;  
LOS based on average delay per vehicle in seconds.

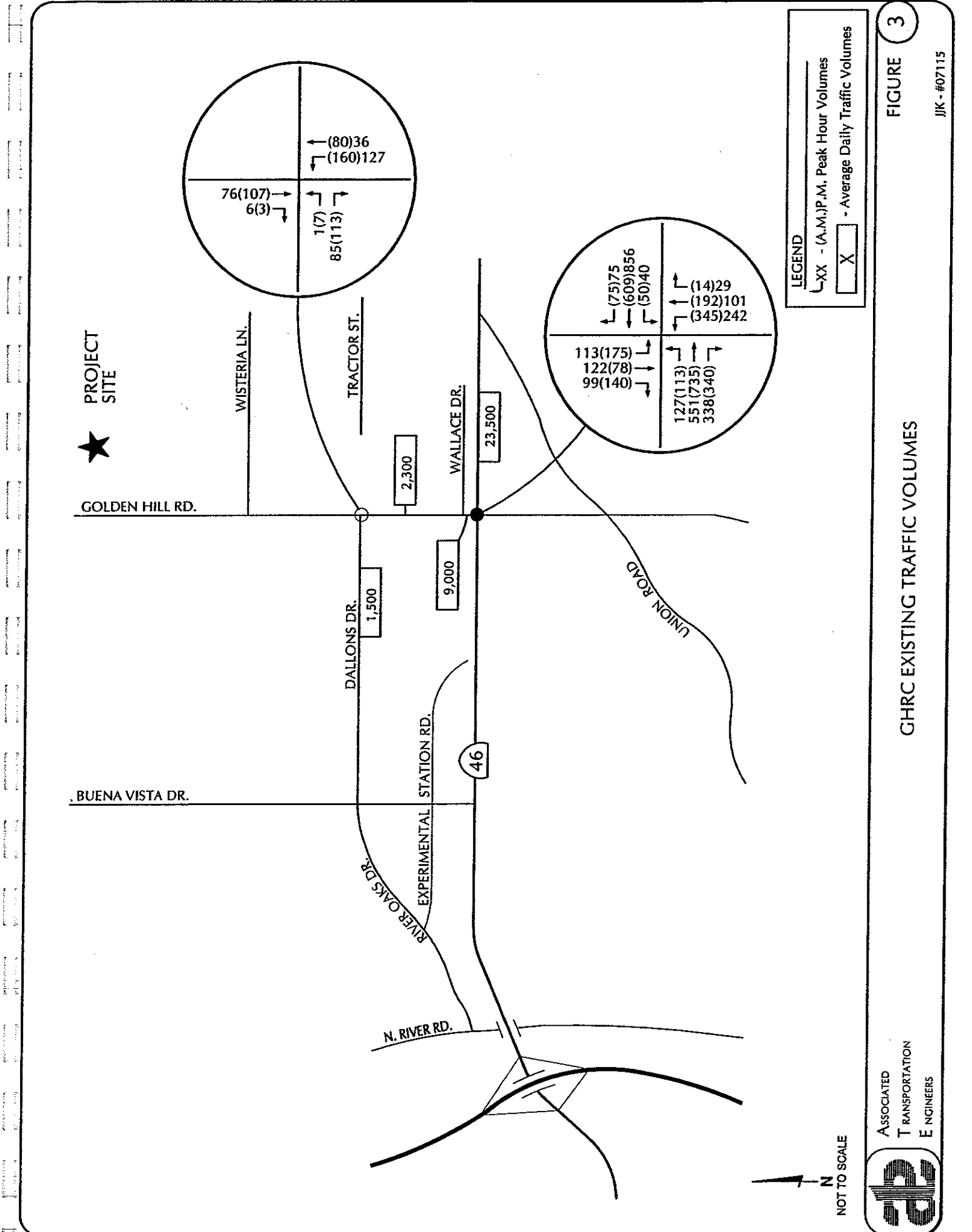


FIGURE 3

GHRC EXISTING TRAFFIC VOLUMES

JIK - #07115

## Near-Term Cumulative Conditions

### Near-Term Cumulative Roadway Operation

The Near-Term Cumulative traffic street network with intersection configurations is illustrated in Figure 4. The Near-Term Cumulative traffic volumes (baseline) are shown in Figure 5. The segment of SR 46E between U.S. 101 and Airport Road is reported as LOS "F" in the GHRC report. The addition of a third through lane eastbound and westbound as noted in the GHRC report will attain acceptable operation level.

### Near-Term Cumulative Intersection Operation

The intersection operations for the Near-Term Cumulative scenario with roadway and intersections improvements conditioned by the City of Paso Robles as part of the GHRC are shown on Table 3. The study-area intersections are projected to operate in the LOS "A" - "F" range on summertime weekdays for both the A.M. and P.M. peak hour periods.

**Table 3**  
**Near-Term Cumulative Intersection Levels of Service**

Intersection	A.M. Peak Hour	P.M. Peak Hour
State Route 46/Golden Hill Rd. (S)	51.6 sec./LOS D	93.6 sec./LOS F
Golden Hill Rd./Dallons Dr. (U)	7.0 sec./LOS A	18.2 sec./LOS B

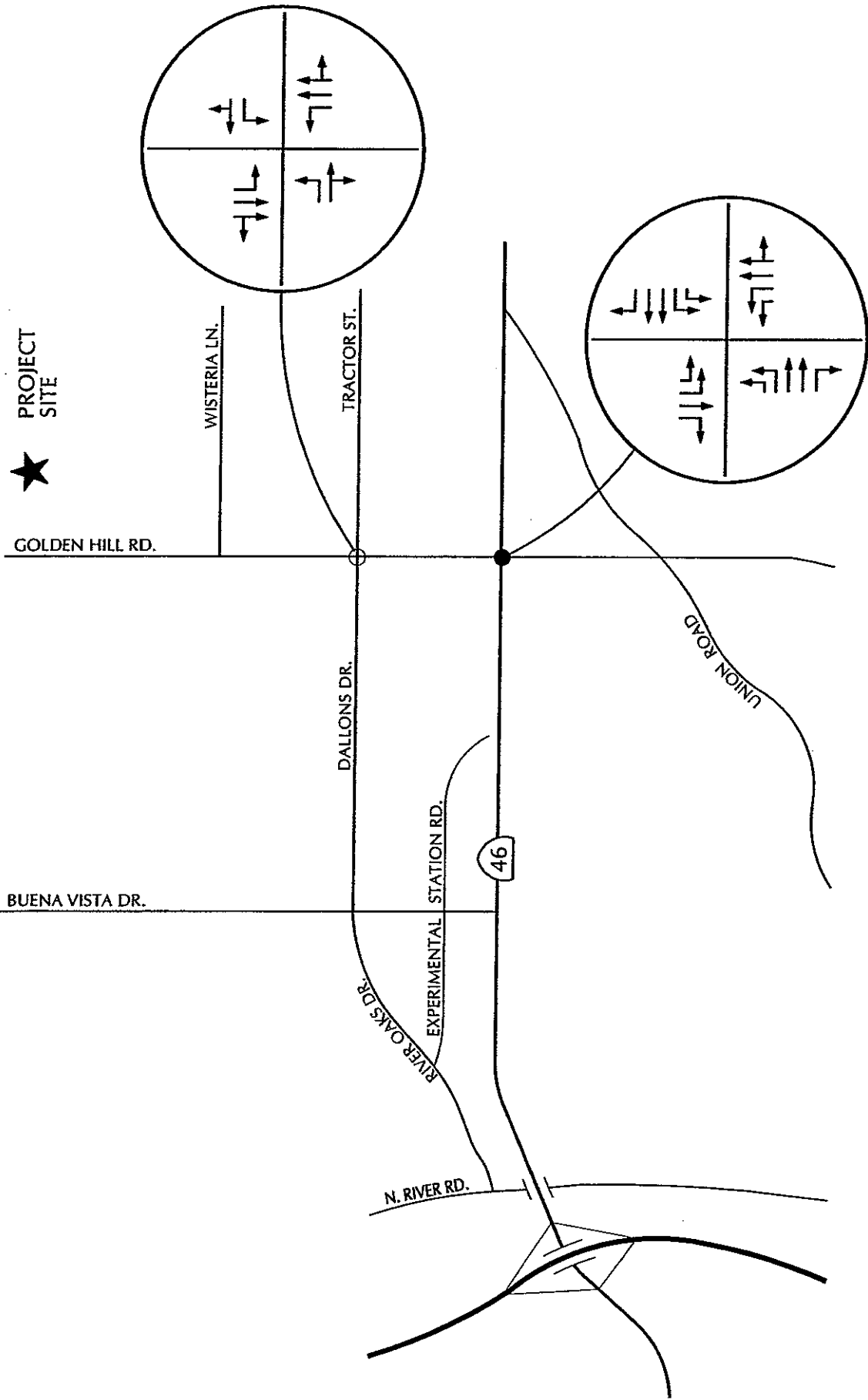
(S) = Signalized intersection;  
(U) = Unsignalized intersection;  
LOS based on average delay per vehicle in seconds.

The mitigation identified in the GHRC traffic study for the Near-Term Cumulative at State Route 46/Golden Hill Road was the addition of a third through lane eastbound and westbound which would provide LOS "D" in the A.M. and LOS "E" in the P.M. It was noted that while the P.M. was LOS "F" at 93.6 seconds of delay this is less than the existing > 150 seconds.

### Paso Robles Motorcoach Resort Analysis

The baseline traffic conditions for the project specific analysis will be the GHRC Near-Term Cumulative with the conditions of GHRC approval improvements and identified mitigations. The GHRC approved and pending project list is contained in the Appendix. The GHRC Near-Term Cumulative in the traffic report is defined as follows:

*"Near-Term Conditions represent traffic growth to Year 2010 which accounts for buildout of the project, (GHRC) construction of one pending and all approved projects near the site, and future growth in the SR 46 corridor."*



**LEGEND**

- - Signalized Intersection
- - Stopped Approach
- ↑ - Approach Lanes

**FIGURE 4**

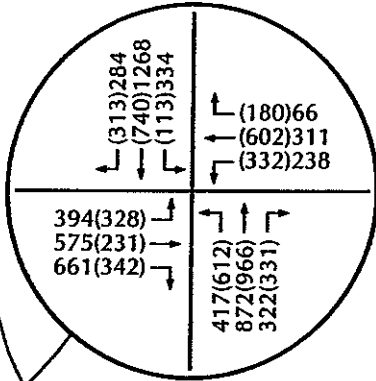
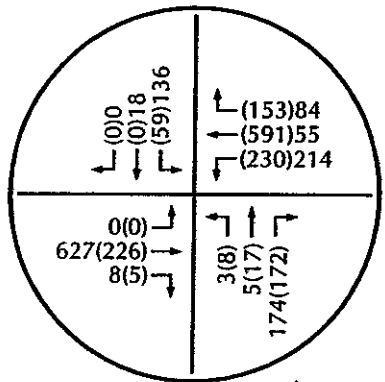
JJK - #07115

**GHRC NEAR-TERM CUMULATIVE STREET NETWORK**

ASSOCIATED  
TRANSPORTATION  
ENGINEERS



N  
NOT TO SCALE



★ PROJECT SITE

GOLDEN HILL RD.

WISTERIA LN.

TRACTOR ST.

DALLONS DR.

BUENA VISTA DR.

RIVER OAKS DR.

EXPERIMENTAL STATION RD.

N. RIVER RD.

46

UNION ROAD

6,700

4,000

21,500

37,800

37,000

LEGEND  
 XX - (A.M.)P.M. Peak Hour Volumes  
 X - Average Daily Traffic Volumes

FIGURE 5

GHRC NEAR-TERM CUMULATIVE TRAFFIC VOLUMES

JJK - #07115



NOT TO SCALE

The PRMCR analysis includes the connection of Tractor Street to Golden Hills Road at Dallons Drive.

### Trip Generation

The Institute of Transportation Engineers (ITE), Trip Generation, 7<sup>th</sup> Edition was used to estimate the trip generation for the PRMCR project. The estimated average daily, A.M. and P.M. peak hour trip generation is shown on Table 4.

**Table 4  
Paso Robles Motorcoach Trip Generation**

Land Use	Size	ADT	A.M. Peak Hour			P.M. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
RV Park	380 Spaces	1,406	30	46	76	99	42	141

ADT = Average Daily Trips

### Trip Distribution and Assignment

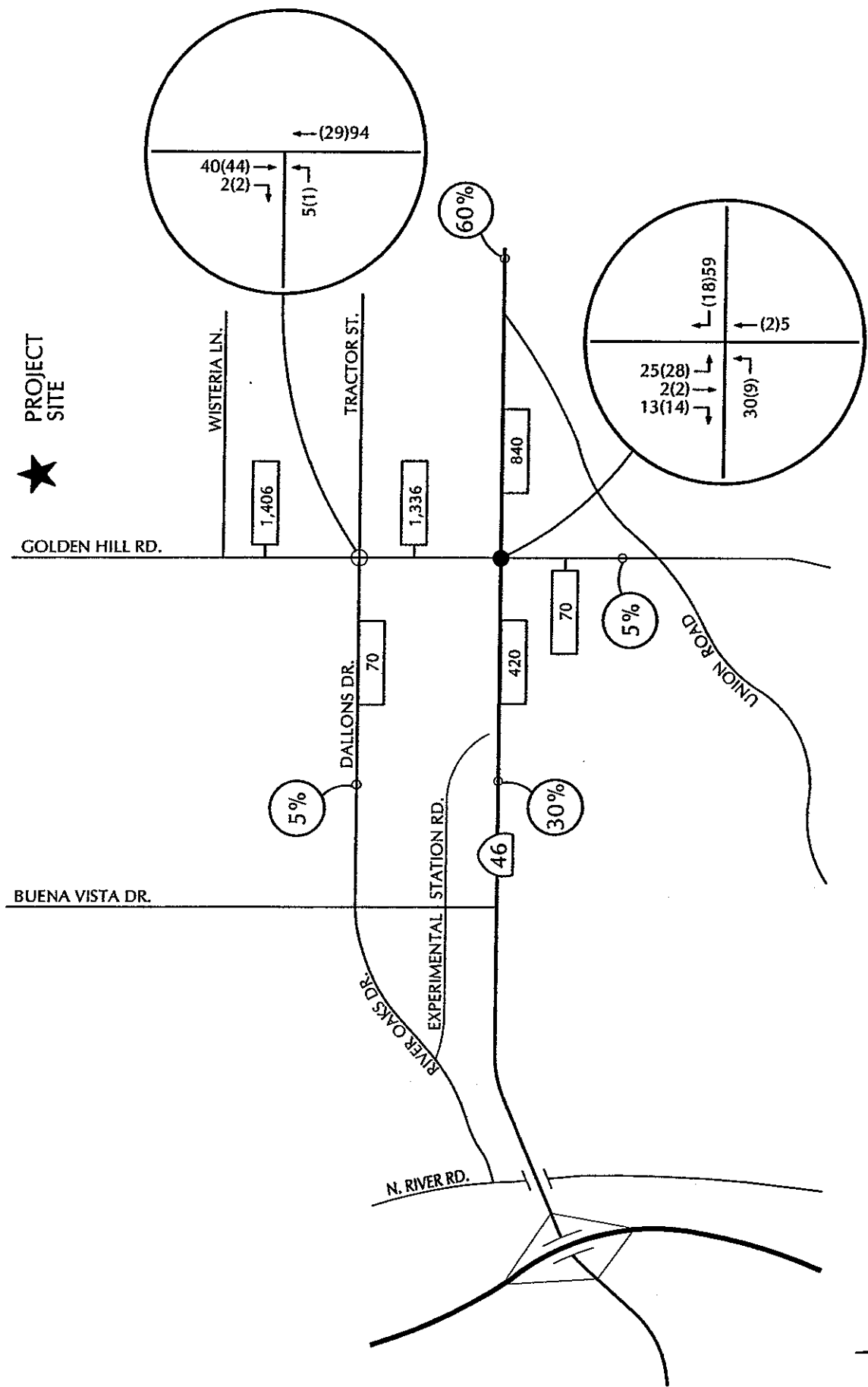
The average daily, A.M. and P.M. peak hour trips for PRMCR were distributed onto the adjacent study-area roadway system using the trip distribution percentages shown on Table 5. These percentages were developed based on the existing traffic volumes collected in the study-area, knowledge of the traffic and land use patterns in the Paso Robles area, and the characteristics of the proposed development. Employee and service trips will be made in the Paso Robles area. Trip distribution and assignment for the PRMCR is illustrated on Figure 6.

**Table 5  
Paso Robles Motorcoach Trip Distribution**

Route	Origin/Destination	Percent
State Route 46	East	60%
State Route 46	West	30%
Golden Hill Road	South	5%
Dallons Drive	Local Area West of Site	5%
<b>Total</b>		<b>100%</b>



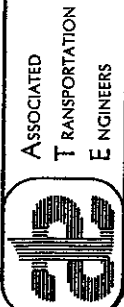
★ PROJECT SITE



**LEGEND**

- (%) - Distribution Percentage
- XX - (A.M.)P.M. Peak Hour Volumes
- X - Average Daily Traffic Volumes

N  
NOT TO SCALE



ASSOCIATED  
TRANSPORTATION  
ENGINEERS

PASO ROBLES MOTOR COACH RESORT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 6

JJK - #07115

The project trip generation from Table 4 was added to the Near-Term Cumulative traffic volumes to identify the impacts related to the PRMCR project.

**Near-Term Cumulative + PRMCR Roadway Operations**

On summertime weekdays State Route 46E would continue to operate in the LOS "F" range with the addition of PRMCR traffic and with the mitigations noted in the GHRC report would attain LOS "D" or better.

**Near-Term Cumulative + PRMCR Intersection Operations**

Near-Term Cumulative and Near-Term Cumulative + PRMCR levels of service are shown in Table 6. The traffic volumes are illustrated on Figure 7.

**Table 7  
Near-Term Cumulative and Near-Term Cumulative + PRMCR Intersection Levels of Service**

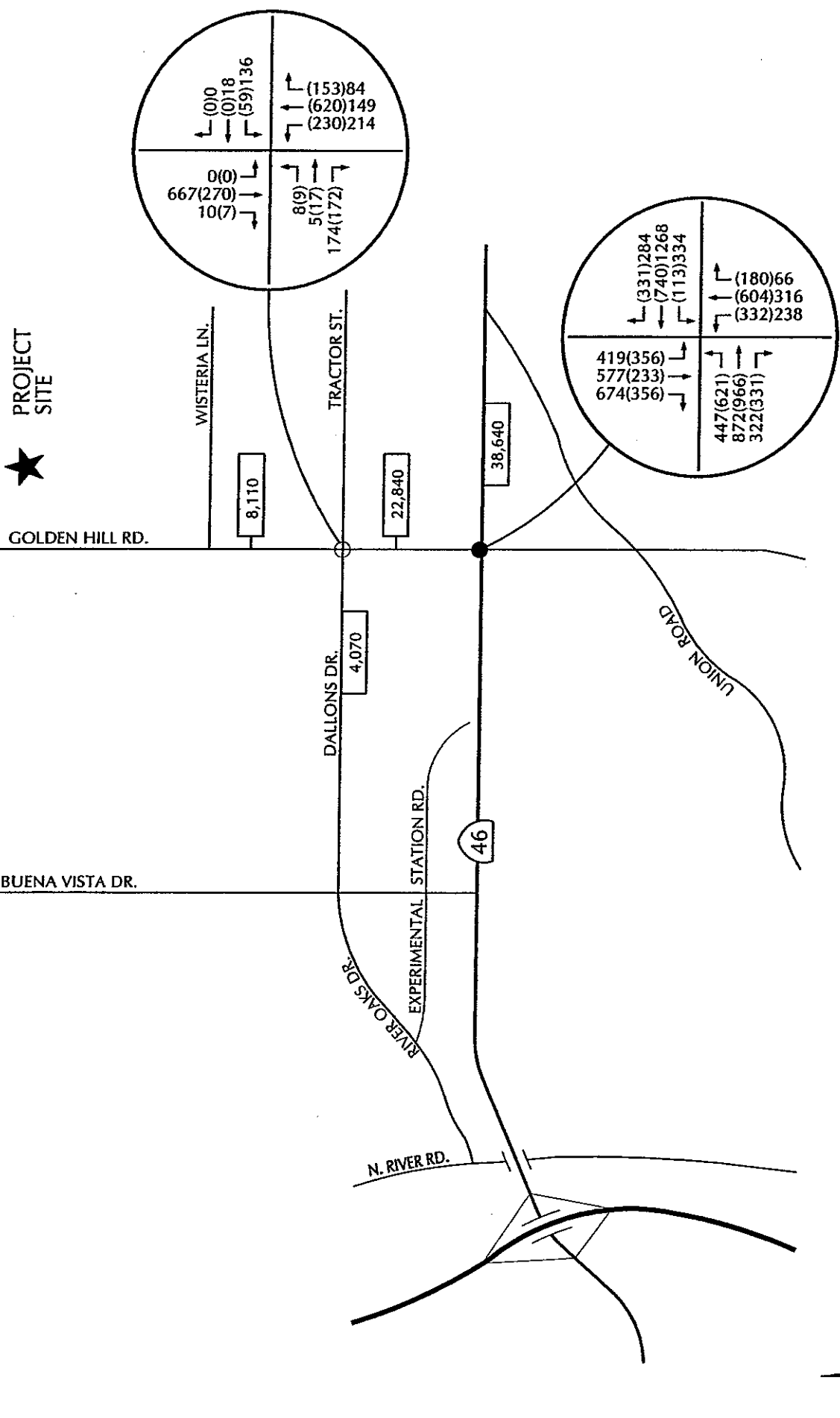
Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Near-Term	Near-Term + Project	Near-Term	Near-Term + Project
State Route 46E/Golden Hill Rd.	51.6 sec./LOS D	50.2 sec./LOS D	93.6 sec./LOS F	93.6 sec./LOS F
Golden Hill Rd./Dallons Dr.	7.0 sec./LOS A	7.2 sec./LOS A	18.2 sec./LOS B	22.0 sec./LOS C

LOS based on average delay per vehicle in seconds.

The PRMCR's addition to peak hour traffic at Golden Hill Road/SR 46E would have only a minor effect on vehicle delay during the A.M. and P.M. peak hours. The addition of a through lane in the eastbound and westbound directions on State Route 46E would provide 45.5 seconds/LOS "D" in the A.M. and 60.6 seconds/LOS "E" in the P.M. The Golden Hill Road/Dallons Drive intersection operation would remain in the LOS "A" range in the A.M. and in the LOS "C" range in the P.M. with the addition of traffic from the PRMCR project. It was noted in the GHRC report that the projected delays are lower than the delays currently being experienced.

The City of Paso Robles has a traffic fee program to address future traffic and circulation needs. The project would be required to contribute to the fee program to mitigate its' incremental impact. The PRMCR project traffic contribution using the City Calculation method is as follows:

Golden Hill Road/SR 46E	1.7% A.M. and 2.3% P.M.
Dallons Drive/Golden Hill Road	6.5% A.M. and 11.1% P.M.



**LEGEND**

XX - (A.M.)P.M. Peak Hour Volumes

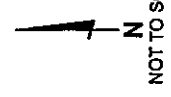
X - Average Daily Traffic Volumes

**FIGURE 7**

JJK - #07115

**GHRC NEAR-TERM CUMULATIVE + PASO ROBLES MOTOR COACH RESORT TRAFFIC VOLUMES**

ASSOCIATED  
TRANSPORTATION  
ENGINEERS



## 2030 GENERAL PLAN BUILDOUT TRAFFIC ANALYSIS

### ROADWAY IMPROVEMENTS GENERAL PLAN BUILDOUT

The Circulation Master Plan is illustrated on Figure CE-1 in the Circulation Element of the Paso Robles General. The planned number of lanes on the roadway segments for the General Plan area are shown on Table CE-3 and the projected roadway improvements required for the General Plan Buildout are shown on Table CE-4. The analysis for the General Plan for the intersections along State Route 46E were based upon a six lane arterial from U.S. Highway 101 to Union Road and a four lane arterial from Union Road to Dry Creek-Jardine Road. There is a mention of freeway sections depending on the outcome/conclusion from the State Route 46E Corridor Study.

On Figure CE-1, Golden Hill Road is shown as a four lane arterial from State Route 46E to Dry Creek Road with Dry Creek Road being extended from Airport Road to Golden Hill Road and then on to Buena Vista Road. Dallons Road is shown as a collector from Golden Hill Road to North River Road. The Borkey Specific Plan has Tractor Street connecting to Golden Hill Road and providing access to the industrial area east of Golden Hill. South of State Route 46E, Golden Hill Road is shown as a four lane arterial extending to Creston Road.

### POTENTIAL LAND USE DESCRIPTION

The evaluation of a GPA requires the development of the trip generation and distribution for the requested land use designation to be compared to the land uses allowed under the current General Plan. A reasonable level of development on the existing parcels with the appropriate AG zoning is as follows:

- General Plan Land Use Designation: AG
- Airport Safety Zones: 3 & 5
  - Airport Zone Max Non-residential Land Use Density: 150 Persons/acre<sup>1</sup>
- Site Area = 160 acres

The Potential Development that could occur on the three parcels is shown on Table 8.

---

<sup>1</sup> From Airport Land Use Plan dated May 16, 2007 Table 5, page 4-12

**Table 8  
Potential Development Scenario**

Type of Use	Units
Casitas	400 units
Hotels (2 @ 50 rooms)	100 rooms
Conference Center	4000 sq. ft.
Restaurant	4,000 sq. ft.
Wine Tasting	5,000 sq. ft.
Wine Production/Boutique	10,000 sq. ft.
Wine Museum	5,000 sq. ft.

These uses could be placed on the three parcels in different configurations depending upon the market at the time of development and the particular desires of the developer. For purposes of trip generation comparison with the Paso Robles Motorcoach Resort, we will evaluate the 500 casitas/hotel rooms and assume the other uses would be ancillary to the casitas/hotel use. The trip generation for the 500 room development is shown on Table 9. The comparison between the Potential Project and the PRMCR project is shown on Table 10.

**Table 9  
Potential Project Trip Generation**

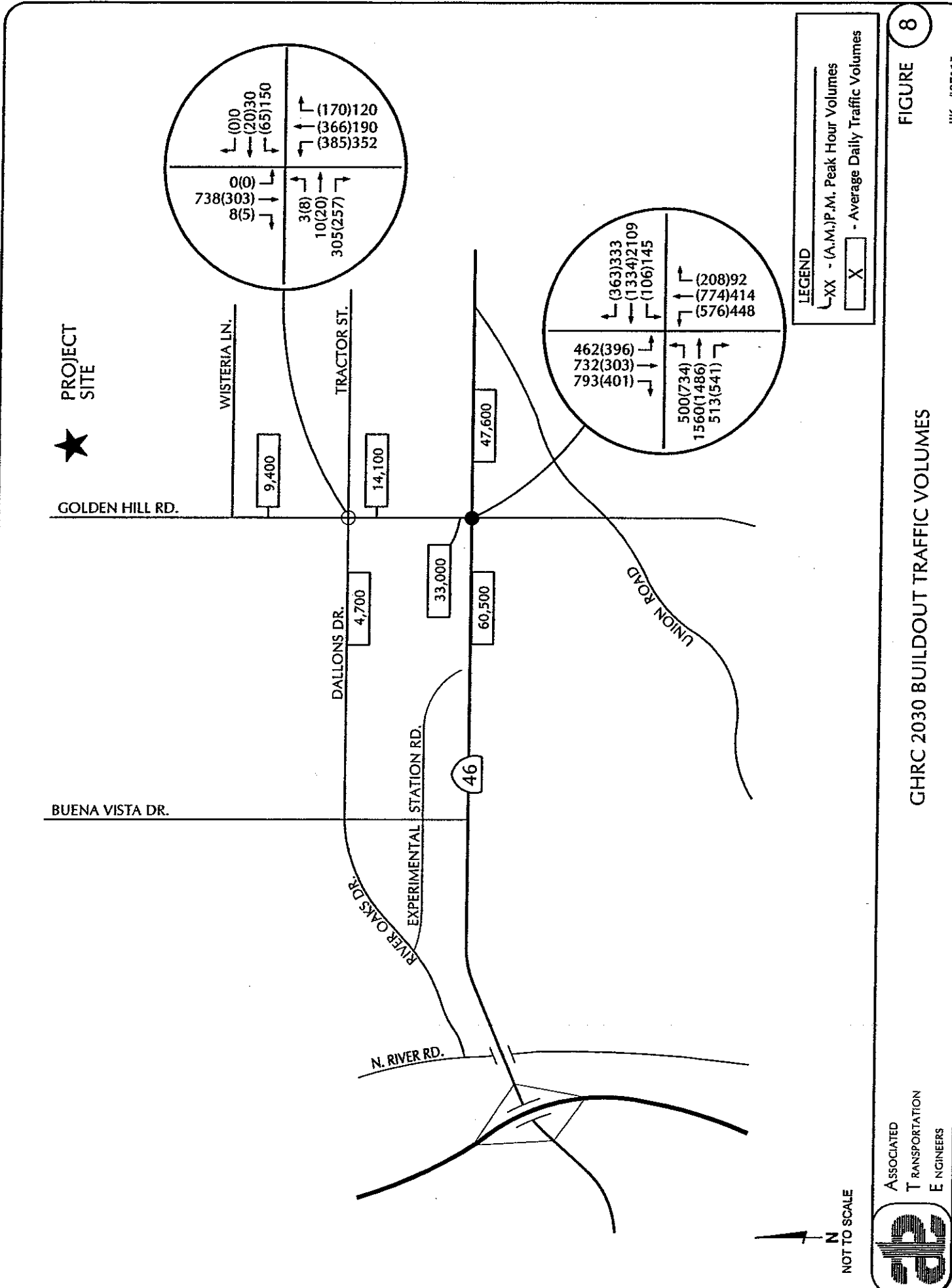
Land Use	Size	ADT	A.M. Peak Hour			P.M. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
Resort Hotel	500 Rooms	2,450	135	50	185	105	140	245

The PRMCR project will generate less traffic than the Potential Project, thus, would be consistent with the current General Plan traffic projections as shown in Table 10.

**Table 10  
Paso Robles Motorcoach Trip Generation Comparison**

Land Use	Size	ADT	A.M. Peak Hour			P.M. Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
RV Park	380 Spaces	1,406	30	46	76	99	42	141
Resort Hotel	500 Spaces	2,450	135	50	185	105	140	245
Difference (RV Park - Resort Hotel):		<b>-1,044</b>	<b>-105</b>	<b>-4</b>	<b>-109</b>	<b>-6</b>	<b>-98</b>	<b>-104</b>

ADT = Average Daily Trips



GHRC 2030 BUILDOUT TRAFFIC VOLUMES

## 2030 General Plan Buildout Roadway Operations

State Route 46 E, between Route 101 and Airport Road is forecast to operate in the LOS "F" range.

Golden Hill Road, between Dallons Drive and SR 46E is forecast to operate in the LOS "E" range.

The PRMCR traffic projections are less than the Potential Project in the AG zone on the current three parcels, thus would not exacerbate the 2030 General Plan Buildout traffic conditions.

## 2030 General Plan Buildout Intersection Operations

Table 11 shows the 2030 Buildout levels of service for the study-area intersections with the Near-Term Cumulative mitigations as outlined in the GHRC traffic study.

**Table 11**  
**2030 General Plan Buildout Intersection Levels of Service**

Intersection	A.M. Peak Hour	P.M. Peak Hour
State Route 46/Golden Hill Rd. (S)	96.6 sec./LOS F	158.6 sec./LOS F
Golden Hill Rd./Dallons Dr. (S)	12.4 sec./LOS B	16.6 sec./LOS B

(S) = Signalized intersection;  
(U) = Unsignalized intersection;  
LOS based on average delay per vehicle in seconds.

Table 11 shows that the Golden Hill Road/Dallons Drive intersection operates at an acceptable LOS with the installation of a traffic signal.

The mitigation proposed in the GHRC traffic analysis for Golden Hill Road/SR 46E for the 2030 Buildout was a spread diamond interchange (Type L-1). The resultant LOS for the ramp intersections are shown on Table 12.

**Table 12**  
**2030 General Plan Buildout Intersection Levels of Service**

Intersection	A.M. Peak Hour	P.M. Peak Hour
State Route 46 WB Ramps/Golden Hill Rd. (S)	43.9 sec./LOS D	54.7 sec./LOS D
State Route 46 EB Ramps/Golden Hill Rd. (S)	100.3 sec./LOS F	43.9 sec./LOS D
Golden Hill Rd./Dallons Dr. (S)	12.4 sec./LOS B	16.6 sec./LOS B

(S) = Signalized intersection;  
(U) = Unsignalized intersection;  
LOS based on average delay per vehicle in seconds.

The spread diamond with dual eastbound left-turn lanes results in LOS "F" at the off-ramp intersection. In order to attain LOS "D" or better, it will be necessary to have three eastbound

left-turn lanes (requiring a wider structure) or use a modified Type L-8, which would have the eastbound off-ramp as a loop ramp.

## RECOMMENDATION

The 2030 General Plan Buildout analysis shows that Route 46E/Golden Hill Road intersection is forecast to exceed the City's threshold. The development of a street system north of and parallel to Route 46E will provide an alternate route for the development in that area. The Circulation Element Figure CE-1 illustrates a connection of Golden Hill Road to Dry Creek Road. This would provide a street system parallel to State Route 46E from Jardine Road to Golden Hill Road and via Dallons Drive to North River Road. The PRMCR project description includes the offer of dedication for the applicable right of way and will participate in the construction Golden Hill Road as a two lane roadway. The City has recently authorized a study to evaluate and facilitate the development of the parallel route. Developments within the GPA area and those projects within the area to be served by the parallel route should participate in funding of the route study.

■ ■ ■



## STUDY PARTICIPANTS AND REFERENCES

### Associated Transportation Engineers

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Josh Kohlhaus, Traffic Technician

### Persons Contacted

John Falkenstein, City of Paso Robles  
Ken Munde, Wine Country RV Resort  
Doug McCurdy, Wine Country RV Resort  
Larry Werner, North Coast Engineering

### References

Golden Hill Retail Center, Final Transportation Impact Analysis, Fehr & Peers, June 14, 2007

Highway Capacity Manual, Transportation Research Special Report 209, National Research Council, 2000.

Land Use and Circulation Elements, City of Paso de Robles General Plan, 1991/2000.

# TECHNICAL APPENDIX

## CONTENTS

GHRC NEAR-TERM CUMULATIVE

CITY OF PASO ROBLES ROADWAY ENGINEERING DESIGN CAPACITIES

LEVEL OF SERVICE DEFINITION

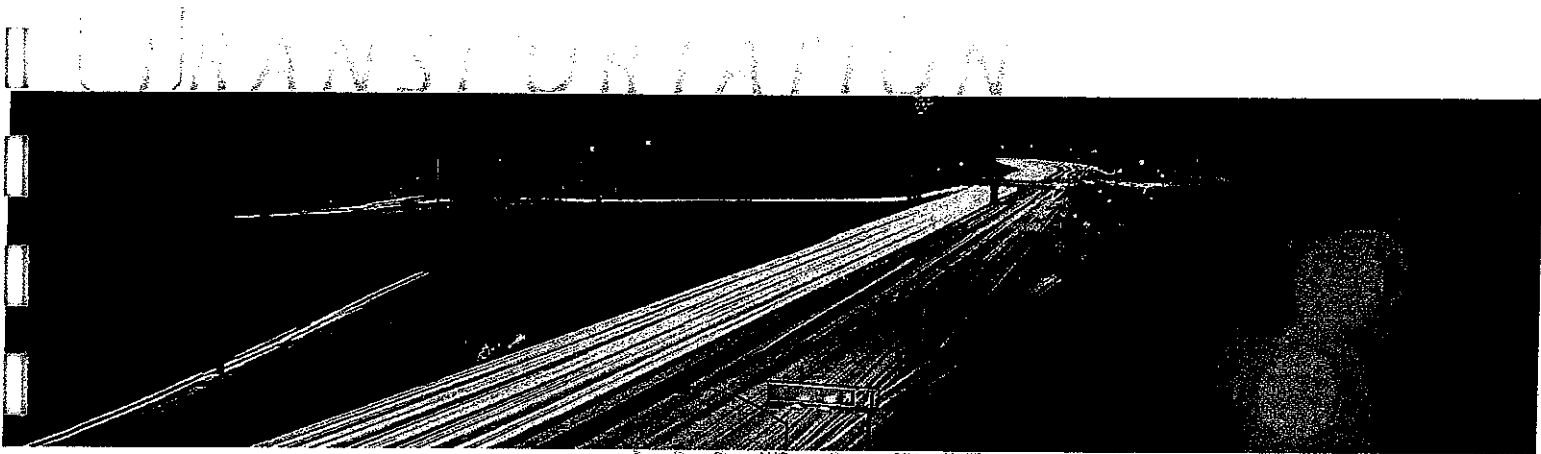
INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

Reference 1 - State Route 46/Golden Hill Road

Reference 2 - Golden Hill Road/Dallons Drive

# GHRC NEAR-TERM CUMULATIVE

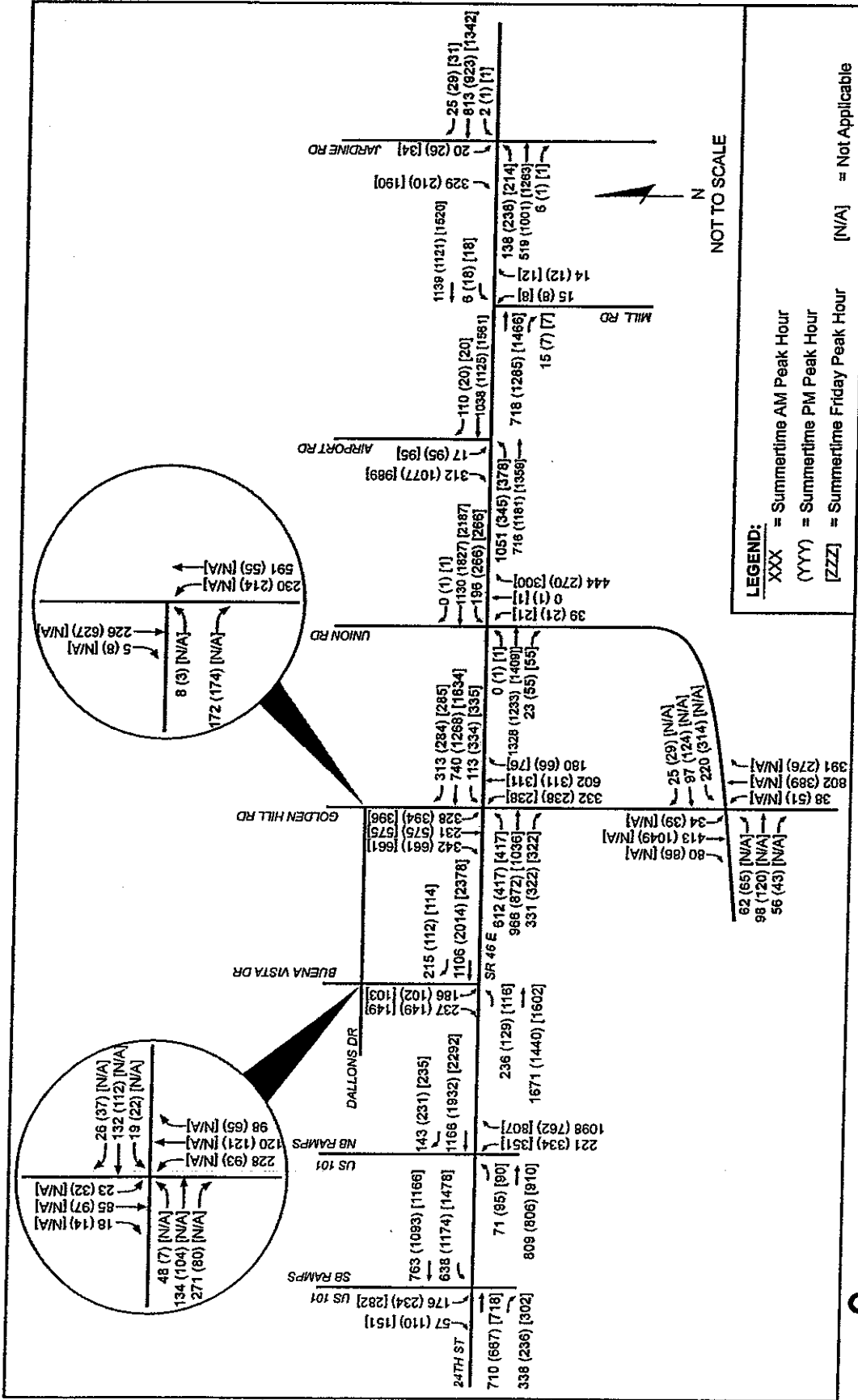
**Final Transportation Impact Analysis**  
**Golden Hill Retail Center**



**FEHR & PEERS**  
TRANSPORTATION CONSULTANTS

**160 W. Santa Clara St., Ste. 675**  
**San Jose, CA 95113**

**June 14, 2007**



**FEHR & PEERS**  
 TRANSPORTATION CONSULTANTS

April 2007  
 SJ05-876

Golden Hill Retail Center

**NEAR-TERM CUMULATIVE PEAK-HOUR TRAFFIC VOLUMES**

**FIGURE 11**

# CITY OF PASO ROBLES ROADWAY ENGINEERING DESIGN CAPACITIES

**TABLE 3  
LEVEL OF SERVICE THRESHOLD VOLUMES  
FOR URBAN/SUBURBAN ROADWAY TYPES**

Roadway Type	Total Daily Vehicles in Both Directions (ADT)				
	Level of Service A	Level of Service B	Level of Service C	Level of Service D	Level of Service E
4-Lane Divided Freeway	28,000	43,200	61,600	74,400	80,000
6-Lane Divided Arterial (with left-turn lane)	32,000	38,000	43,000	49,000	54,000
4-Lane Divided Arterial (with left-turn lane)	22,000	25,000	29,000	32,500	36,000
4-Lane Undivided Arterial (no left-turn lane)	18,000	21,000	24,000	27,000	30,000
2-Lane Collector (with left-turn lane)	11,000	12,500	14,500	16,000	18,000
2-Lane Collector (no left-turn lane)	8,000	9,500	10,500	12,000	13,500

*ADT = Average Daily Traffic*

*Note:*

1. Based on *"Highway Capacity Manual"*, Transportation Research Board, 1997.
2. All volumes are approximate and assume ideal roadway characteristics. Actual threshold volumes for each Level of Service listed above may vary depending on a number of factors including curvature and grade, intersection or interchange spacing, percentage of trucks and other heavy vehicles, lane widths, signal timing, on-street parking, amount of cross traffic and pedestrians, driveway spacing, etc.

The existing roadway traffic operations are summarized in Table 4.

### TRAVEL SURVEY

In addition to obtaining the daily and peak hour traffic counts throughout the City, a travel survey was conducted in downtown and at four local commercial centers. On Wednesday and Thursday, March 24 and 25, 2000, a six question travel survey, as shown on Figure 5, was asked of local shoppers in downtown Paso Robles and at the following shopping centers:

- Von's Center on Creston Road
- Woodland Plaza I (Albertson's) on Niblick Road
- Woodland Plaza II (Walmart) on Niblick Road
- Target Center on Theater Drive

At each of these locations, approximately fifty (50) sample travel surveys were conducted by interviewing willing shoppers. The interviews were conducted on a mid-weekday and although the information is not statistically significant, nonetheless, it presented findings that were informative and helpful in understanding local travel patterns for the calibration of the traffic model.

# LEVEL OF SERVICE DEFINITION



### Signalized Intersection Level of Service Definitions

LOS	Delay <sup>a</sup>	V/C Ratio	Definition
A	< 10.0	< 0.60	Progression is extremely favorable. Most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	10.1 - 20.0	0.61 - 0.70	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20.1 - 35.0	0.71 - 0.80	Only fair progression, longer cycle lengths, or both, result in higher cycle lengths. Cycle lengths may fail to serve queued vehicles, and overflow occurs. Number of vehicles stopped is significant, though many still pass through intersection without stopping.
D	35.1 - 55.0	0.81 - 0.90	Congestion becomes more noticeable. Unfavorable progression, long cycle lengths and high v/c ratios result in longer delays. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55.1 - 80.0	0.91 - 1.00	High delay values indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent
F	> 80.0	> 1.00	Considered unacceptable for most drivers, this level occurs when arrival flow rates exceed the capacity of lane groups, resulting in many individual cycle failures. Poor progression and long cycle lengths may also contribute to high delay levels.

<sup>a</sup> Average control delay per vehicle in seconds.

### Unsignalized Intersection Level of Service Definitions

The HCM<sup>1</sup> uses *control delay* to determine the level of service at unsignalized intersections. Control delay is the difference between the travel time actually experienced at the control device and the travel time that would occur in the absence of the traffic control device. Control delay includes deceleration from free flow speed, queue move-up time, stopped delay and acceleration back to free flow speed.

LOS	Control Delay Seconds per Vehicle
A	< 10.0
B	10.1 - 15.0
C	15.1 - 25.0
D	25.1 - 35.0
E	35.1 - 50.0
F	> 50.0

<sup>1</sup> Highway Capacity Manual, National Research Board, 2000

# INTERSECTION LEVEL SERVICE CALCULATION WORKSHEETS

**Reference 1 - State Route 46/Golden Hill Road**  
**Reference 2 - Golden Hill Road/Dallons Road**

4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗			↖ ↗			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0				4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00				1.00	
Frbp, ped/bikes	1.00	0.98		1.00	1.00		1.00				0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00				1.00	
Frt	1.00	0.94		1.00	0.98		1.00				0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.97				0.98	
Satd. Flow (prot)	1719	2995		1719	3128		1748				1673	
Flt Permitted	0.95	1.00		0.95	1.00		0.97				0.98	
Satd. Flow (perm)	1719	2995		1719	3128		1748				1673	
Volume (vph)	113	551	338	50	609	75	345	192	14	175	78	140
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.80	0.80	0.80	0.70	0.70	0.70
Adj. Flow (vph)	130	633	389	54	662	82	431	240	18	250	111	200
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	130	1022	0	54	744	0	0	689	0	0	561	0
Confl. Peds. (#/hr)			5			5			5			5
Heavy Vehicles (%)	5%	16%	5%	5%	14%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Prot		Split		Split					
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	16.1	58.4		8.4	50.7		50.2			30.5		
Effective Green, g (s)	15.6	61.7		7.9	54.0		51.1			31.4		
Actuated g/C Ratio	0.09	0.37		0.05	0.32		0.30			0.19		
Clearance Time (s)	3.5	7.3		3.5	7.3		4.9			4.9		
Vehicle Extension (s)	2.0	3.0		2.0	3.0		3.5			3.5		
Lane Grp Cap (vph)	160	1099		81	1005		531			313		
v/s Ratio Prot	c0.08	c0.34		0.03	0.24		c0.39			c0.34		
v/s Ratio Perm												
v/c Ratio	0.81	0.93		0.67	0.74		1.30			1.79		
Uniform Delay, d1	74.8	51.1		78.8	50.8		58.5			68.4		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	24.8	13.3		14.9	3.0		147.3			369.1		
Delay (s)	99.6	64.4		93.7	53.8		205.8			437.5		
Level of Service	F	E		F	D		F			F		
Approach Delay (s)		68.4			56.5		205.8			437.5		
Approach LOS		E			E		F			F		
<b>Intersection Summary</b>												
HCM Average Control Delay		159.7			HCM Level of Service		F					
HCM Volume to Capacity ratio		1.20										
Actuated Cycle Length (s)		168.1			Sum of lost time (s)		12.0					
Intersection Capacity Utilization		84.1%			ICU Level of Service		E					
Analysis Period (min)		15										
c Critical Lane Group												

4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕			↕		↘	↕	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0				4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00				1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99			1.00				0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00				1.00
Frt	1.00	0.95		1.00	0.99			0.99				0.96
Flt Protected	0.95	1.00		0.95	1.00			0.97				0.98
Satd. Flow (prot)	1719	3008		1719	3010			1730				1694
Flt Permitted	0.95	1.00		0.95	1.00			0.97				0.98
Satd. Flow (perm)	1719	3008		1719	3010			1730				1694
Volume (vph)	127	735	340	40	856	75	242	101	29	113	122	99
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.81	0.81	0.81	0.88	0.88	0.88
Adj. Flow (vph)	137	790	366	44	941	82	299	125	36	128	139	112
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	137	1156	0	44	1023	0	0	460	0	0	379	0
Confl. Peds. (#/hr)			10			10			10			10
Heavy Vehicles (%)	5%	15%	5%	5%	19%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot			Split			Split		
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases												
Actuated Green, G (s)	17.2	70.4		7.6	60.8		48.2			30.4		
Effective Green, g (s)	16.7	73.7		7.1	64.1		49.1			31.3		
Actuated g/C Ratio	0.09	0.42		0.04	0.36		0.28			0.18		
Clearance Time (s)	3.5	7.3		3.5	7.3		4.9			4.9		
Vehicle Extension (s)	2.0	3.0		2.0	3.0		3.5			3.5		
Lane Grp Cap (vph)	162	1251		69	1089		479			299		
v/s Ratio Prot	c0.08	c0.38		0.03	0.34		c0.27			c0.22		
v/s Ratio Perm												
v/c Ratio	0.85	0.92		0.64	0.94		0.96			1.27		
Uniform Delay, d1	79.0	49.1		83.8	54.7		63.1			73.0		
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00		
Incremental Delay, d2	30.2	12.8		13.3	16.1		31.2			144.2		
Delay (s)	109.2	61.8		97.1	70.8		94.3			217.2		
Level of Service	F	E		F	E		F			F		
Approach Delay (s)		66.9			71.9		94.3			217.2		
Approach LOS		E			E		F			F		

Intersection Summary			
HCM Average Control Delay	90.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	177.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑↑	↗	↔↔	↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.98
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	1.00	1.00	1.00	0.85
Fl Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	3112	1505	3335	3167	1485	3335	3307	3335	1810	1511	1511
Fl Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	3112	1505	3335	3167	1485	3335	3307	3335	1810	1511	1511
Volume (vph)	612	966	331	113	740	313	391	602	180	328	231	342
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	644	1017	348	119	779	329	391	634	189	345	243	366
RTOR Reduction (vph)	0	0	215	0	0	216	0	0	0	0	0	264
Lane Group Flow (vph)	644	1017	133	119	779	113	391	823	0	345	243	96
Confl. Peds. (#/hr)			5			5			5			5
Heavy Vehicles (%)	5%	16%	5%	5%	14%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5		2	1		6	3		8	7		4
Permitted Phases			2			6						4
Actuated Green, G (s)	23.5	41.6	41.6	7.7	25.8	25.8	17.0	32.0	15.3	30.3	30.3	30.3
Effective Green, g (s)	23.0	44.9	44.9	7.2	29.1	29.1	17.9	32.9	16.2	31.2	31.2	31.2
Actuated g/C Ratio	0.20	0.38	0.38	0.06	0.25	0.25	0.15	0.28	0.14	0.27	0.27	0.27
Clearance Time (s)	3.5	7.3	7.3	3.5	7.3	7.3	4.9	4.9	4.9	4.9	4.9	4.9
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	654	1192	577	205	786	369	509	928	461	482	402	402
v/s Ratio Prot	0.19	0.33		0.04	0.25		0.12	0.25	0.10	0.13		
v/s Ratio Perm			0.09			0.08						0.06
v/c Ratio	0.98	0.85	0.23	0.58	0.99	0.31	0.77	0.89	0.75	0.50	0.24	0.24
Uniform Delay, d1	46.9	33.1	24.5	53.5	43.9	35.8	47.7	40.4	48.5	36.4	33.7	33.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.0	6.1	0.2	2.7	29.8	0.5	7.1	10.4	6.8	1.0	0.4	0.4
Delay (s)	77.9	39.2	24.7	56.2	73.7	36.3	54.7	50.8	55.3	37.4	34.1	34.1
Level of Service	E	D	C	E	E	D	D	D	E	D	C	C
Approach Delay (s)		49.1			62.0			52.1		42.6		
Approach LOS		D			E			D		D		D
<b>Intersection Summary</b>												
HCM Average Control Delay			51.6	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			117.2	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			84.0%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EB	EBR	WBL	WB	WBR	NEB	NE	NBR	SBL	SB	SBR
Lane Configurations	↖↖	↕↕	↗	↖↖	↕↕	↗	↖↖	↕↕	↗	↖↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	1.00	0.98
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3335	3139	1500	3335	3034	1483	3335	3335		3335	1810	1512
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3335	3139	1500	3335	3034	1483	3335	3335		3335	1810	1512
Volume (vph)	417	872	322	334	1268	284	260	311	66	394	575	661
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	439	918	339	352	1335	299	274	327	69	415	605	696
RTOR Reduction (vph)	0	0	37	0	0	89	0	0	0	0	0	4
Lane Group Flow (vph)	439	918	302	352	1335	210	274	396	0	415	605	692
Confl. Peds. (#/hr)			10			10			10			10
Heavy Vehicles (%)	5%	15%	5%	5%	19%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases		2		6		6						4
Actuated Green, G (s)	14.5	36.9	47.0	14.3	36.7	50.8	10.1	34.1		14.1	38.1	52.6
Effective Green, g (s)	14.0	40.2	51.2	13.8	40.0	55.0	11.0	35.0		15.0	39.0	53.0
Actuated g/C Ratio	0.12	0.34	0.43	0.12	0.33	0.46	0.09	0.29		0.12	0.32	0.44
Clearance Time (s)	3.5	7.3	4.9	3.5	7.3	4.9	4.9	4.9		4.9	4.9	3.5
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0		2.0	3.0	2.0
Lane Grp Cap (vph)	389	1052	690	384	1011	729	306	973		417	588	718
v/s Ratio Prot	0.13	0.29	0.04	0.11	0.44	0.04	0.08	0.12		0.12	0.33	0.11
v/s Ratio Perm			0.16			0.11						0.35
v/c Ratio	1.13	0.87	0.44	0.92	1.32	0.29	0.90	0.41		1.00	1.03	0.96
Uniform Delay, d1	53.0	37.5	24.2	52.5	40.0	20.3	53.9	34.2		52.5	40.5	32.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	85.4	10.0	0.2	25.7	151.2	0.1	26.0	0.3		42.5	44.7	24.7
Delay (s)	138.4	47.5	24.4	78.2	191.2	20.4	79.9	34.4		95.0	85.2	57.2
Level of Service	F	D	C	E	F	C	E	C		F	F	E
Approach Delay (s)		66.4			145.5			53.0			76.2	
Approach LOS		E			F			D			E	
<b>Intersection Summary</b>												
HCM Average Control Delay	93.6			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.12											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	98.0%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑		↑↑	↑	↑
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3335	3112	1503	3335	3167	1503	3335	3303		3335	1810	1503
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3335	3112	1503	3335	3167	1503	3335	3303		3335	1810	1503
Volume (vph)	621	966	331	113	740	331	332	604	180	356	233	356
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	654	1017	348	119	779	348	349	636	189	375	245	375
RTOR Reduction (vph)	0	0	204	0	0	188	0	0	0	0	0	307
Lane Group Flow (vph)	654	1017	144	119	779	160	349	825	0	375	245	68
Confl. Peds. (#/hr)			5			5			5			5
Heavy Vehicles (%)	5%	16%	5%	5%	14%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1		6
Permitted Phases			4			8						6
Actuated Green, G (s)	24.6	48.6	48.6	6.0	30.0	30.0	25.2	32.2		14.4	21.4	21.4
Effective Green, g (s)	24.6	48.6	48.6	6.0	30.0	30.0	25.2	32.2		14.4	21.4	21.4
Actuated g/C Ratio	0.21	0.41	0.41	0.05	0.25	0.26	0.22	0.27		0.12	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	700	1290	623	171	811	385	717	907		410	330	274
v/s Ratio Prot	0.20	0.33		0.04	0.25		0.10	0.25		0.11	0.14	
v/s Ratio Perm			0.10			0.11						0.05
v/c Ratio	0.93	0.79	0.23	0.70	0.96	0.41	0.49	0.91		0.91	0.74	0.25
Uniform Delay, d1	45.5	29.8	22.2	54.7	43.0	36.3	40.3	41.1		50.8	45.3	41.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.5	3.3	0.2	11.6	22.4	0.7	0.5	14.7		24.6	8.7	0.5
Delay (s)	65.1	33.1	22.4	66.3	65.4	37.0	40.9	55.8		75.4	54.0	41.5
Level of Service	E	C	C	E	E	D	D	E		E	D	D
Approach Delay (s)		41.6			57.6			51.3			57.3	
Approach LOS		D			E			D			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			50.2	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			117.2	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			84.2%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

Paso Robles Motor Coach  
PM Peak Hour Traffic

2: State Route 46 & Golden Hill Road  
1/11/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑↑	↖	↖↗	↑	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3335	3139	1486	3335	3034	1486	3335	3330		3335	1810	1486
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3335	3139	1486	3335	3034	1486	3335	3330		3335	1810	1486
Volume (vph)	447	872	322	334	1268	284	238	316	66	419	577	674
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	471	918	339	352	1355	299	251	333	69	441	607	709
RTOR Reduction (vph)	0	0	132	0	0	141	0	0	0	0	0	172
Lane Group Flow (vph)	471	918	207	352	1335	158	251	402	0	441	607	537
Confl. Peds. (#/hr)			10			10			10			10
Heavy Vehicles (%)	5%	15%	5%	5%	19%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1		6
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	43.2	43.2	14.8	44.0	44.0	8.0	27.6		18.4	38.0	38.0
Effective Green, g (s)	14.0	43.2	43.2	14.8	44.0	44.0	8.0	27.6		18.4	38.0	38.0
Actuated g/C Ratio	0.12	0.36	0.36	0.12	0.37	0.37	0.07	0.23		0.15	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	389	1130	535	411	1112	545	222	766		511	573	471
v/s Ratio Prot	c0.14	0.29		0.11	c0.44		c0.08	0.12		0.13	0.34	
v/s Ratio Perm			0.14			0.11						c0.36
v/c Ratio	1.21	0.81	0.39	0.86	1.20	0.29	1.13	0.52		0.86	1.06	1.14
Uniform Delay, d1	53.0	34.7	28.6	51.6	38.0	26.9	56.0	40.5		49.6	41.0	41.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	116.5	4.6	0.5	15.9	99.1	0.3	100.0	2.6		14.0	54.3	86.3
Delay (s)	169.5	39.3	29.0	67.5	137.1	27.2	156.0	43.0		63.6	95.3	127.3
Level of Service	F	D	C	E	F	C	F	D		E	F	F
Approach Delay (s)		72.8			108.2			86.5			100.2	
Approach LOS		E			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay	93.6			HCM Level of Service				F				
HCM Volume to Capacity ratio	1.17											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)				16.0				
Intersection Capacity Utilization	98.3%			ICU Level of Service				F				
Analysis Period (min)	15											
c Critical Lane Group												



4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↖↗	↑	↖↗
Ideal Flow (vpph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util Factor	0.97	0.97	1.00	0.97	0.97	1.00	0.97	0.95	0.97	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	4472	1515	3335	4550	1506	3335	3317	3335	1810	1523	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	4472	1515	3335	4550	1506	3335	3317	3335	1810	1523	1523
Volume (vph)	734	1486	541	106	1334	363	576	774	208	396	303	410
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	773	1564	569	112	1404	382	606	815	219	417	319	432
RTOR Reduction (vph)	0	0	99	0	0	10	0	0	0	0	0	2
Lane Group Flow (vph)	773	1564	470	112	1404	372	606	1034	0	417	319	430
Confl. Peds. (#/hr)			5			5			5			5
Heavy Vehicles (%)	5%	16%	5%	5%	14%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5	5
Permitted Phases		2			6					4		4
Actuated Green, G (s)	24.5	40.1	59.2	8.1	23.7	40.6	19.1	34.1	16.9	31.9	56.4	56.4
Effective Green, g (s)	24.0	43.4	63.4	7.6	27.0	44.8	20.0	35.0	17.8	32.8	56.8	56.8
Actuated g/C Ratio	0.20	0.36	0.53	0.06	0.23	0.37	0.17	0.29	0.15	0.27	0.47	0.47
Clearance Time (s)	3.5	7.3	4.9	3.5	7.3	4.9	4.9	4.9	4.9	4.9	3.5	3.5
Vehicle Extension (s)	2.0	3.0	3.5	2.0	3.0	3.5	3.5	3.5	3.5	3.5	2.0	2.0
Lane Grp Cap (vph)	668	1620	852	212	1025	613	557	969	496	496	773	773
v/s Ratio Prot	0.23	0.35	0.09	0.03	0.31	0.09	0.18	0.31	0.13	0.18	0.11	0.11
v/s Ratio Perm			0.22			0.16					0.17	0.17
v/c Ratio	1.16	0.97	0.55	0.53	1.37	0.61	1.09	1.07	0.84	0.64	0.56	0.56
Uniform Delay, d1	47.9	37.5	18.7	54.4	46.4	30.4	49.9	42.4	49.6	38.3	22.5	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	86.9	14.9	0.9	1.1	172.7	1.8	64.2	48.6	12.5	3.0	0.5	0.5
Delay (s)	134.8	52.3	19.6	55.5	219.1	32.2	114.1	91.0	62.1	41.3	23.0	23.0
Level of Service	F	D	B	E	F	C	F	F	E	D	C	C
Approach Delay (s)		67.8			171.8			99.5		42.0		
Approach LOS		E			F			F		D		

Intersection Summary			
HCM Average Control Delay	96.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

4: SR 46 East & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑↑	↔↔	↔↔	↑	↔↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	0.97	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3335	4510	1501	3335	4359	1484	3335	3331	3335	1810	1512	3335
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3335	4510	1501	3335	4359	1484	3335	3331	3335	1810	1512	3335
Volume (vph)	500	1560	513	145	2109	333	448	414	92	462	732	793
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	526	1642	540	153	2220	351	472	436	97	486	771	835
RTOR Reduction (vph)	0	0	43	0	0	53	0	0	0	0	0	1
Lane Group Flow (vph)	526	1642	497	153	2220	298	472	533	0	486	771	834
Confl. Peds. (#/hr)			10			10			10			10
Heavy Vehicles (%)	5%	15%	5%	5%	19%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5	5
Permitted Phases		2		6		6		4		4		4
Actuated Green, G (s)	13.5	40.3	52.4	9.9	36.7	51.8	12.1	34.1	15.1	37.1	50.6	50.6
Effective Green, g (s)	13.0	43.6	56.6	9.4	40.0	56.0	13.0	35.0	16.0	38.0	51.0	51.0
Actuated g/C Ratio	0.11	0.36	0.47	0.08	0.33	0.47	0.11	0.29	0.13	0.32	0.42	0.42
Clearance Time (s)	3.5	7.3	4.9	3.5	7.3	4.9	4.9	4.9	4.9	4.9	3.5	3.5
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0
Lane Grp Cap (vph)	361	1639	758	261	1453	742	361	972	445	573	693	693
v/s Ratio Prot	0.16	c0.36	0.07	0.05	c0.51	0.05	c0.14	0.16	0.15	c0.43	c0.13	c0.13
v/s Ratio Perm			0.26			0.15						0.42
v/c Ratio	1.46	1.00	0.66	0.59	1.53	0.40	1.31	0.55	1.09	1.35	1.20	1.20
Uniform Delay, d1	53.5	38.2	24.2	53.4	40.0	21.0	53.5	35.8	52.0	41.0	34.5	34.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	220.5	22.7	1.6	2.2	241.1	0.1	157.0	0.6	69.9	166.9	105.2	105.2
Delay (s)	274.0	60.9	25.8	55.6	281.1	21.1	210.5	36.5	121.9	207.9	139.7	139.7
Level of Service	F	E	C	E	F	C	F	D	F	F	F	F
Approach Delay (s)		95.3		234.9		118.2		160.7				
Approach LOS		F		F		F		F				

Intersection Summary			
HCM Average Control Delay	158.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	119.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

4a: SR 46 WB Ramps & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↗	↘	↕			↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor					0.95	0.95	0.97	0.95			0.95	0.88
Fr <sub>t</sub>					0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1306	1268	2894	2983			2983	2349
Flt Permitted					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1306	1268	2894	2983			2983	2349
Volume (vph)	0	0	0	106	0	747	534	1173	0	0	970	721
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	112	0	786	562	1235	0	0	1021	759
RTOR Reduction (vph)	0	0	0	0	49	49	0	0	0	0	0	467
Lane Group Flow (vph)	0	0	0	0	423	377	562	1235	0	0	1021	292
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2				6
Permitted Phases				8		8						6
Actuated Green, G (s)					39.0	39.0	24.6	72.1				43.5
Effective Green, g (s)					39.0	39.0	24.6	72.1				43.5
Actuated g/C Ratio					0.33	0.33	0.21	0.61				0.37
Clearance Time (s)					4.0	4.0	4.0	4.0				4.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0				3.0
Lane Grp Cap (vph)					428	415	598	1806				1090
v/s Ratio Prot							0.19	0.41				0.34
v/s Ratio Perm					0.32	0.30						0.12
v/c Ratio					0.99	0.91	0.94	0.68				0.94
Uniform Delay, d1					39.8	38.3	46.5	15.8				36.5
Progression Factor					1.00	1.00	1.00	1.00				1.00
Incremental Delay, d2					40.0	23.1	22.7	1.1				14.4
Delay (s)					79.8	61.4	69.2	16.9				50.9
Level of Service					E	E	E	B				D
Approach Delay (s)		0.0			71.1			33.3			41.0	
Approach LOS		A			E			C			D	

Intersection Summary			
HCM Average Control Delay	43.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

4a: SR 46 WB Ramps & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EB	EBT	EBR	WB	WBT	WBR	NB	NBT	NBR	SB	SBT	SBR
Lane Configurations					↕	↗	↗↘	↗↘			↕	↘
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor					1.00	1.00	0.97	0.95			0.95	0.88
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1492	1335	2894	2983			2983	2349
Flt Permitted					0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1492	1335	2894	2983			2983	2349
Volume (vph)	0	0	0	145	0	565	414	662	0	0	1392	1026
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	153	0	595	436	697	0	0	1465	1080
RTOR Reduction (vph)	0	0	0	0	0	199	0	0	0	0	0	462
Lane Group Flow (vph)	0	0	0	0	153	396	436	697	0	0	1465	618
Turn Type					Perm	Perm	Prot					Perm
Protected Phases						8	5	2				6
Permitted Phases					8		8					6
Actuated Green, G (s)					33.0	33.0	18.0	79.0			57.0	57.0
Effective Green, g (s)					33.0	33.0	18.0	79.0			57.0	57.0
Actuated g/C Ratio					0.28	0.28	0.15	0.66			0.48	0.48
Clearance Time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					410	367	434	1964			1417	1116
v/s Ratio Prot							c0.15	0.23			c0.49	
v/s Ratio Perm					0.10	c0.30						0.26
v/c Ratio					0.37	1.08	1.00	0.35			1.03	0.55
Uniform Delay, d1					35.1	43.5	51.0	9.1			31.5	22.4
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.6	69.4	44.4	0.5			33.1	2.0
Delay (s)					35.7	112.9	95.4	9.6			64.6	24.4
Level of Service					D	F	F	A			E	C
Approach Delay (s)		0.0			97.1			42.6			47.5	
Approach LOS		A			F			D			D	

Intersection Summary			
HCM Average Control Delay	54.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

4b: SR 46 EB Ramps & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SB	SBT	SBR	
Lane Configurations	↕↕		↕							↕↕	↗	↕↕	↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0							4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00							0.95	1.00	0.97	0.95	
Fr't	1.00	0.85							1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00							1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2894	1335							2983	1335	2894	2983	
Flt Permitted	0.95	1.00							1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2894	1335							2983	1335	2894	2983	
Volume (vph)	1151	0	533	0	0	0	0	1290	208	506	469	0	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	1212	0	561	0	0	0	0	1358	219	533	494	0	
RTOR Reduction (vph)	0	237	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	1212	324	0	0	0	0	0	1358	219	533	494	0	
Turn Type	Perm								Perm		Prot		
Protected Phases	4								2		1		
Permitted Phases	4								2				
Actuated Green, G (s)	42.0	42.0							48.0	48.0	18.0	70.0	
Effective Green, g (s)	42.0	42.0							48.0	48.0	18.0	70.0	
Actuated g/C Ratio	0.35	0.35							0.40	0.40	0.15	0.58	
Clearance Time (s)	4.0	4.0							4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0							3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1013	467							1193	534	434	1740	
v/s Ratio Prot	0.24								0.46		0.17		
v/s Ratio Perm	0.42								0.16				
v/c Ratio	1.20	0.69							1.14	0.41	1.23	0.28	
Uniform Delay, d1	39.0	33.5							36.0	25.8	51.0	12.5	
Progression Factor	1.00	1.00							1.00	1.00	1.00	1.00	
Incremental Delay, d2	98.1	4.4							72.8	0.5	121.5	0.1	
Delay (s)	137.1	37.9							108.8	26.4	172.5	12.6	
Level of Service	F	D							F	C	F	B	
Approach Delay (s)	105.7		0.0						97.4		95.6		
Approach LOS	F		A						F		F		

Intersection Summary			
HCM Average Control Delay	100.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

4b: SR 46 EB Ramps & Golden Hill Road

HCM Signalized Intersection Capacity Analysis

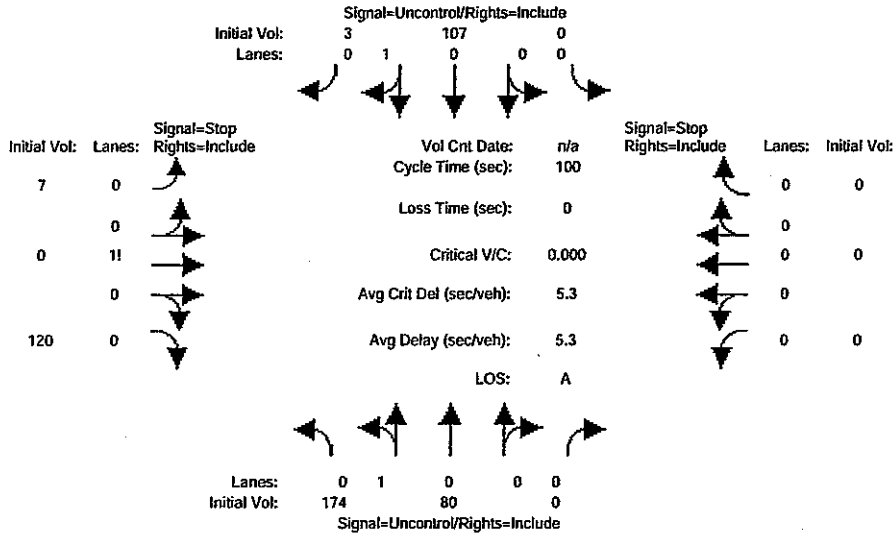


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↖↗		↑							↑↑		↖↗		↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	4.0	4.0							4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	1.00							0.95	0.97	0.95				
Fr't	1.00	0.85							0.98	1.00	1.00				
Flt Protected	0.95	1.00							1.00	0.95	1.00				
Satd. Flow (prot)	2894	1335							2938	2894	2983				
Flt Permitted	0.95	1.00							1.00	0.95	1.00				
Satd. Flow (perm)	2894	1335							2938	2894	2983				
Volume (vph)	762	0	496	0	0	0	0	814	92	544	848	0			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Adj. Flow (vph)	802	0	522	0	0	0	0	857	97	573	893	0			
RTOR Reduction (vph)	0	96	0	0	0	0	0	7	0	0	0	0			
Lane Group Flow (vph)	802	428	0	0	0	0	0	947	0	573	893	0			
Turn Type	Perm						Prot								
Protected Phases	4						2		1 6						
Permitted Phases	4														
Actuated Green, G (s)	38.5	38.5							38.6	24.0	66.6				
Effective Green, g (s)	38.5	38.5							38.6	24.0	66.6				
Actuated g/C Ratio	0.34	0.34							0.34	0.21	0.59				
Clearance Time (s)	4.0	4.0							4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0							3.0	3.0	3.0				
Lane Grp Cap (vph)	985	454							1003	614	1757				
v/s Ratio Prot	0.32								0.32	0.20	0.30				
v/s Ratio Perm	0.28														
v/c Ratio	0.81	0.94							0.94	0.93	0.51				
Uniform Delay, d1	34.0	36.2							36.2	43.8	13.6				
Progression Factor	1.00	1.00							1.00	1.00	1.00				
Incremental Delay, d2	5.2	27.2							16.5	21.3	0.2				
Delay (s)	39.3	63.4							52.7	65.1	13.9				
Level of Service	D	E							D	E	B				
Approach Delay (s)	48.8		0.0				52.7		33.9						
Approach LOS	D		A				D		C						
<b>Intersection Summary</b>															
HCM Average Control Delay	43.9		HCM Level of Service				D								
HCM Volume to Capacity ratio	0.94														
Actuated Cycle Length (s)	113.1		Sum of lost time (s)				12.0								
Intersection Capacity Utilization	81.7%		ICU Level of Service				D								
Analysis Period (min)	15														
c Critical Lane Group															

Paso Robles

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing AM

Intersection #11: Golden Hill Rd/Dallons Rd

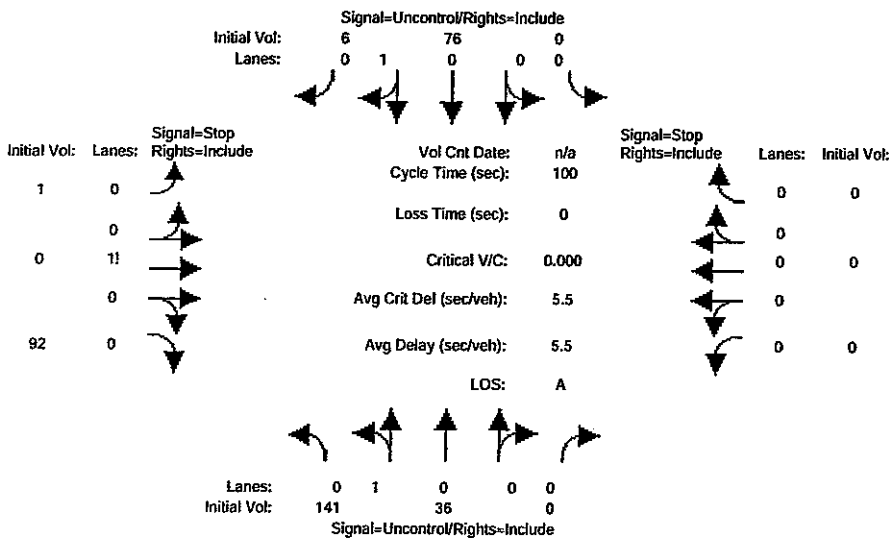


Street Name:	Golden Hill Rd						Dallons Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	160	80	0	0	107	3	7	0	113	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	160	80	0	0	107	3	7	0	113	0	0	0
Added Vol:	14	0	0	0	0	0	0	0	7	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	174	80	0	0	107	3	7	0	120	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	183	84	0	0	113	3	7	0	126	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	183	84	0	0	113	3	7	0	126	0	0	0
Critical Gap Module:												
Critical Gap:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	116	xxxx	xxxxx	xxxxx	xxxx	xxxxx	565	565	114	xxxx	xxxx	xxxxx
Potent Cap.:	1486	xxxx	xxxxx	xxxxx	xxxx	xxxxx	490	437	944	xxxx	xxxx	xxxxx
Move Cap.:	1486	xxxx	xxxxx	xxxxx	xxxx	xxxxx	438	377	944	xxxx	xxxx	xxxxx
Volume/Cap:	0.12	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.02	0.00	0.13	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	887	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	xxxxxxx			xxxxxxx			9.8			xxxxxxx		
ApproachLOS:	*			*			A			*		

Paso Robles

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
Existing PM

Intersection #11: Golden Hill Rd/Dallons Rd



Street Name:	Golden Hill Rd						Dallons Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	127	36	0	0	76	6	1	0	85	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	127	36	0	0	76	6	1	0	85	0	0	0
Added Vol:	14	0	0	0	0	0	0	0	7	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	141	36	0	0	76	6	1	0	92	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	148	38	0	0	80	6	1	0	97	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	148	38	0	0	80	6	1	0	97	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	6.4	6.5	6.2	XXXXXX	XXXX	XXXXXX
FollowUpTim:	2.2	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	3.5	4.0	3.3	XXXXXX	XXXX	XXXXXX
Capacity Module:												
Cnflct Vol:	86	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	418	418	83	XXXX	XXXX	XXXXXX
Potent Cap.:	1523	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	595	529	982	XXXX	XXXX	XXXXXX
Move Cap.:	1523	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	547	473	982	XXXX	XXXX	XXXXXX
Volume/Cap:	0.10	XXXX	XXXX	XXXX	XXXX	XXXX	0.00	0.00	0.10	XXXX	XXXX	XXXX
Level Of Service Module:												
2Way95thQ:	0.3	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	XXXX	XXXX	XXXXXX
Control Del:	7.6	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	XXXX	XXXX	XXXXXX	XXXX	XXXX	XXXXXX	XXXX	974	XXXXXX	XXXX	XXXX	XXXXXX
SharedQueue:	0.3	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	XXXXXX	0.3	XXXXXX	XXXXXX	XXXX	XXXXXX
Shrd ConDel:	7.6	XXXX	XXXXXX	XXXXXX	XXXX	XXXXXX	XXXXXX	9.1	XXXXXX	XXXXXX	XXXX	XXXXXX
Shared LOS:	A	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	XXXXXX			XXXXXX			9.1			XXXXXX		
ApproachLOS:	*			*			A			*		



Paso Robles Motor Coach  
AM Peak Hour Traffic

1: Dallons Road & Golden Hill Road  
12/19/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	8	17	172	59	0	0	230	591	153	0	226	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	18	181	62	0	0	242	622	161	0	238	5

**Pedestrians**

Lane Width (ft)

Walking Speed (ft/s)

Percent Blockage

Right turn flare (veh)

Median type

Median storage (veh)

Upstream signal (ft)

pX, platoon unblocked

vC, conflicting volume	1036	1508	122	1315	1430	392	243			783		
vC1, stage 1 conf vol	241	241		1187	1187							
vC2, stage 2 conf vol	795	1267		128	243							
vCu, unblocked vol	1036	1508	122	1315	1430	392	243			783		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	85	80	37	100	100	82			100		
cM capacity (veh/h)	178	123	907	98	129	607	320			831		

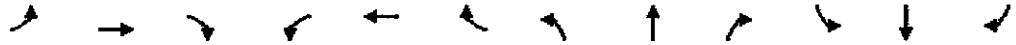
Direction Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	8	199	62	0	242	415	368	0	159	85
Volume Left	8	0	62	0	242	0	0	0	0	0
Volume Right	0	181	0	0	0	0	161	0	0	5
cSH	178	577	98	1700	1320	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.34	0.63	0.00	0.18	0.24	0.22	0.00	0.09	0.05
Queue Length 95th (ft)	4	38	77	0	17	0	0	0	0	0
Control Delay (s)	26.2	14.5	90.3	0.0	8.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B	F	A	A					
Approach Delay (s)	15.0		90.3		2.0			0.0		
Approach LOS	B		F							

**Intersection Summary**

Average Delay	7.0
Intersection Capacity Utilization	52.7%
ICU Level of Service	A
Analysis Period (min)	15

Paso Robles Motor Coach  
PM Peak Hour Traffic

1: Dallons Road & Golden Hill Road  
12/19/2007



Movement	EB1	EB2	EBR	WB1	WB2	WBR	NB1	NB2	NBR	SB1	SB2	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	3	5	174	136	18	0	214	55	84	0	627	8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	5	183	143	19	0	225	58	88	0	660	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage veh	0			0								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1153	1261	334	885	1221	73	668			146		
vC1, stage 1 conf vol	664	664		553	553							
vC2, stage 2 conf vol	489	597		333	668							
vCu, unblocked vol	1153	1261	334	885	1221	73	668			146		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	97	72	0	86	100	75			100		
cM capacity (veh/h)	173	181	662	142	138	974	917			1433		

Direction Lane	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	188	143	19	225	39	108	0	440	228
Volume Left	3	0	143	0	225	0	0	0	0	0
Volume Right	0	183	0	0	0	0	88	0	0	8
cSH	173	616	142	138	917	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.31	1.01	0.14	0.25	0.02	0.06	0.00	0.26	0.13
Queue Length 95th (ft)	1	32	184	12	24	0	0	0	0	0
Control Delay (s)	26.2	13.4	138.3	35.1	10.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B	F	E	B					
Approach Delay (s)	13.6		126.3		6.2			0.0		
Approach LOS	B		F							

Intersection Summary		
Average Delay	18.2	
Intersection Capacity Utilization	61.3%	ICU Level of Service B
Analysis Period (min)	15	

Paso Robles Motor Coach  
AM Peak Hour Traffic

1: Dallons Road & Golden Hill Road  
12/19/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	↷
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	9	17	172	62	0	0	230	620	153	0	270	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (veh)	9	18	181	62	0	0	242	653	161	0	284	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage (veh)	0			0								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1098	1586	146	1368	1509	407	292			814		
vC1, stage 1 conf vol	288	288		1217	1217							
vC2, stage 2 conf vol	811	1298		151	292							
vCu, unblocked vol	1098	1586	146	1368	1509	407	292			814		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	85	79	33	100	100	81			100		
cM capacity (veh/h)	170	117	875	92	121	594	1267			809		
Direction / Lane	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	9	199	62	0	242	435	379	0	189	102		
Volume Left	9	0	62	0	242	0	0	0	0	0		
Volume Right	0	181	0	0	0	0	161	0	0	7		
cSH	170	552	92	1700	1267	1700	1700	1700	1700	1700		
Volume to Capacity	0.06	0.36	0.67	0.00	0.19	0.26	0.22	0.00	0.11	0.06		
Queue Length 95th (ft)	4	41	83	0	18	0	0	0	0	0		
Control Delay (s)	27.5	15.1	102.0	0.0	8.5	0.0	0.0	0.0	0.0	0.0		
Lane LOS	D	C	F	A	A							
Approach Delay (s)	15.7		102.0		2.0			0.0				
Approach LOS	C		F									
Intersection Summary												
Average Delay	7.2											
Intersection Capacity Utilization	53.5%			ICU Level of Service				A				
Analysis Period (min)	15											

Paso Robles Motor Coach  
PM Peak Hour Traffic

1: Dallons Road & Golden Hill Road  
12/19/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	8	5	174	136	19	0	225	149	84	0	667	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	5	183	143	19	0	225	157	88	0	702	11
<b>Pedestrians</b>												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage (veh)	0			0								
Upstream signal (ft)												
pX, platoon unblocked												
vC conflicting volume	1246	1403	356	1005	1364	123	713			245		
vC1, stage 1 conf vol	707	707		652	652							
vC2, stage 2 conf vol	538	696		354	713							
vCu, unblocked vol	1246	1403	356	1005	1364	123	713			245		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	97	71	0	84	100	74			100		
cM capacity (veh/h)	157	162	640	124	122	905	883			1318		

Direction Lane #	EB 1	EB 2	WB 1	WB 2	NB	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	8	188	143	19	225	105	141	0	468	245
Volume Left	8	0	143	0	225	0	0	0	0	0
Volume Right	0	183	0	0	0	0	88	0	0	11
cSH	157	591	124	122	883	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.32	0.15	0.16	0.26	0.06	0.08	0.00	0.28	0.14
Queue Length 95th (ft)	4	34	215	13	25	0	0	0	0	0
Control Delay (s)	29.3	13.9	195.1	40.0	10.5	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B	F	E	B					
Approach Delay (s)	14.6		177.0		5.0			0.0		
Approach LOS	B		F							

<b>Intersection Summary</b>	
Average Delay	22.0
Intersection Capacity Utilization	62.5%
ICU Level of Service	B
Analysis Period (min)	15

# 11: Dallons Drive & Golden Hill Road

# HCM Signalized Intersection Capacity Analysis



Movement	EB	EB	NB	NB	SB	SB
Lane Configurations	↖	↗	↖	↑	↑↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	3531	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	1863	3531	
Volume (vph)	8	257	385	660	303	5
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	271	405	695	319	5
RTOR Reduction (vph)	0	237	0	0	0	0
Lane Group Flow (vph)	8	34	405	695	324	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.4	5.4	12.0	29.6	13.6	
Effective Green, g (s)	5.4	5.4	12.0	29.6	13.6	
Actuated g/C Ratio	0.13	0.13	0.28	0.69	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	222	199	494	1282	1117	
v/s Ratio Prot	0.00		c0.23	c0.37	0.09	
v/s Ratio Perm		c0.02				
v/c Ratio	0.04	0.17	0.82	0.54	0.29	
Uniform Delay, d1	16.5	16.8	14.5	3.3	11.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.4	10.2	0.5	0.1	
Delay (s)	16.6	17.2	24.7	3.8	11.2	
Level of Service	B	B	C	A	B	
Approach Delay (s)	17.2			11.5	11.2	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

11: Dallons Drive & Golden Hill Road

HCM Signalized Intersection Capacity Analysis



Movement	EB	EBR	NBL	NBD	SBL	SBR
Lane Configurations	↵	↵	↵	↑	↑↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Frt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	1863	3534	
Frt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	1863	3534	
Volume (vph)	3	305	352	190	738	8
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	321	371	200	777	8
RTOR Reduction (vph)	0	273	0	0	0	0
Lane Group Flow (vph)	3	48	371	200	785	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.7	7.7	15.1	35.5	16.4	
Effective Green, g (s)	7.7	7.7	15.1	35.5	16.4	
Actuated g/C Ratio	0.15	0.15	0.29	0.69	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	266	238	522	1292	1132	
v/s Ratio Prot	0.00		c0.21	0.11	c0.22	
v/s Ratio Perm		c0.03				
v/c Ratio	0.01	0.20	0.71	0.15	0.69	
Uniform Delay, d1	18.5	19.1	16.1	2.7	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.4	4.5	0.1	1.9	
Delay (s)	18.5	19.5	20.6	2.8	17.1	
Level of Service	B	B	C	A	B	
Approach Delay (s)	19.5			14.4	17.1	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

**DEPARTMENT OF TRANSPORTATION**

50 HIGUERA STREET  
SAN LUIS OBISPO, CA 93401-5415  
PHONE (805) 549-3101  
FAX (805) 549-3329  
TTY 711  
<http://www.dot.ca.gov/dist05>



*Flex your power!  
Be energy efficient!*

September 18, 2008

Mr. Darren Nash, Associate Planner  
Community Development Department  
City of El Paso De Robles  
1000 Spring Street  
Paso Robles, Ca 93446

Dear Mr. Nash:

**PASO ROBLES MOTORCOACH RESORT/JACK IN THE BOX RESTAURANT**

Recently, I had a conversation with Mr. John Falkenstien of your staff regarding the above referenced developments. We discussed the efficacy of requiring more traffic studies for small to medium size projects given what we already know about the transportation challenges that exist in this area of your City. You are probably aware that at this time there is a multi agency effort underway that is addressing transportation issues in your community. This effort, known as the *Route 46 East Comprehensive Corridor Study* (46 CCS), will establish a joint vision for the transportation needs of the five mile long corridor between Rte 101 and Jardine Road. The document is not complete but should be available for City staff to review in approximately two weeks. I can tell you that some of its findings will address local circulation improvements in the vicinity of the Golden Hill Road/Route 46 Intersection. They include ideas that would improve local street connectivity and would provide travel choices for the employees and patrons of local businesses and may even help reduce congestion on Route 46.

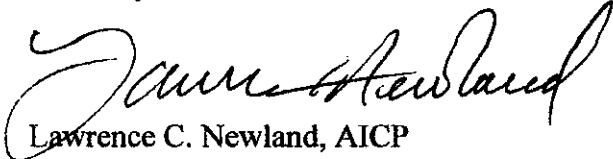
Examples of these ideas are the construction of new creek crossings and the extension and improvement of Golden Hill Road and Dry Creek Road. In short, the 46CCS will identify these and other improvements and package them with State Highway improvements. After this study is completed, the logical next step would be to integrate its findings into other planning documents (i.e. CSMP, Circulation Element, RTP, SLO County Infrastructure Update).

While it may be necessary to conduct additional traffic studies and operational analyses in the future, it is the Department's position that what is presently needed is an impact fee program that begins to substantially address these improvements.

Darren Nash  
September 19, 2008  
Page 2

Therefore, rather than itemize the pros and cons of various separate traffic analyses, District staff would like to support the City's effort to collect appropriate traffic impact fees to fund improvements that will be needed. I look forward to working with you and other City staff on this and encourage you to contact me at (805) 549-3103 if you have questions or want to discuss this issue further.

Sincerely,

A handwritten signature in black ink that reads "Lawrence C. Newland". The signature is written in a cursive, flowing style.

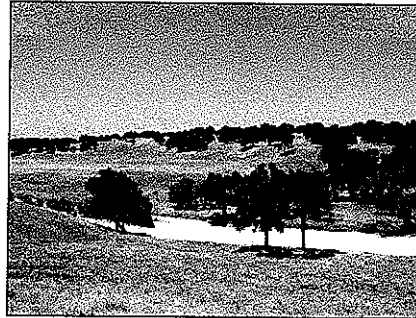
Lawrence C. Newland, AICP  
Caltrans District 5  
Transportation Planning Branch Chief, South



**Biological Report**  
for the  
**Paso Robles Motorcoach Resort**

**APN 025-435-005, -006, & -007**

Golden Hill Road  
City of El Paso de Robles  
California



Prepared for

**Doug McCurdy**  
c/o Ken Munde  
P.O. Box 2552  
Paso Robles, CA 93447

by

**ALTHOUSE AND MEADE, INC.**  
BIOLOGICAL AND ENVIRONMENTAL SERVICES  
1875 Wellsona Road  
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(805) 467-1041

**December 2006**  
Revised January 2008

**Paso Robles**

**JAN 11 2008**  
**Planning Division**

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## Synopsis

- This biological report examines a 160± acre property located northeast of Golden Hill Road and Circle B Road, in the City of El Paso de Robles, San Luis Obispo County, California. Revisions to this report reflect current changes to the project scope and description, as represented on the Preliminary Grading and Drainage Plan (North Coast Engineering, Inc., December 2007).
- The proposed project is a 380 space outdoor recreational resort. A preliminary grading and drainage plan, provided by North Coast Engineering, Inc., included in Appendix A, was used as the basis for our impact assessment. In addition, the applicant provided a conceptual design for the extension of Golden Hill Road. The extension would connect Golden Hill Road to Dry Creek Road by passing along the western property line and crossing Huerhuero Creek at the north end of the property.
- The subject property consists of six habitat types: annual grassland, blue oak woodland, riparian, ephemeral drainage, vernal pool, and seasonal wetland. The property is situated on rolling hills at the north end of Golden Hill Road, north of Highway 46 East. Floristic surveys conducted in the spring and summer of 2006 identified 162 species of plants on the property.
- Seven special status plants and eleven special status animals have the potential to occur on the property (Table 4). Field studies conducted in 2006 identified one special status plant and one special status animal on the property. A biological resource map is provided in Appendix A for reference.
- Two species of native oak trees occur on the property. Blue oak trees form woodlands on rolling hills in two areas of the property. Valley oaks are interspersed with blue oak woodland on the lower slopes of hills along Huerhuero Creek. Oak trees would be impacted and removed for the proposed project. An oak tree map is provided in Appendix A for reference.
- Breeding birds occur in trees, shrubs and grasslands, and maternal bat colonies could occur in larger oak trees with natural cavities. Breeding birds and bats are protected by state and federal code, therefore activities with potential to impact these species must avoid the breeding season (March 15 through August 15), or be preceded by a survey to locate and protect them.
- Biological resources that could be impacted by the proposed project include common habitat types, wetlands, vernal pools, oak trees, common plant and animal species, special status plant and animal species, nesting birds, and roosting bats. A discussion of potential impacts from the Golden Hill Road extension is also provided.
- This document provides mitigation recommendations designed to reduce impacts to biological resources on the property to a less than significant level.

## 1.0 Introduction

This biological report provides information regarding biological resources on a 160± acre property in the City of Paso Robles, San Luis Obispo County, California. Results are reported for floristic and wildlife surveys of the property, a habitat inventory, and database and literature searches of rare species reports within five miles of the property. Natural communities on the site are described and mapped, special status species that could occur on the property or be affected by proposed development are discussed, and lists of plant and animal species that were identified or are expected on the property are provided.

This report provides agencies and decision makers with information regarding biological resources on the property and assesses the significance of these resources with respect to potential development on the site. An evaluation of the effect of the proposed project on biological resources is included, and mitigation measures are outlined. A discussion of potential impacts from the extension of Golden Hill Road is also included. The revision of this report reflects the most current project plan provided by North Coast Engineering, Inc.

### 1.1 Project Location and Description

The subject property is located on the northeast side of Golden Hill Road and Circle B Road in the City of Paso Robles, San Luis Obispo County, California (Appendix B, Figure 1). The property is situated east of U.S. Highway 101, north of U.S. Highway 46 East, at the north end of Golden Hill Road, in the Paso Robles United States Geological Survey (USGS) 7.5 minute quadrangle (Appendix B, Figure 2). Approximate coordinates for the center of the property are N35° 39' 17" / W120° 38' 56". Elevation varies from 700 to 825 feet above sea level.

The proposed project is a 380 space outdoor recreational resort. A preliminary grading and drainage plan, provided by North Coast Engineering, Inc. in December 2007, is provided in Appendix A for reference.

The applicant also provided a conceptual design for the extension of Golden Hill Road through the property to Dry Creek Road. The extension would pass along the western edge of the property, pass over Huerhuero Creek at the north end of the property, and connect with Dry Creek Road, thereby completing the connection of Golden Hill Road to Airport Road.

A tree report was completed for the project by A&T Arborists, revised in December 2007. The report included a tree database, and discussion of protection and mitigation requirements.

The property is composed of three parcels: APN 025-435-005 is 36.01 acres, APN 025-435-006 is 79.85 acres, and APN 025-435-007 is 44.62 acres in size. The total size of the property is 160.48 acres. The property is currently used as rangeland.

## 1.2 Responsible Parties

TABLE 1. RESPONSIBLE PARTIES. Contact information is provided for the applicant, engineer, biological consultant, and lead agency.

<b>Applicant</b>	<b>Engineer</b>
Paso Robles 160, LLC P.O. Box 2552 Paso Robles, CA 93447 909-821-7070  Contact: Doug McCurdy	North Coast Engineering 725 Creston Road, Suite B Paso Robles, CA 93446 805-239-3127  Contact: Christy Gabler
<b>Biological Consultant</b>	<b>Lead Agency</b>
Althouse and Meade, Inc. 1875 Wellsona Road Paso Robles, CA 93446 805-467-1041  Contact: Daniel E. Meade	City of Paso Robles 1000 Spring Street Paso Robles, CA 93446 805-227-7276

## 2.0 Methods

The subject property was surveyed for biological resources on May 4, 24, and 31, June 20, and July 14, 2006. Field work was conducted by biologists LynneDee Althouse, M.S., Daniel E. Meade, Ph.D., Jason Dart, and Meg Perry during daylight hours between 8:00 a.m. and 8:00 p.m. The site was surveyed on foot and photographed. Surveys were conducted throughout the property to compile species lists and search for rare plants and animals. All habitat types on the property were inspected, described, and mapped. Special status species and sensitive natural communities observed on the property were mapped on an aerial photograph and topographic map of the site. All plant and animal species observed on the site were identified and recorded. Wildlife documentation included observations of animal presence, nests, tracks, and sign. Birds were identified by sight, using 10 power binoculars, or by vocalizations. Plants were identified through field observations and laboratory analysis of collected material. Some specimens collected during our site visits will be deposited in the Robert F. Hoover Herbarium, California Polytechnic State University. Botanical nomenclature follows the Jepson Manual, unless otherwise noted.

Additional biological surveys were conducted independently by John Davis IV, M.S. and Brent Helm, et. al. during protocol surveys for listed branchiopods.

We conducted a search of the California Natural Diversity Database (CNDDDB November 4, 2007 data) and the California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants of California for special status species known to occur within five

miles of the project site. The search area included the Paso Robles, Estrella, Templeton, and Creston quadrangles (7.5 minute USGS).

Additional special status species research consisted of reviewing previous biological reports for the area and searching on-line museum and herbarium specimen records for locality data within San Luis Obispo County. We reviewed online databases of specimen records maintained by the Museum of Vertebrate Zoology (MVZ) at the University of California, Berkeley, and the Consortium of California Herbaria. Additional special status species with potential to occur on or near the subject property were added to our special status species list.

Special status species lists produced by database and literature searches were cross-referenced with the known habitat types on the property to identify all potential special status species that could occur on or near the project site. Each special status species with a potential for occurrence on or near the project site is individually discussed. A report was made to the CNDDDB if field surveys found special status species on the property.

Potential special status plant species were compared to herbarium specimens at the Robert F. Hoover Herbarium, California Polytechnic State University. Special status plant populations were mapped by hand on high resolution aerial photographs and site specific topographic maps of the property.

### **3.0 Results**

#### **3.1 Existing Conditions**

The subject property is an approximately 160-acre site in the northeastern portion of the City of Paso Robles, composed of three parcels historically used as rangeland for cattle. The majority of the property is situated on alluvial terraces and rolling hills. Huerhuero Creek is a seasonal stream that flows north along the eastern property boundary and bends west through the northern end of the site (see aerial photograph in Appendix B, Figure 4). Low-lying land adjacent to Huerhuero Creek forms a flood plain and low stream terrace. Riparian habitat along the creek varies from mature riparian woodland to mulefat scrub and wild rose thickets. An incised ephemeral drainage flows north down an embankment to connect with Huerhuero Creek, and is the only jurisdictional tributary to Huerhuero Creek on the property. Vegetation in the tributary drainage is composed of oak woodland canopy with a grassy understory; wetland conditions are not present in this drainage. An old earthen dam in the drainage once created a stockpond, but has long been in disrepair.

The property is dominated by annual grassland and blue oak woodland habitats. Although grasslands on site are dominated by Mediterranean annual species, some native perennial grasses are present on slopes that are not over-grazed. Woodlands are composed of blue oak trees, with scattered valley oaks occurring in lowlands and along Huerhuero Creek. One special status plant, shining navarretia, occurs on an open, grassy hillside on the east side of the property (see Biological Resource Map in Appendix A).



Storage of used pavers and bricks is occurring in one location on the property. Piles of pavers, apparently from a demolition project, were placed in a line approximately 200 feet long on a terrace above the Huerhuero Creek flood plain. Other uses of the property include deposition of truckloads of pressed grapes near the paver piles. No other non-agricultural uses were observed.

Vernal pools and seasonal wetlands are present in low, nearly flat grassland areas in the southwestern portion of the property. These pools provide potential habitat for several special status species, including spadefoot toads and federally listed vernal pool fairy shrimp. In 2007 much of the property was plowed. An attempt was made to avoid vernal pools while plowing.

### 3.2 Soils

The soils map in the United States Department of Agriculture (USDA) Soil Survey of San Luis Obispo County, California, Paso Robles Area (1984) delineates nine soil map units on the property (Appendix B, Figure 3): Arbuckle-Positas complex, 30 to 50 percent slopes (104), Arbuckle-Positas complex, 50 to 75 percent slopes (105), Elder loam, flooded, 0 to 5 percent slopes (140), Hanford and Greenfield gravelly sandy loams, 2 to 9 percent slopes (150), Metz loamy sand, 0 to 5 percent slopes (166), San Ysidro loam, 0 to 2 percent slopes (197), Sesame sandy loam, 9 to 30 percent slopes (200), Arbuckle fine sandy loam, 0 to 2 percent (100), and Xerofluvents-Riverwash association (212). Map units typically encompass one or two dominant soils, which cover more than 50 percent of the mapped area, and one to several included soils, which occur in small patches that are not differentiated in mapping.

**Sesame sandy loam, 9 to 30 percent slopes (200)** is the dominant soil map unit on the property, covering about 40 percent of the total site. This soil is a moderately deep, well-drained soil that formed in material weathered from granitic rocks. Permeability is moderate to moderately slow, available water capacity is low to moderate, and erosion hazard is high. The main limitation of this Sesame soil is the erosion hazard. Maintain plant residue on the soil surface to help control erosion. This Sesame soil has a land capability class rating of IVE-1 (15) irrigated and non-irrigated. This rating means this soil has severe limitations for field crops, or requires very careful management, or both (IV). These limitations are due to high erosion hazard (e) caused by steepness of slope (1).

**Arbuckle-Positas complex, 30 to 50 percent slopes (104)** and **Arbuckle-Positas complex, 50 to 75 percent slopes (105)** differ only in slope steepness. The Arbuckle-Positas complex (104) consists of steep soils found between flood plains and stream terraces on the property. This complex covers approximately 16 percent of the total property. The Arbuckle-Positas complex with 50 to 75 percent slopes occurs on terrace escarpments in the southeast portion of the property and covers about 4 percent of the total property. These Arbuckle-Positas complexes consist of approximately 40 percent Arbuckle fine sandy loam and 30 percent Positas coarse sandy loam, which are so intricately mixed or so small in area that it is not practical to separate them into separate map units. Arbuckle soil is a very deep, well drained soil that formed in alluvium derived from mixed rocks. Permeability is moderately slow and available water capacity is moderate to high. Surface runoff is rapid, and hazard of erosion is high. Positas soil is a

very deep, well drained soil that formed in alluvium derived from mixed rocks. Its permeability is very slow and its available water capacity is moderate to high. Surface runoff is rapid, and hazard of erosion is high. Steep slopes and the high hazard of erosion are the main limitations of these soils. Erosion can be controlled by maintaining plant residue on the soil surface.

**Elder loam, flooded, 0 to 5 percent slopes (140)** is located on the flood plain of Huerhuero Creek and covers about 12 percent of the total property. This very deep, moderately permeable soil formed in mixed rock alluvium. Surface runoff is slow, and erosion hazard is slight. This soil has severe limitations for buildings and roads due to the flood hazard. Elder soils used for these purposes need to be protected from flooding. Elder loam has a land capability class rating of IIw-2 (14) irrigated, and IVw-2 (14) non-irrigated. This rating means this soil type has moderate to very severe limitations for field crops (II, IV). Water in or on the soil interferes with plant growth (w) because the soil is either poorly drained or periodically flooded (2).

**San Ysidro loam, 0 to 2 percent slopes (197)** occurs in the southwest corner of the property and covers approximately nine percent of the total property. This very deep, nearly level, moderately well drained soil formed in alluvium derived from mixed rocks. San Ysidro soil has very slow permeability and moderate to high available water capacity. Surface runoff is slow and hazard of erosion is slight. During periods of heavy rain, this soil is subject to ponding, and vernal pools may form in San Ysidro soils. The subsoil has high shrink-swell potential. This soil has severe limitations for building sites, roads, and streets because of the high shrink-swell potential and low strength of the subsoil. Foundations and footings should be designed to prevent structural damage by shrinking and swelling of the subsoil. San Ysidro loam is in capability units IVs-3 (14) irrigated and non-irrigated. This rating means that this soil has severe limitations for field crops, or requires very careful management, or both (IV). These limitations can be the result of a shallow, droughty, or stony soil that has problems or limitations of slow or very slow permeability of the subsoil or substratum. The clayey subsoil of San Ysidro soils is semi-consolidated (3) and creates such a limitation.

**Hanford and Greenfield gravelly sandy loams, 2 to 9 percent slopes (150)** cover approximately four percent of the total property area and occur in the northern most portion of the property, across Huerhuero Creek. This complex consists of 40 percent Hanford gravelly sandy loam, 30 percent Greenfield gravelly sandy loam, 15 percent Arbuckle fine sandy loam, 10 percent San Ysidro loam, and 5 percent of small areas of Cropley clay, Metz loamy sand, Pico fine sandy loam, Rincon clay loam, and Tujunganga fine sand. Both Hanford and Greenfield soils are derived from mixed rock alluvium, and are very deep and well drained soils. They both have a moderately rapid permeability, and a low to moderate available water capacity with a moderate erosion hazard. The gravelly nature of the surface layer limits the vegetation types that can occur on the property. This complex is placed in capability units IIe-4 (14) irrigated, and IVe-4 (14) non-irrigated. This rating means that this soil type has moderate to very severe limitations for field crops (II, IV). These limitations are due to high erosion hazard (e), and sandy or gravelly textures that have low available water-holding capacity (4).

**Metz loamy sand, 0 to 5 percent slopes (166)** covers approximately 4 percent of the total property area and is located on the flood plain between the Elder soil and the

riverwash on the northern most portion of the property. This very deep, nearly level to gently sloping, somewhat excessively drained soil formed in alluvium derived from mixed rocks. Flooding can occur rarely, although this soil does not typically hold standing water for long periods. Permeability is moderately rapid and available water capacity is low to moderate. Surface runoff is slow and hazard of erosion is slight. This soil has severe limitations for building sites, septic tank absorption fields, and roads and streets because of flood hazard. The land capability units are IIIs-4 (14) irrigated, and IVs-4 (14) non-irrigated. This rating means this soil type has severe to very severe limitations for field crops (III, IV). These limitations are because shallow, droughty, and stony soils (s), such as Metz, tend to have low available water holding capacity (4). Included in this map unit are small areas of San Emigdio fine sandy loam, Hanford fine sandy loam, Tujunga fine sand, Elder loam, Pico fine sandy loam, and unnamed xerofluvents.

**Arbuckle fine sandy loam, 0 to 2 percent (100)** covers approximately one percent of the total property. This is a very deep, nearly level, well-drained soil formed in alluvium derived from mixed rocks. Permeability of Arbuckle soils is moderately slow, and available water capacity is moderate to high. Surface runoff is slow and hazard of erosion is slight due to the gentle slopes. This soil has no limitations or hazards for farming and to building sites, roads, and streets. A moderate shrink-swell potential and low strength are limitations for dwellings and buildings, but can be overcome by proper design and installation procedures. This Arbuckle soil is in soil capability class is I (14) irrigated and IVc-1 (14) non-irrigated. When irrigated, this soil is considered prime agricultural land and has no limitations (I). When non-irrigated this soil has severe limitations for field crops (IV). These limitations are due to dry summer climate that cannot support crops without irrigation (c), and the potential for wind erosion of fine sandy loams (1). Included in this map unit are about five percent San Ysidro loam and five percent small areas of Cropley clay and Hanford fine sandy loam.

**Xerofluvents-Riverwash association (212)** covers approximately 10 percent of the property. The complex includes unnamed soils and barren areas on flood plains adjacent to Huerhuero Creek and consists of approximately 50 percent xerofluvents and 30 percent riverwash. Xerofluvents occur on the flood plains and generally flood twice every four years. Riverwash occurs in barren areas in and along stream channels, flooding annually. Permeability is variable and available water holding capacity is very low. Surface runoff is medium, and erosion hazard is very high. The land capability unit for this map unit is VIIIw (14), meaning these soils are not suited for crop production or building and are best left undisturbed. Included in this map unit are about 20 percent small areas of Elder loam, Metz loamy sand, and Tujunga fine sand.

### 3.3 Habitat Types

Six habitat types occur on the property: annual grassland, blue oak woodland, riparian, ephemeral drainage, vernal pool, and seasonal wetland. A Biological Resource Map is provided in Appendix A for reference.

#### 3.3.1 Annual grassland

Much of the upland habitat on the subject property is a grazed annual grassland with scattered valley oak (*Quercus lobata*) and blue oak trees (*Quercus douglasii*). Two annual grassland types were identified on the property, each with a slightly different vegetation association. At the southwestern corner and the far northern end of the property are grassland areas dominated by Mediterranean annual grasses such as wild oats (*Avena barbata*, *A. fatua*), soft chest brome (*Bromus hordeaceus*), cheat grass (*Bromus tectorum*), annual fescue (*Vulpia myuros*), and riggut brome (*Bromus diandrus*). Some oak trees are present, as are native forbs such as milkweed (*Asclepias eriocarpa*), lupines (*Lupinus bicolor*, *L. microcarpus*), California aster (*Lessingia filaginifolia*), and wine cups (*Clarkia purpurea*). Both these grassland types contain flat areas and moderate slopes.

A flood terrace at the north end of the property on the southern edge of Huerhuero Creek supports an annual grassland habitat that is dominated by exotic grasses and forbs, with only a few native wildflowers. The terrace is composed of gravelly soils, is periodically flooded, and shows signs of having been plowed in the past. Dominant grass species are Italian ryegrass (*Lolium multiflorum*), medusa-head (*Taeniatherum caput-medusae*), and hood canary grass (*Phalaris paradoxa*). Yellow starthistle (*Centaurea solstitialis*) is dominant in the summer when most annuals have dried up. Intensive cattle grazing is the primary reason for the depauperate diversity of native species in the grassland habitats on the property.

Grasslands on the subject property provide suitable habitat for eight special status plant species. In spring 2006, Althouse and Meade, Inc. biologists mapped one special status plant, shining navarretia (*Navarretia nigelliformis* ssp. *radians*), in grasslands on the property. Several special status animals, including San Joaquin kit fox (*Vulpes macrotis mutica*) and American badger (*Taxidea taxus*), could utilize grassland habitat on the property. Golden eagles that nest in woodland habitat on site forage for ground squirrels and other prey in the grassland habitat.

Grasslands comprise approximately 72 acres of the property. Much of the grassland habitat on the property was plowed in 2007. The shining navarretia population was avoided, and an attempt was made to avoid the vernal pools.

#### 3.3.2 Blue oak woodland

Blue oak woodland habitat occurs in various density stands in upland habitat on the subject property. A total of 60± acres of oak woodland habitat occurs on the property. Moderately dense blue oak woodland occurs on hills adjacent to the western property boundary. The density of trees in this woodland becomes reduced in the flat grassy area to the east, then becomes very dense on the northeast facing slope above Huerhuero Creek. At this location, occasional valley oaks are present in woodland still dominated by blue oaks. Understory vegetation in blue oak woodland habitat on the property is

composed of annual grasses and forbs in most areas. The steep slopes adjacent to Huerhuero Creek contain a few small shrubs and a higher diversity of native forbs. Some native grasses, such as one-sided bluegrass (*Poa secunda*), melic (*Melica imperfecta*), and needlegrass (*Nassella pulchra*, *N. lepida*) are common in the understory at these locations. This eastern stand of blue oak woodland transitions to riparian habitat at the lower slopes, where valley oaks, cottonwoods, and willows become prominent.

An occupied golden eagle nest was identified and mapped in the spring of 2006 in a blue oak tree on the slope adjacent to Huerhuero Creek. A second, un-occupied golden eagle nest was located nearby. Roosting bats and other species of nesting birds are likely to use oak trees on the property.

### 3.3.3 Ephemeral drainage

One small ephemeral drainage on the subject property conveys storm water into Huerhuero Creek during the rainy season. The ephemeral drainage is just over 650 feet long. Huerhuero Creek and its primary tributary drainages are section 404 jurisdictional waters of the United States (to be confirmed by the United States Army Corps of Engineers). These waters provide seasonal habitat for common aquatic wildlife species, including western toad (*Bufo boreas*), pacific chorus frog (*Pseudacris regilla*), and many species of invertebrates. The ephemeral drainage does not support wetland vegetation. Oak trees on the banks create the canopy layer, and annual grasses and a variety of forbs comprise the understory.

Other drainageways are found in the oak woodland at the eastern boundary of the property. These drainages have formed as erosion features from drainage outfalls of other development adjacent to the property and are not likely to be considered jurisdictional water courses by the Army Corps of Engineers.

### 3.3.4 Riparian

Riparian habitat on the property is restricted to Huerhuero Creek and its banks. Over 5000 linear feet of Huerhuero Creek is within the property boundaries, along the northern and eastern edges. Riparian habitat on the property comprises approximately 28 acres of the property. The vegetation that makes up the riparian habitat is composed of a tall, open tree canopy and several different shrub associations. The dominant trees in the riparian habitat are Fremont cottonwood (*Populus fremontii*) and red willow (*Salix laevigata*), although valley oak trees (*Quercus lobata*) are occasionally present along the margins. Because this drainage system carries large amounts of sediment during storm events, very little vegetation is able to become permanently established in the bottom of the channel. Stabilized sandbars support patches of shrubby groundsel (*Senecio flaccidus* var. *douglasii*), California rose (*Rosa californica*), tarragon (*Artemisia dracunculus*), and mulefat (*Baccharis salicifolius*). Many herbaceous species grow in moist areas during the late winter and spring, including stream monkeyflower (*Mimulus guttatus*), mugwort (*Artemisia douglasiana*), rushes (*Juncus bufonius*, *J. mexicanus*), loosestrife (*Lythrum hyssopifolium*), and others.

The riparian habitat of Huerhuero Creek is a wildlife movement corridor that may provide San Joaquin kit fox access to Camp Roberts from the Carizzo Plains. Western

spadefoot toads are known from sandy soils in and adjacent to Huerhuero Creek in the vicinity. Special status plants are not expected to occur in the riparian habitat on site.

### 3.3.5 Vernal pool

Vernal pools are present in grassland habitat on the subject property. Surveys conducted on the property for this study began in May 2006 and were too late in the season to find vernal pools containing standing water. Intensive cattle grazing on site reduced some of the vegetation associated with the pools in the spring, however the presence of vernal pools was clearly discernable by remaining vegetation and topography. The biological resource map in Appendix A shows the approximate location of three vernal pool complexes that were identified on site; the presence of other ephemeral pools may be evident during the rainy season.

The dominant plant species identified in vernal pools on the property in early May 2006 included water starwort (*Callitriche* sp.), water pygmyweed (*Crassula aquatica*), dwarf popcorn flower (*Plagiobothrys* sp.), and a small hydrophytic peppergrass (*Lepidium* sp.). By late May the dominant species identifiable in these pools was coyote thistle (*Eryngium vaseyi*), a plant which is indicative of vernal moist sites but was also found in mesic grassland areas that were not vernal pools. Vernal pools provide habitat for uniquely adapted native plants and animals that are able to tolerate rapidly transitioning water levels. Three special status species, vernal pool fairy shrimp (federally listed Threatened), California linderiella (California Special Concern species), and Western spadefoot toad (California Special Concern species), require vernal pool habitats, and are known to occur in the vicinity of the subject property.

A partial wet season survey for listed fairy shrimp was conducted on the property in February and March 2007 by John H. Davis IV, M.S. (refer to Appendix F). The survey was incomplete due to poor rainfall resulting in a short inundation period in the vernal pools. Fairy shrimp were not detected during this survey period. A dry season survey was conducted by Brent Helm in the summer of 2007. The survey examined soil samples from vernal pools in an attempt to detect larval cysts. The dry season survey result was negative for the presence of fairy shrimp cysts. Wet season surveys will commence in January 2008.

*Did this happen?*

### 3.3.6 Seasonal Wetland

Isolated seasonal wetlands occur in the southwestern corner of the property. Wetland areas were identified by vegetation and topography; soils analyses were not conducted as part of this study. Dominant plant species in the seasonal wetlands during the late spring were coyote thistle (*Eryngium vaseyi*), dwarf popcorn flower (*Plagiobothrys* sp.), and annual grasses. The wetlands are not part of a drainage system and are not likely to be under the jurisdiction of the United States Army Corps of Engineers or the Regional Water Quality Control Board. Without having conducted surveys during the rainy season, the extent of seasonal wetlands and their relationship to vernal pools is unknown. If at least a few centimeters of standing water is present for three weeks or more during most winter seasons, the wetlands may be appropriate habitat for vernal pool species. The presence of federally listed vernal pool organisms in the vicinity would place the seasonal wetlands under the jurisdiction of the United States Fish and Wildlife Service.

Neither a formal wetland delineation nor a jurisdictional determination were conducted for potential wetlands on the property.

### 3.4 Oak Trees

Two species of native oak tree occur on the subject property. Blue oak (*Quercus douglasii*) is the dominant species on the site, occurring primarily as dense woodland stands. Valley oak (*Quercus lobata*) occurs as isolated trees in grassland habitat and along the oak woodland and riparian ecotone at Huerhuero Creek. Both species are deciduous, long-lived trees that are common in the Paso Robles area, and are responsible for the city's Spanish name, El Paso de Robles (The Pass of Oaks).

An oak tree preservation plan was prepared for the project by A & T Arborists (December 2007). The report includes data on approximately 336 oak trees in and near the project areas. It estimates over 600 native oak trees occur on the property. Data collected for each tree included species, size (diameter at breast height), condition, construction status (avoided, impacted, removed), impact assessment (% impacted), mitigation proposal, pruning class, and aesthetic value. The condition of each tree was rated from zero to ten, with zero indicating a dead tree and ten indicating a specimen tree in a protected setting such as a park or arboretum.

North Coast Engineering, Inc. mapped each tree on the preliminary grading and drainage plan, indicating tree number, condition, critical root zone (CRZ), and trees proposed for removal. An Oak Tree Map is provided in Appendix A for reference.

### 3.5 Plant List

A floristic survey conducted from May through July 2006 identified 162 species of plants on the property (Table 2). Plants identified on the subject property consist of 110 native species and 52 introduced species. One special status plant species was identified during floristic surveys conducted from May 4 through July 14, 2006.

TABLE 2. PLANT LIST. A floristic survey of the property identified 162 species of plants. One special status species, shining navarretia (*Navarretia nigelliformis* ssp. *radians*), was mapped on the property.

Scientific Name	Special Status	Origin	Common Name
<b>Ferns – 1 Species</b>			
<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	None	Native	Gold-back fern
<b>Trees – 4 Species</b>			
<i>Populus fremontii</i> ssp. <i>fremontii</i>	None	Native	Fremont cottonwood
<i>Quercus douglasii</i>	None	Native	Blue oak
<i>Quercus lobata</i>	None	Native	Valley Oak
<i>Salix laevigata</i>	None	Native	Red willow
<b>Shrubs – 11 Species</b>			
<i>Artemisia dracunculus</i>	None	Native	Tarragon
<i>Baccharis pilularis</i>	None	Native	Coyote brush
<i>Baccharis salicifolius</i>	None	Native	Mule fat
<i>Datura</i> sp.	None	Native	Jimsonweed
<i>Eriogonum elongatum</i>	None	Native	Elongate buckwheat
<i>Eriogonum fasciculatum</i>	None	Native	California buckwheat
<i>Rosa californica</i>	None	Native	California Rose
<i>Sambucus mexicana</i>	None	Native	Blue elderberry
<i>Senecio flaccidus</i> var. <i>douglasii</i>	None	Native	Shrubby groundsel
<i>Solanum umbelliferum</i>	None	Native	Bluewitch
<i>Toxicodendron diversilobum</i>	None	Native	Poison oak
<b>Herbs – 122 Species</b>			
<i>Achillea millefolium</i>	None	Native	Yarrow
<i>Achyrachaena mollis</i>	None	Native	Blow wifes
<i>Ambrosia psilostachya</i>	None	Native	Western ragweed
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	None	Native	Rancher's fireweed



Scientific Name	Special Status	Origin	Common Name
<i>Anagallis arvensis</i>	None	Introduced	Scarlet pimpernel
<i>Anthemis cotula</i>	None	Introduced	Mayweed
<i>Artemisia douglasiana</i>	None	Native	Mugwort
<i>Asclepias eriocarpa</i>	None	Native	Indian milkweed
<i>Asclepias fascicularis</i>	None	Native	Narrow-leaved milkweed
<i>Asclepias vestita</i>	None	Native	Woolly milkweed
<i>Astragalus</i> sp.	None	Native	Milkvetch
<i>Bloomeria crocea</i>	None	Native	Golden stars
<i>Brassica nigra</i>	None	Introduced	Black mustard
<i>Callitriche</i> sp.	None	Native	Water starwort
<i>Calystegia macrostegia</i>	None	Native	Morning glory
<i>Cardamine californica</i>	None	Native	Milk maids
<i>Carduus pycnocephalus</i>	None	Introduced	Italian thistle
<i>Castilleja exserta</i> ssp. <i>exserta</i>	None	Native	Purple owl's clover
<i>Castilleja</i> sp.	None	Native	Owl's clover
<i>Centaurea melitensis</i>	None	Introduced	Tocolote
<i>Centaurea solstitialis</i>	None	Introduced	Yellow star thistle
<i>Centaureum davyi</i>	None	Native	Centaury
<i>Centromadia fitchii</i>	None	Native	Fitch's tarplant
<i>Cerastium glomeratum</i>	None	Introduced	Mouse-eared chickweed
<i>Chaenactis glabriuscula</i>	None	Native	Yellow pincushion
<i>Chamomilla suaveolens</i>	None	Introduced	Pineapple weed
<i>Chenopodium californicum</i>	None	Native	California goosefoot
<i>Cirsium occidentale</i> var. <i>occidentale</i>	None	Native	Cobwebby thistle
<i>Cirsium vulgare</i>	None	Introduced	Bull thistle
<i>Clarkia purpurea</i> ssp. <i>purpurea</i>	None	Native	Wine cups
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	None	Native	Four spot
<i>Clarkia speciosa</i> ssp. <i>speciosa</i>	None	Native	Clarkia
<i>Clarkia unguiculata</i>	None	Native	Elegant clarkia
<i>Claytonia perfoliata</i>	None	Native	Miner's lettuce
<i>Conium maculatum</i>	None	Introduced	Poison hemlock
<i>Convolvulus arvensis</i>	None	Introduced	Bindweed
<i>Conyza bonariensis</i>	None	Introduced	Asthmaweed
<i>Cordylanthus rigidus</i>	None	Native	Bird's beak
<i>Crassula aquatica</i>	None	Native	Water Pygmyweed

Scientific Name	Special Status	Origin	Common Name
<i>Crassula connata</i>	None	Native	Pygmyweed
<i>Dichelostemma capitatum</i>	None	Native	Blue dicks
<i>Eleocharis macrostachya</i>	None	Native	Common spikerush
<i>Epilobium brachycarpum</i>	None	Native	Annual willow-herb
<i>Eremocarpus setigerus</i>	None	Native	Turkey-mullein, dove weed
<i>Erigeron foliosus</i> var. <i>foliosus</i>	None	Native	Leafy daisy
<i>Eriogonum</i> sp.	None	Native	Buckwheat
<i>Eriogonum nudum</i> var. <i>nudum</i>	None	Native	Naked buckwheat
<i>Erodium botrys</i>	None	Introduced	Storksbill filaree
<i>Erodium cicutarium</i>	None	Introduced	Redstem filaree
<i>Erodium moschatum</i>	None	Introduced	Greenstem filaree
<i>Eryngium vaseyi</i> var. <i>vaseyi</i>	None	Native	Coyote thistle
<i>Eschscholzia californica</i>	None	Native	California poppy
<i>Filago gallica</i>	None	Introduced	Herba impia
<i>Galium andrewsii</i>	None	Native	Phlox-leaved bedstraw
<i>Galium aparine</i>	None	Native	Goose grass
<i>Gnaphalium californicum</i>	None	Native	California everlasting
<i>Gnaphalium luteo-album</i>	None	Introduced	Cudweed
<i>Heliotropium curassavicum</i>	None	Native	Heliotrope
<i>Hemizonia pentactis</i>	None	Native	Salinas tarplant
<i>Hemizonia pungens</i>	None	Native	Common spikeweed
<i>Heterotheca sessiliflora</i>	None	Native	Goldenaster
<i>Hirschfeldia incana</i>	None	Introduced	Mustard
<i>Hypochaeris glabra</i>	None	Introduced	Smooth cat's-ear
<i>Hypochaeris radicata</i>	None	Introduced	Rough cat's-ear
<i>Juncus bufonius</i>	None	Native	Toadrush
<i>Juncus mexicanus</i>	None	Native	Mexican rush
<i>Lactuca serriola</i>	None	Introduced	Prickly lettuce
<i>Lagophylla ramosissima</i> ssp. <i>ramosissima</i>	None	Native	Slender hareleaf
<i>Lepidium densiflorum</i>	None	Native	Pepperwort
<i>Lepidium</i> sp.	None	Native	Peppergrass
<i>Lessingia filaginifolia</i>	None	Native	California aster
<i>Linanthus liniflorus</i>	None	Native	Narrowflower flaxflower
<i>Lotus humistratus</i>	None	Native	Hill lotus
<i>Lotus purshianus</i> var. <i>purshianus</i>	None	Native	Spanish-clover

Scientific Name	Special Status	Origin	Common Name
<i>Lotus strigosus</i>	None	Native	Bishop lotus
<i>Lupinus bicolor</i>	None	Native	Miniature lupine
<i>Lupinus formosus</i>	None	Native	Showy lupine
<i>Lupinus microcarpus</i>	None	Native	Chick lupine
<i>Lupinus nanus</i>	None	Native	Sky blue lupine
<i>Lupinus succulentus</i>	None	Native	Arroyo lupine
<i>Lythrum hyssopifolium</i>	None	Introduced	Loosestrife
<i>Marrubium vulgare</i>	None	Introduced	Horehound
<i>Medicago polymorpha</i>	None	Introduced	Common bur-clover
<i>Melilotus indica</i>	None	Introduced	Annual sweetclover
<i>Micropus californicus</i>	None	Native	Slender cottonweed
<i>Mimulus guttatus</i>	None	Native	Stream monkeyflower
<i>Navarretia atractyloides</i>	None	Native	Navarretia
<i>Navarretia nigelliformis</i> ssp. <i>radians</i>	List 1B.2 <sup>1</sup>	Native	Shining navarretia
<i>Navarretia pubescens</i>	None	Native	Pubescent navarretia
<i>Nicotiana acuminata</i> var. <i>multiflora</i>	None	Introduced	Tobacco
<i>Oenothera</i> sp.	None	Native	Primrose
<i>Phoradendron villosum</i>	None	Native	Oak mistletoe
<i>Phyla nodiflora</i>	None	Native	Common lippia
<i>Picris echioides</i>	None	Introduced	Bristly ox-tongue
<i>Plagiobothrys nothofulvus</i>	None	Native	Popcorn flower
<i>Plagiobothrys</i> sp.	None	Native	Popcorn flower
<i>Plantago erecta</i>	None	Native	California plantain
<i>Plantago lanceolata</i>	None	Introduced	English plantain
<i>Polygonum arenastrum</i>	None	Introduced	Common knotweed
<i>Pterostegia drymarioides</i>	None	Native	Pterostegia
<i>Ranunculus californicus</i>	None	Native	California buttercup
<i>Ranunculus hebecarpus</i>	None	Native	Annual buttercup
<i>Rumex crispus</i>	None	Introduced	Curly dock
<i>Rumex salicifolius</i>	None	Native	Willow dock
<i>Sanicula crassicaulis</i>	None	Native	Sanicle
<i>Silybum marianum</i>	None	Introduced	Milk thistle
<i>Sisymbrium irio</i>	None	Introduced	London rocket

<sup>1</sup> List 1B.2 species are considered fairly endangered in California (20-80% of occurrences threatened).

Scientific Name	Special Status	Origin	Common Name
<i>Sonchus asper</i>	None	Introduced	Prickly sow-thistle
<i>Spergularia rubra</i>	None	Introduced	Sand spurrey
<i>Stylocline gnaphalioides</i>	None	Native	Everlasting nest straw
<i>Thysanocarpus laciniatus</i>	None	Native	Fringepod
<i>Torilis nodosa</i>	None	Introduced	Knotted hedge parsley
<i>Trichostema lanceolatum</i>	None	Native	Vinegar weed
<i>Trifolium hirtum</i>	None	Native	Rose clover
<i>Trifolium microcephalum</i>	None	Native	Miniature clover
<i>Triteleia ixioides</i>	None	Native	Golden brodiaea
<i>Urtica urens</i>	None	Native	Dwarf nettle
<i>Verbena lasiostachys</i>	None	Native	Verbena
<i>Veronica anagallis-aquatica</i>	None	Native	Water speedwell
<i>Vicia villosa</i>	None	Introduced	Winter vetch
<i>Viola pedunculata</i>	None	Native	Johnny jump-up
<i>Yabea microcarpa</i>	None	Native	Yabea
<b>Grasses – 24 Species</b>			
<i>Avena barbata</i>	None	Introduced	Slender wild oat
<i>Avena fatua</i>	None	Introduced	Wild oat
<i>Bromus diandrus</i>	None	Introduced	Ripgut brome
<i>Bromus hordeaceus</i>	None	Introduced	Soft chess brome
<i>Bromus madritensis ssp. rubens</i>	None	Introduced	Redtop brome
<i>Bromus tectorum</i>	None	Introduced	Cheat grass
<i>Cynodon dactylon</i>	None	Introduced	Bermuda grass
<i>Distichlis spicata</i>	None	Native	Salt grass
<i>Elymus glaucus</i>	None	Native	Blue wildrye
<i>Gastridium ventricosum</i>	None	Introduced	Nit grass
<i>Hordeum marinum ssp. gussoneanum</i>	None	Introduced	Mediterranean barley
<i>Hordeum murinum</i>	None	Introduced	Foxtail barley
<i>Leymus triticoides</i>	None	Native	Creeping wild rye
<i>Lolium multiflorum</i>	None	Introduced	Italian ryegrass
<i>Melica imperfecta</i>	None	Native	Melic grass
<i>Nassella lepida</i>	None	Native	Slender needlegrass
<i>Nassella pulchra</i>	None	Native	Purple needlegrass
<i>Phalaris paradoxa</i>	None	Introduced	Hood canary grass
<i>Poa annua</i>	None	Introduced	Annual bluegrass

Scientific Name	Special Status	Origin	Common Name
<i>Poa secunda</i>	None	Native	One-sided bluegrass
<i>Polypogon monspeliensis</i>	None	Introduced	Annual beard grass
<i>Taeniatherum caput-medusae</i>	None	Introduced	Medusa-head
<i>Vulpia microstachys</i> var. <i>ciliata</i>	None	Native	Vulpia
<i>Vulpia myuros</i>	None	Introduced	Annual fescue

### 3.6 Wildlife List

Many wildlife species commonly found in cismontane habitats of California's central coast are expected to occur on or near the project site. The grassland habitat provides foraging habitat for raptors and predators, including golden eagle, red-tail hawk, American kestrel, red fox, coyote, badger, and bobcat. Reptiles and amphibians are present in all habitats on the property, and include gopher snake, king snake, western fence lizard, Pacific chorus frog, and black-bellied slender salamander. Raccoon, opossum, and striped skunk are likely to forage in riparian and woodland areas, and mule deer tracks are abundant on roads and trails throughout the property.

Nesting birds occur in the oak and riparian woodlands, and in grassland habitats on the property. An occupied golden eagle nest was mapped on the property. Nesting birds are protected from disturbance by The Migratory Bird Treaty Act of 1918, as regulated by the United States Fish and Wildlife Service.

More than 111 animal species have the potential to occur on the property. These include at least 6 crustaceans, 6 amphibians, 8 reptiles, 69 birds, and 22 mammals (Table 3). Several rodent species (e.g., California vole, harvest mouse, etc.) are expected to be residents on the property; however, no trapping was conducted as part of this study.

TABLE 3. WILDLIFE LIST. At least 111 animal species have the potential to occur on the property. The Status column indicates the listing status of the organism under the Federal Endangered Species Act, the State Endangered Species Act, or by the CDFG (see Appendix D for status definitions). Species observed on the property during our surveys are designated with a check mark (✓) in the fourth column.

Common Name	Scientific Name	Status	Found on the Property	Habitat Type
<b>Crustaceans – 6 species</b>				
Water Flea	<i>Daphnia</i> sp.	None		Seasonal pools
Seed Shrimp	Class Ostracoda	None	✓	Seasonal pools
Versatile Fairy Shrimp	<i>Branchinecta lindahli</i>	None		Seasonal pools

Common Name	Scientific Name	Status	Found on the Property	Habitat Type
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FT <sup>2</sup>		Seasonal pools
California Linderiella	<i>Linderiella californica</i>	None		Seasonal pools
Clam Shrimp	Order Conchostraca	None		Seasonal pools
<b>Amphibians – 6 species</b>				
Arboreal Salamander	<i>Aneides lugubris</i>	None		Oak savanna
Black-bellied Slender Salamander	<i>Batrachoseps nigriventris</i>	None		Oak woodlands, moist areas
California Toad	<i>Bufo boreas halophilus</i>	None	✓	Grassland, woodland
Monterey Ensatina	<i>Ensatina eschscholzi</i>	None		Moist habitats
Pacific Chorus Frog	<i>Pseudacris regilla</i>	None	✓	Many habitats near water
Western Spadefoot Toad	<i>Spea hammondi</i>	CSC <sup>3</sup>		Grasslands with ephemeral pools for breeding
<b>Reptiles - 8 species</b>				
Northern Pacific Rattlesnake	<i>Crotalus oreganus oreganus</i>	None		Dry, rocky habitats
Ringneck Snake	<i>Diadophis punctatus</i>	None		Woodlands, grasslands
California Alligator Lizard	<i>Elgaria multicarinata multicarinata</i>	None		Open grassland, woodland, chaparral
Western Skink	<i>Eumeces skiltonianus skiltonianus</i>	None		Woodland, grassland, chaparral
California Kingsnake	<i>Lampropeltis getula californiae</i>	None	✓	Woodland, grassland, streams
Gopher Snake	<i>Pituophis catenifer catenifer</i>	None		Woodland, grassland
Western Fence Lizard	<i>Sceloporus occidentalis</i>	None	✓	Wide range
Side-blotched Lizard	<i>Uta stansburiana</i>	None		Dry habitats
<b>Birds - 69 species</b>				
Cooper's Hawk	<i>Accipiter cooperii</i>	CSC		Oak and riparian woodlands
Sharp-shinned Hawk	<i>Accipiter striatus</i>	CSC		Oak, riparian woodland
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	None	✓	Marshes, fields
Western Scrub Jay	<i>Aphelocoma californica</i>	None	✓	Oak and riparian woodlands
Golden Eagle	<i>Aquila chrysaetos</i>	CSC	✓	Open or mountainous areas
Great Egret	<i>Ardea alba</i>	None		Water habitats, grasslands
Great Blue Heron	<i>Ardea herodias</i>	None		Water habitats

<sup>2</sup> FT = Federally Threatened

<sup>3</sup> CSC = California Special Concern species

Common Name	Scientific Name	Status	Found on the Property	Habitat Type
Burrowing Owl	<i>Athene cunicularia</i>	CSC		Grasslands with ground squirrel burrows
Cedar Waxwing	<i>Bombycella cedrorum</i>	None		Open habit
Great Horned Owl	<i>Bubo virginianus</i>	None		Varied habitats
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None	✓	Open, semi-open country
Red-shouldered Hawk	<i>Buteo lineatus</i>	None		Oak and riparian woodlands
California Quail	<i>Callipepla californica</i>	None	✓	Oak, riparian woodlands
Anna's Hummingbird	<i>Calypte anna</i>	None		Oak, riparian woodland, scrub
Lesser Goldfinch	<i>Carduelis psaltria</i>	None		Riparian, oak woodlands
American Goldfinch	<i>Carduelis tristis</i>	None		Weedy fields, woodlands
House Finch	<i>Carpodacus mexicanus</i>	None		Wide habitat range
Turkey Vulture	<i>Cathartes aura</i>	None	✓	Open country, oak woodlands
Killdeer	<i>Charadrius vociferous</i>	None		Mud flats, stream banks, fields
Lark Sparrow	<i>Chondestes grammacus</i>	None		Grasslands, edge habitats
Red-shafted Flicker	<i>Colaptes auratus</i>	None	✓	Woodlands
Rock Dove	<i>Columba livia</i>	None	✓	Urban areas
Western Wood Pewee	<i>Contopus sordidulus</i>	None		Riparian woodlands
American Crow	<i>Corvus brachyrhynchos</i>	None		Open oak, riparian woodland,
Yellow-rumped Warbler	<i>Dendroica coronata</i>	None		Riparian, oak woodlands
Townsend's Warbler	<i>Dendroica townsendii</i>	None		Riparian, oak woodlands
White-tailed Kite	<i>Elanus leucurus</i>	CSC		Nests in dense live oaks
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	None	✓	Riparian, oak woodlands
Horned Lark	<i>Eremophila alpestris actia</i>	CSC		Grassland, oak savanna
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	None		Open habitats
American Kestrel	<i>Falco sparverius</i>	None	✓	Open, semi-open country
Barn Swallow	<i>Hirundo rustica</i>	None		Open country, farmyards
Dark-eyed Junco	<i>Junco hyemalis</i>	None		Oak woodlands
Loggerhead Shrike	<i>Lanius ludovicianus</i>	CSC		Nests in shrubs, trees near open areas
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	None	✓	Oak woodlands
Lewis' Woodpecker	<i>Melanerpes lewis</i>	None		Oak savannah
Brown-headed Cowbird	<i>Molothrus ater</i>	None		Rural areas, ranches
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	None	✓	Open areas near oaks

Common Name	Scientific Name	Status	Found on the Property	Habitat Type
Western Screech Owl	<i>Otus kennicottii</i>	None		Oak woodlands
Oak Titmouse	<i>Parus inornatus</i>	None		Woodland, riparian, oak, conifer
Savannah Sparrow	<i>Passerculus sandwichensis</i>	None		Open habitats, marshes, grasslands
House Sparrow	<i>Passer domesticus</i>	None		Urban
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	None		Urban; open areas near water
Phainopepla	<i>Phainopepla nitens</i>	None		Oak, riparian, scrub
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	None		Woodlands
Yellow-billed Magpie	<i>Pica nuttalli</i>	None	✓	Oak savannah
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	None	✓	Oak woodland, savanna
Downy Woodpecker	<i>Picoides pubescens</i>	None		Riparian, oak woodlands
California Towhee	<i>Pipilo crissalis</i>	None		Brushy habitats
Bushtit	<i>Psaltriparus minimus</i>	None		Oak, riparian, chaparral, scrub
Ruby-crowned Kinglet	<i>Regulus calundula</i>	None		Oak and riparian woodlands
Black Phoebe	<i>Sayornis nigricans</i>	None		Near water
Say's Phoebe	<i>Sayornis saya</i>	None		Open country, grassland
Western Bluebird	<i>Sialia mexicana</i>	None	✓	Riparian woodland, ranch land
White-breasted Nuthatch	<i>Sitta carolinensis</i>	None	✓	Oak savannah, woodland
Western Meadowlark	<i>Sturnella neglecta</i>	None	✓	Grasslands
European Starling	<i>Sturnus vulgaris</i>	None	✓	Agricultural, urban
Tree Swallow	<i>Tachycineta bicolor</i>	None		Wooded habitats, water
Violet-green Swallow	<i>Tachycineta thalassina</i>	None	✓	Woodland habitats
Bewick's Wren	<i>Thryomanes bewickii</i>	None		Shrubby areas
House Wren	<i>Troglodytes aedon</i>	None		Shrubby areas
American Robin	<i>Turdus migratorius</i>	None		Streamsides, woodlands
Western Kingbird	<i>Tyrannus verticalis</i>	None	✓	Open country with scattered trees
Barn Owl	<i>Tyto alba</i>	None		Agricultural, woodlands
Orange-crowned Warbler	<i>Vermivora celata</i>	None		Oak, riparian woodlands
Hutton's Vireo	<i>Vireo huttonii</i>	None		Oak, riparian woodlands
Wilson's Warbler	<i>Wilsonia pusilla</i>	None		Oak, riparian woodlands
Mourning Dove	<i>Zenaida macroura</i>	None		Open and semi-open area
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	None		Shrubby, weedy areas



Common Name	Scientific Name	Status	Found on the Property	Habitat Type
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	None		Shrubby, weedy areas
<b>Mammals - 22 species</b>				
Pallid Bat	<i>Antrozous pallidus</i>	CSC		Riparian, woodland, urban
Coyote	<i>Canis latrans</i>	None		Open woodlands, brushy areas, wide ranging
Opossum	<i>Didelphis marsupialis</i>	None		Woodlands, streams
Feral Cat	<i>Felis catus</i>	None		Varied
Mountain Lion	<i>Felis concolor</i>	None		Mountains, woodlands, stream corridors
Black-tailed Jackrabbit	<i>Lepus californicus</i>	None		Grasslands
Bobcat	<i>Lynx rufus</i>	None		Chaparral and woodlands
Striped Skunk	<i>Mephitis mephitis</i>	None		Mixed woods, chaparral
California Vole	<i>Microtus californicus</i>	None		Grassland meadows
Long-tailed Weasel	<i>Mustela frenata</i>	None		Grasslands
California Myotis	<i>Myotis californicus</i>	None		Tunnels, hollow trees, crevices
Mule Deer	<i>Odocoileus hemionus</i>	None	✓	Many habitats
Deer Mouse	<i>Peromyscus maniculatus</i>	None	✓	All dry land habitats
Raccoon	<i>Procyon lotor</i>	None		Streams, lakes, rock cliffs,
Western Harvest Mouse	<i>Reithodontomys megalotis</i>	None		Grassland, dense vegetation near water
California Ground Squirrel	<i>Spermophilus beecheyi</i>	None	✓	Grasslands
Desert Cottontail	<i>Sylvilagus audubonii</i>	None		Brushy areas
American Badger	<i>Taxidea taxus</i>	CSC		Open grasslands
Valley Pocket Gopher	<i>Thomomys bottae</i>	None	✓	Variety of habitats
Gray Fox	<i>Urocyon cinereoargenteus</i>	None		Chaparral, dry woodlands
Red Fox	<i>Vulpes fulva</i>	None		Forest and open country
San Joaquin Kit Fox	<i>Vulpes macrotis mutica</i>	FE <sup>4</sup>		Open grasslands, scrub

<sup>4</sup>FE = Federally Endangered

### 3.7 Special Status Plants and Animals

The CNDDDB and the CNPS On-line Inventory of Rare and Endangered Plants of California contain records for 20 special status species within the designated search area. The search area included all USGS 7.5 minute quadrangles within five miles of the site: Paso Robles, Estrella, Templeton, and Creston quadrangles. Thirteen additional special status species were added to the list from our knowledge of the area (Table 4). These species are marked with an asterisk (\*). Appropriate habitat and soil conditions are found on the property for 7 special status plants and 11 special status animals. No sensitive natural communities are listed for the area; however vernal pools are present on the property.

#### 3.7.1 Introduction to CNPS lists

Plant species are considered rare when their distribution is confined to localized areas, when there is a threat to their habitat, when they are declining in abundance, or are threatened in a portion of their range. The listing categories range from species with a low threat (List 4) to species that are presumed extinct (List 1A). The 1043 plants of List 1B are rare throughout their range. All but a few species are endemic to California. All of them are judged to be vulnerable under present circumstances, or to have a high potential for becoming vulnerable. For an explanation of the CNPS listing scheme and CNDDDB status codes, see Appendix D.

#### 3.7.2 Introduction to CNDDDB definitions

"Special plants" is a broad term used to refer to all the plant taxa inventoried by the CNDDDB, regardless of their legal or protection status. Special plants include vascular plants and high priority bryophytes (mosses, liverworts, and hornworts).

"Special Animals" is a general term that refers to all of the animal taxa inventoried by the CNDDDB, regardless of their legal or protection status. These taxa may be listed or proposed for listing under the State and/or Federal Endangered Species Acts, but they may also be species deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable.

Animals listed as California Special Concern (CSC) species are not listed under State or Federal Endangered Species Acts, but are considered rare or declining in abundance. The Special Concern designation is intended to provide the Department of Fish and Game, consulting biologists, land planners and managers with lists of species that require special consideration during the planning process in order to avert continued population declines and potential costly listing under federal and state endangered species laws.

#### 3.7.3 Special status species list

Table 4 lists all 33 special status species known to occur in quadrangles within five miles of the project site. Federal and state status, global and state rank, CNPS listing status (plants), and CDFG designation (animals) for each species are given. Typical blooming period, habitat preference, potential habitat on site, whether or not the species was observed on the property, and the effect of the proposed activity are also provided.

TABLE 4. SPECIAL STATUS SPECIES LIST. Thirty-three special status species were determined by our research to occur in the Paso Robles, Estrella, Templeton, and Creston quadrangles. Seven special status plants and eleven special status animals have the potential to occur on the subject property. One special status plant and one special status animal were documented on the property in 2006. Potential impacts are outlined in section 5.0, and mitigation recommendations are provided in section 6.0.

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Blooming Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Plants</b>						
1. <b>Dwarf Calycadenia</b> <i>Calycadenia villosa</i>	None/none G2/S2.1 List 1B.1	May - October	Dry, rocky hills, ridges, in chaparral, woodland, meadows and seeps; <1100 m. c&s SCoRO	Yes. Moderately appropriate habitat is present in blue oak woodland on hillsides.	No	Not Significant
2. <b>Oval-leaved Snapdragon*</b> <i>Antirrhinum ovatum</i>	None/none G3/S3.2 List 4.2	May - November	Heavy, adobe-clay soils on gentle, open slopes, also disturbed areas; 200-1000 m. s SnJV, s SCoRI	No. Recorded on the Chandler Ranch in 1991, but not reported there since. Appropriate soils not found on site.	No	Not Significant
3. <b>Salinas Milk-Vetch*</b> <i>Astragalus macrodon</i>	None/none G3/S3.3 List 4.3	April - July	Eroded pale shales or sandstone, or serpentine alluvium; 300-950 m. SCoR	No. Appropriate habitat and soil type not found on site.	No	Not Significant
4. <b>Obispo Indian Paintbrush</b> <i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	None/none G5T2/S2.2 List 1B.2	April	Coastal grassland, <100 m. Endemic to SLO County.	Yes. Appropriate grassland habitat is present on site.	No	Not Significant
5. <b>Lemmon's Jewelflower</b> <i>Caulanthus coulteri</i> var. <i>lemmonii</i>	None/none G4T2/S2.2 List 1B.2	March - May	Dry, exposed slopes; 80-800 m. sw SnJV, se SnFrB, e SCoRO, SCoRI	No. Appropriate drying slopes not present on site.	No	Not Significant
6. <b>Douglas' Spineflower*</b> <i>Chorizanthe douglasii</i>	None/none G3/S3.3 List 4.3	April - July	Foothill woodland, pine forest, chaparral, sandy or gravelly soils; 200-1600 m. e SCoRO, SCoRI	Yes. Appropriate soil and habitat types are present on site.	No	Not Significant
7. <b>Yellow-flowered Eriastrum</b> <i>Eriastrum luteum</i>	None/none G2/S2.2 List 1B.2	May - June	Drying slopes; <1000 m. SCoR Monterey, SLO Counties	No. Appropriate habitat not present on site.	No	Not Significant

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Blooming Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Plants</b>						
8. <b>Round-leaved Filaree</b> <i>Erodium macrophyllum</i>	None/none G4/S2.1 List 2.1	March - May	Clay soils in cismontane woodland, valley and foothill grassland; 15-1200 m. ScV, n SnJV, CW, SCo, n ChI	Yes. Moderately appropriate habitat is present on the property.	No	Not Significant
9. <b>Mesa Horkelia</b> <i>Horkelia cuneata</i> ssp. <i>puberula</i>	None/none G4T2/S2.1 List 1B.1	February - September	Dry, sandy coastal chaparral; gen 70-700 m. SCoRO, SCo.	No. Appropriate soil and habitat combination not present on site.	No	Not Significant
10. <b>Kellogg's Horkelia</b> <i>Horkelia cuneata</i> ssp. <i>sericea</i>	None/none G4T1/S1.1 List 1B.1	April - September	Old dunes, coastal sand hills; <200 m. CCo	No. Appropriate dune soils not present on site.	No	Not Significant
11. <b>Salinas Valley Goldfields*</b> <i>Lasthenia leptalea</i>	None/none G3/S3.3 List 4.3	April	Open areas in woods, valley and foothill grassland; <500 m. Monterey & SLO Counties	Yes. Moderately appropriate habitat is present on site.	No	Not Significant
12. <b>Jared's Peppergrass</b> <i>Lepidium jaredii</i> ssp. <i>jaredii</i>	None/none G1T1/S1.2 List 1B.2	March - May	Alkali bottoms, slopes, washes, <500 m. SCoRI, SnJV	No. Appropriate soil and habitat type are not present on site.	No	Not Significant
13. <b>Santa Lucia Bush Mallow</b> <i>Malacothamnus palmeri</i> var. <i>palmeri</i>	None/none G3T2Q/S2.2 List 1B.2	May - July	Chaparral, cismontane woodland, coastal scrub; 30-1100 m. s CCo, SCoRO	No. Appropriate habitat not present on site.	No	Not Significant
14. <b>Paso Robles Navarretia*</b> <i>Navarretia jaredii</i>	None/none G3S3.3 List 4.3	April - July	Open, grassy areas, often in clay, limestone, or serpentine. 200-500 m. SCoRI, SW	Yes. Appropriate soil and grassland habitat are present on site.	No	Not Significant
15. <b>Shining Navarretia</b> <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	None/none G4T1/S1.1 List 1B.2	May - July	Vernal pools, clay depressions, open areas in mesic grasslands; 100-1000 m.	Yes. This subspecies was mapped in two polygons on the property.	Yes	Not Significant With Mitigation
16. <b>Rayless Ragwort*</b> <i>Senecio aphanactis</i>	None/none G3?/S1.2 List 2.2	January - April	Drying alkaline flats, chaparral, cismontane woodland, coastal scrub; <400 m. CW, SCo, Chi	No. Appropriate soils and habitat types are not present on site.	No	Not Significant

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Blooming Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Plants</b>						
17. <b>San Bernardino Aster</b> <i>Symphotrichum defoliatum</i>	None/none G3/S3.2 List 1B.2	July - November	Vernally mesic grasslands near ditches, streams, springs, or disturbed areas; 2-2040 m.	No. Collection record for "North of Creston" is not positively identified. Location possibly too far north.	No	Not Significant

Habitat characteristics are from the Jepson Manual and the CDNNB.  
\*not listed in the CNDDDB or CNPS for the search area, but possible for the location.

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Breeding/Nesting Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Animals</b>						
18. <b>Pallid Bat*</b> <i>Antrozous pallidus</i>	None/none G5/S3 CSC	Spring - Summer	Rock crevices, caves, tree hollows, mines, old buildings, and bridges.	Yes. Appropriate roosting areas are found in oak trees on the property.	No	Not Significant With Mitigation
19. <b>Golden Eagle*</b> <i>Aquila chrysaetos</i>	None/none G5/S3 CSC	March 15 through August 15	Nests in large, prominent trees in valley and foothill woodland. Requires adjacent food source.	Yes. An occupied nest was mapped on site in 2006.	Yes	Not Significant With Mitigation
20. <b>Burrowing Owl*</b> <i>Athene cucularia</i>	None/none G4/S2 CSC	March 15 through August 15	Burrows in squirrel holes in open habitats with low vegetation.	Yes. Appropriate grassland habitat is present on site.	No	Not Significant With Mitigation
21. <b>Vernal Pool Fairy Shrimp</b> <i>Branchinecta lynchi</i>	Threatened/none G3/S2S3 None	Rainy Season	Clear water sandstone depression pools, grassed swale, earth slump, or basalt flow depression pools.	Yes. Vernal pools on site provide adequate habitat for fairy shrimp.	No	Not Significant With Avoidance or Mitigation;
22. <b>Southwestern Pond Turtle</b> <i>Clemmys marmorata pallida</i>	None/none G3G4T2T3Q/S2 CSC	April - August	Permanent or semi-permanent streams, ponds, lakes.	No. Appropriate aquatic habitat not present on site.	No	Not Significant

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Breeding/Nesting Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Animals</b>						
23. <b>White-tailed Kite*</b> <i>Elanus leucurus</i>	None/none G5/S3 None	March 15 through August 15	Nests in dense tree canopy near open foraging areas	Yes. Potential nesting and foraging habitat is present on site.	No	Not Significant with Mitigation
24. <b>California Horned Lark*</b> <i>Eremophila alpestris actia</i>	None/none G5T3/S3 CSC	March 15 through August 15	Nests on the ground in open habitats with short grass. More common in the interior.	Unlikely. Adults could occur on property but are unlikely to nest on site.	No	Not Significant
25. <b>Loggerhead Shrike*</b> <i>Lanius ludovicianus</i>	None/none G4/S4 CSC	March 15 through August 15	Open areas with appropriate perches, near shrubby vegetation for nesting.	Yes. Appropriate nesting habitat is found in riparian trees on site.	No	Not Significant With Mitigation
26. <b>California Linderiella*</b> <i>Linderiella occidentalis</i>	None/none G2G3/S2S3 None	Rainy season	Seasonal pools in unplowed grasslands with alluvial soils.	Yes. Vernal pools on site provide adequate habitat for fairy shrimp.	No	Not Significant With Mitigation
27. <b>San Joaquin Pocket Mouse</b> <i>Perognathus inornatus inornatus</i>	None/none G4T2T3/S2S3 None	n/a	Grasslands and blue oak savannahs with friable soil and occasional shrubs. Also chaparral.	Yes. Appropriate habitat is present in annual grassland and blue oak woodland on site.	No	Not Significant
28. <b>Atascadero June Beetle</b> <i>Polyphylla nubila</i>	None/none G1/S1 None	n/a	Known only from sand dunes in Atascadero and San Luis Obispo, San Luis Obispo County.	No. Appropriate dune habitat not present on site.	No	Not Significant
29. <b>California Red-legged Frog</b> <i>Rana aurora draytonii</i>	Threatened/none G4T2T3/S2S3 CSC	January - March	Lowlands and foothills in or near sources of deep water with dense, shrubby or emergent riparian vegetation.	No. Appropriate aquatic habitat not present on site.	No	Not Significant
30. <b>Western Spadefoot Toad</b> <i>Spea hammondi</i>	None/none G3?/S3? CSC	January - August	Vernal pools in grassland and woodland habitats	Yes. Appropriate breeding habitat is present in vernal pools on site.	No	Not Significant With Mitigation
31. <b>American Badger</b> <i>Taxidea taxus</i>	None/none G5/S4 CSC	February - May	Needs friable soils in open ground with abundant food source such as California ground squirrels.	Yes. Appropriate habitat is present in annual grasslands on site.	No	Not Significant With Mitigation

Common and Scientific Names	Fed/State Status Global/State Rank CNPS List	Breeding/Nesting Period	Habitat Preference	Potential Habitat?	Observed on Site?	Effect of Proposed Activity
<b>Animals</b>						
32. <b>Lompoc Grasshopper</b> <i>Trimerotropis occulens</i>	None/none G1G2/S1S2 None	n/a	Unknown. Known only from Santa Barbara and San Luis Obispo Counties	Unlikely. Thought to be extirpated from the area. Only source of info is a 1909 collection.	No	Not Significant
33. <b>San Joaquin Kit Fox</b> <i>Vulpes macrotis mutica</i>	Endangered/ Threatened G4T2T3/S2S3 None	December - July	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose textured sandy soil and prey base.	Yes. Appropriate denning and foraging habitat is present on site.	No	Not Significant With Mitigation

Common Name	Status	Potential Habitat?	Effect of Proposed Activity
<b>Sensitive Natural Communities</b>			
1. <b>Freshwater Vernal Pool*</b>	No federal or state status. Habitat of local concern.	Yes. Vernal pools are present on the subject property. These pools provide potential habitat for an assemblage of unique plants and wildlife, including three special status species.	Not Significant With Mitigation

**Abbreviations:**

CCo: Central Coast  
SCo: South Coast  
SCoR: South Coast Ranges  
SCoRO: Outer South Coast Ranges

SCoRI: Inner South Coast Ranges  
SnFrB: San Francisco Bay  
TR: Transverse Ranges  
WTR: Western Transverse Ranges

SnJV: San Joaquin Valley  
SLO: San Luis Obispo  
SN: Sierra Nevada  
SnJt: San Jacinto Mtns

Teh: Tehachapi Mtn Area  
CW: Central West  
SW: West

### 3.7.4 Special status plants that could occur on the property

This section provides an explanation of the potential for occurrence of seven special status plant species thought to be compatible with conditions on the subject property. We discuss each species and describe habitat, range restrictions, known occurrences, and survey results for the property. One special status plant, shining navarretia, was mapped on the property in 2006. A biological resource map is provided in Appendix A for reference.

- A. **Dwarf Calycadenia** (*Calycadenia villosa*) is on CNPS List 1B.1, the highest threat rank for plants before state or federal protections are sought. The species is known from dry, rocky hills and gravelly outwashes in Monterey, San Luis Obispo, Santa Barbara, Fresno and Kern Counties. The CNPS considers this species to be seriously endangered. Occurrences in the CNDDDB for San Luis Obispo and Monterey Counties include the vicinity of Nacimiento and San Antonio Lakes, north to Jolon, with scattered occurrences in Parkfield east of the project site, and in the La Panza District, east of Santa Margarita. The closest reported occurrence to the project site is approximately eight miles west, near Bee Rock in the Adelaida quadrangle. Dwarf calycadenia was not found to be present on the property during appropriately timed floristic surveys conducted in May and June 2006.
  
- B. **Obispo Indian paintbrush** (*Castilleja densiflora* ssp. *obispoensis*) is a CNPS List 1B.2 subspecies known only from San Luis Obispo County. It is an annual wildflower with white flowers and bracts that occurs in coastal grasslands in sandy or clay soils. It is not generally known from inland areas, however there are recent reports from the Paso Robles region (CNDDDB Occurrences 36, 37, and 42). The closest reported occurrence is from approximately one mile northeast of the subject property near the intersection of Airport Road and Dry Creek Road (Occ. 42). A few white owl's clover plants were observed on the property at the end of the blooming period and could not be accurately identified. Slender owl's clover is a common white species in the Paso Robles area that does not have special status. Appropriately timed surveys conducted at the peak bloom period for this plant will be necessary to determine the presence or absence of Obispo Indian paintbrush on the subject property.
  
- C. **Douglas' spineflower** (*Chorizanthe douglasii*) is a CNPS List 4.3 species known from San Benito, Monterey, and San Luis Obispo Counties. It is considered rare, but found in sufficient numbers and distributed widely enough within its known range that the threat of extinction is low at this time. This spineflower grows in gravelly or sandy substrates in the Santa Margarita area (Hoover #11352, Crampton #6978, etc.), Adelaida (Rose #36265), Nacimiento River (Hardham #4396), Bee Rock (Bacigalupi #7434), and other areas of San Luis Obispo County. Appropriate habitat is present on the subject property. Douglas' spineflower was not found on the property during appropriately timed floristic surveys in May and June 2006.



- D. Round-leaved Erodium** (*Erodium macrophyllum*) is a CNPS List 2.1 species known from sporadic occurrences throughout the interior region of California. It is found in clay soils in woodland and grassland habitats. In San Luis Obispo County this species is found from Pozo and eastern Santa Margarita through Creston, Atascadero, Templeton, and eastern Paso Robles. No recent records for this species have been reported to the CNDDDB from the vicinity of the project site. Round-leaved Erodium was not found on the property during appropriately timed floristic surveys conducted in the spring of 2006.
- E. Salinas Valley goldfields** (*Lasthenia leptalea*) is a CNPS List 4.3 species endemic to Monterey, San Luis Obispo, and Kern Counties. *L. leptalea* is limited in distribution but abundant enough to be considered not very endangered by CNPS. Salinas Valley goldfields typically bloom in April. This species is known from the vicinity of the subject property. Numerous collections from northern Atascadero, Adelaida, the Lake Nacimiento area, and the Creston area date back as far as 1947, with some collections as recent as 1998. A 1963 collection of Salinas Valley goldfields is from ranch land on Huerhuero Creek in the vicinity of Creston (Hardham #10601); locality data provided with this collection is not specific enough to determine proximity to the subject property. Salinas Valley goldfields were not observed on the property, although spring surveys were begun in May 2006, after the peak blooming period for this species.
- F. Paso Robles navarretia** (*Navarretia jaredii*) is a CNPS List 4.3 species endemic to Monterey and San Luis Obispo Counties. It grows in clay, gravelly loam, and calcareous soils in areas with little competition from annual grasses. The CNPS considers this species not to be very endangered in California. Appropriate grassland habitat is present on the subject site. Paso Robles navarretia was not found on the property during appropriately timed floristic surveys conducted in May and June 2006.
- G. Shining navarretia** (*Navarretia nigelliformis* ssp. *radians*) is a CNPS List 1B.2 subspecies known from vernal pools, valley and foothill grassland, and cismontane woodland habitats in Fresno, Merced, Monterey, San Benito, and San Luis Obispo Counties. Shining navarretia was identified on the Chandler Ranch in an EIR produced in 2000 by Douglas Wood and Associates, Inc., about 2.5 miles south of the subject property. This locality was verified by Althouse and Meade, Inc. botanists in 2005.

Shining navarretia was mapped in two patches on the subject property in 2006 during full bloom, on south and southwest facing slopes on the Arbuckle-Positas soil complex. Approximately 100 plants were present in the smaller patch, and 500-1000 plants were present in the larger patch. Because this plant is an annual species, exact number of plants can vary substantially from year to year depending on precipitation patterns and other climactic factors. The navarretia occurrence is approximately 0.2 acres in size.

### 3.7.5 *Special status animals that could occur on the property*

This section provides an explanation of the potential for occurrence of 11 special status animal species thought to be compatible with conditions on the subject property. We discuss each species and describe habitat, range restrictions, known occurrences, and survey results for the subject property. One special status animal, golden eagle, was observed on the property during biological surveys conducted in 2006. We searched the property for mammal dens that would indicate use of the property by American badger or San Joaquin kit fox. Protocol surveys for listed vernal pool branchiopods are currently being conducted. Trapping for small mammals, such as San Joaquin pocket mouse, was not conducted as a part of this study. A biological resource map is provided in Appendix A for reference.

- A. Pallid bat** (*Antrozous pallidus*) is a California Special Concern species. This is a large, long-eared bat occurring throughout the state from deserts to moist forests. *Antrozous pallidus* is primarily a crevice roosting species and selects roosts where they can retreat from view. They frequently occur in oak woodlands where they roost in tree cavities. These roosts are generally day or night roosts for one or a few bats. Attics may be used as roosts and during hot days they may emerge from crevices and roost on open rafters. Communal wintering or maternity colonies are more common in rock crevices and caves. Appropriate roosting habitat is present in oak trees and rock crevices on the property.
- B. Golden eagle** (*Aquila chrysaetos*) is a California Special Concern species with no state or federal status. Golden eagles are a fully protected under federal law. They require large trees for nesting and open hunting grounds with abundant prey. Adult golden eagles were observed on the property regularly in the spring of 2006. Golden eagles nest on the subject property. Grasslands on the property are used by golden eagles for hunting California ground squirrels and other prey items. An abandoned nest was observed in a tree along the edge of Huerhuero Creek. An occupied nest with one chick was observed in a blue oak tree on the property in 2006. Nesting bird surveys were not conducted in the spring of 2007.
- C. Burrowing owl** (*Athene cunicularia*) is a rare owl that nests and lives in abandoned dens in the ground, most notably those of California ground squirrel. It is a common resident in local areas of the interior, from Bitterwater Valley to the Carizzo Plains. Less frequent reports are from coastal grasslands. There are no reports in the CNDDDB for burrowing owl in the immediate vicinity of the subject property, however appropriate habitat is present, and transient owls could use the property on occasion. Two wintering burrowing owls were observed by Althouse and Meade, Inc. biologists on the Chandler Ranch, approximately one mile south of the subject property, in October 2006. Burrowing owl was not observed on the subject property during our spring surveys, but could winter on site.
- D. Vernal pool fairy shrimp** (*Branchinecta lynchi*) is a federally listed threatened species known to occur in the vicinity of the subject property. Occurrence #287 and #380 in the CNDDDB are from vernal pools less than half a mile southeast of

the property. At least two vernal pools occur on flat ground in the southwestern quarter of the property, adjacent to an existing unpaved agricultural road. These pools could support vernal pool fairy shrimp. Reconnaissance-level surveys of these pools were conducted in late May of 2006, when the pools were nearly dry. Additional pools may be present. A non-protocol level wet season survey was conducted in the spring of 2007, and a protocol level dry season survey was conducted in the summer of 2007. Neither survey detected rare branchiopods. However, the 2007 wet season survey was conducted in a year with little rainfall and therefore will be repeated in 2008. It is unlikely that rare branchiopods will be discovered on the property.

- E. White-tailed kite (*Elanus leucurus*)** is a California Special Concern species that nests in dense tree canopy near open fields for hunting throughout San Luis Obispo County. The CNDDDB does not contain nesting records for this species in the vicinity of the subject property. However Althouse and Meade, Inc. biologists observed a pair nesting in live oak trees on the south shore of Lake Nacimiento, and a second pair nesting in blue oak woodland in Vineyard Canyon (northeast of San Miguel) in 2006. Appropriate nesting and foraging areas are present on the subject property; however, kites were not observed on the property during our surveys in 2006.
- F. Loggerhead shrike (*Lanius ludovicianus*)** is a California Special Concern species. It requires open areas with appropriate perches for hunting, and shrubby trees or bushes for nesting. Appropriate foraging habitat is present in grasslands on site. Some areas of riparian habitat support shrubby vegetation appropriate for nesting loggerhead shrikes. This species was not observed on the property during site surveys in 2006; however, loggerhead shrike could nest on site in the future.
- G. California linderiella (*Linderiella occidentalis*)** is an uncommon but wide ranging species of fairy shrimp about an inch in length that inhabits small vernal pools and seasonal ponds in sporadic occurrences throughout much of central California. No occurrences are listed in the CNDDDB for the vicinity of the subject property; however, California linderiella could occur in vernal pools on the subject property. Reconnaissance-level surveys of these pools were conducted in late May of 2006, when the pools were nearly dry. Fairy shrimp surveys will continue through the 2008 wet season.
- H. San Joaquin pocket mouse (*Perognathus inornatus inornatus*)** is a California Special Concern subspecies known from the San Miguel area. The closest record is a 1918 collection approximately 5 miles northwest of the subject property (Dixon, J., MVZ #29012). A more recent collection from 1999 in the Estrella River wash is more than 10 miles from the subject site (CNDDDB occurrence #100). There are no recent records of San Joaquin pocket mouse in the vicinity of the project site. Small mammal trapping was not conducted as part of this study. The blue oak woodland and surrounding grasslands have suitable substrates for this species.

- I. Western spadefoot toad (*Spea hammondi*)** is a California Special Concern species that breeds in ephemeral pools in open grassland habitats across the interior region of San Luis Obispo County. Spadefoot toads remain underground for most of the year, emerging to breed in seasonal wetland pools during the rainy season. Development of the larvae from egg to metamorphosis can be very quick, when water temperatures are warm. Spadefoot toads are known to breed in seasonal pools in the vicinity of Highway 46 and Airport Road, east of Paso Robles. Appropriate breeding habitat for spadefoot toad is found in vernal pools on site. These pools were examined in late May of 2006 when they were nearly dry. Neither Western spadefoot toad tadpoles nor adults were observed on the property; however, the surveys could have been conducted too late in the breeding season to detect larvae. It is likely that spadefoot toad occurs on the property.
- J. American badger (*Taxidea taxus*)** is a California Special Concern species known from open grassland habitats throughout San Luis Obispo County and elsewhere in California. Appropriate habitat for badger is found on the subject property. No dens or other sign of badgers were observed on the property during our site surveys.
- K. San Joaquin kit fox (*Vulpes macrotis mutica*)** is a federally listed endangered species and a state listed threatened species. They are known from the Carizzo Plains, Bitterwater Valley, and Camp Roberts, with transient individuals known to move between the populations. Huerhuero Creek is considered to be one of the known movement corridors for kit fox. Huerhuero Creek crosses the northern portion of the subject property. The open grasslands on the property provide appropriate habitat for San Joaquin kit fox. Development on the property will permanently remove San Joaquin kit fox habitat. The property is within the three to one mitigation ratio area, as per the San Luis Obispo County Standard Kit Fox Mitigation Ratios map, found at: <http://slocountymaps.calpoly.edu/kitfox.htm>

### 3.7.6 *Special status species not expected to occur on the property*

The remaining 15 special status species known to occur in the Paso Robles, Estrella, Templeton, and Creston quadrangles are not expected to occur on the property due to the absence of required soil type, lack of appropriate habitat, or because the project site is substantially outside the known range of the species.

### 3.7.7 *Sensitive natural communities*

No habitats listed by the California Department of Fish and Game as Sensitive Natural Communities are present on the property. Vernal pools, a sensitive natural community of local concern, are present on the subject property. These pools have potential to harbor three species of special concern as well as numerous uniquely adapted native plant and wildlife species (see section 3.3.5 for habitat description).

## **4.0 Discussion**

### **4.1 General Discussion of Property Conditions**

This 160± acre ranch has historically been grazed. At the time of our biological investigations in the spring of 2006, cattle were actively grazing the property. Other minor uses, such as material storage (concrete pavers) and disposal of pressed grapes has occurred on the property. Golden Hill Road ends at Circle B Road near the southwest corner of the property, providing access to the site. Oak woodland and grassland habitats are the prominent vegetation types on the property. One special status plant species was mapped on the property in 2006. An occupied golden eagle nest was mapped on the property in blue oak woodland habitat along Huerhuero Creek in 2006. Vernal pools and seasonal wetlands were identified on site, but were not adequately mapped due to the late season initiation of our site surveys. Detailed mapping of vernal pools will be completed during the 2007-2008 wet season.

### **4.2 Regulatory Framework**

The California Environmental Quality Act (CEQA) requires the lead agency (the City of Paso Robles) to determine potential environmental effects of the project. The lead agency must also identify other involved agencies that become responsible or trustee agencies.

All of the plants constituting CNPS List 1B meet the definitions of Sec. 1901, Chapter 10 of the California Native Plant Protection Act (CNPPA) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA (CEQA section 15065).

Plants protected under the CNPPA must be fully considered under CEQA (CEQA sections 15380, 15386). Proposed impacts that affect more than 10 percent of a local breeding population generally require mitigation at a minimum 2:1 ratio.

The California Department of Fish and Game (CDFG) recognizes that Lists 1A, 1B, and 2 of the CNPS Inventory consist of plants that may qualify for listing, and recommends they be addressed in CEQA projects. The CDFG should be consulted regarding measures employed to protect special status plants.

Special status plants and animals listed under the Federal Endangered Species Act (FESA) are protected. The United States Fish and Wildlife Service (USFWS) is the agency that regulates activities affecting federally listed species. To avoid take of federally listed species and subsequent penalties, the USFWS should be contacted for an opinion on projects with the potential to affect federally listed species. The Paso 160 LLC project could affect two federally listed species: San Joaquin kit fox and vernal pool fairy shrimp.

Nesting birds are protected from disturbance by The Migratory Bird Treaty Act of 1918, (as regulated by the United States Fish and Wildlife Service) and by sections 3503, 3503.5, and 3800 of the California Department of Fish and Game code.

Drainages on the property are under the permitting jurisdiction of the U.S. Army Corps of Engineers (section 404), the California Department of Fish and Game (code 1603), and the Regional Water Quality Control Board (section 401). The applicant should demonstrate to the lead agency that all applicable permits have been obtained for work affecting drainages. All work that affects the bed or banks of the drainages, including culverts and bridges, are likely to require USACE, RWQCB, and CDFG authorizations.

## 5.0 Potential Impacts

Development on the subject property could affect special status plant and animal species, grasslands, oak woodlands, riparian habitat, vernal pools, seasonal wetlands, ephemeral drainages, native oak trees and common plant and animal species. The following sections outline impacts to biological resources from proposed development on the property, as shown on the preliminary grading and drainage plan provided by North Coast Engineering, Inc. (Appendix A). A Habitat Map, Oak Tree Map, and a Constraints Map are also provided in Appendix A.

Sections 5.1 through 5.5 address the distribution of biological resources on the 160± acre property and assess potential impacts to biological resources from the proposed project. We include in our analysis impacts to both common and special status species, as well as to habitats that are not sensitive. This consideration contributes to understanding cumulative impacts to the environment that may result from the loss of common species and habitat. Section 5.6 includes a separate analysis of potential impacts from construction of the proposed extension of Golden Hill Road.

### 5.1 Potential Impacts to Habitat Types

#### 5.1.1 Annual grassland

Grassland habitat with scattered oak trees occurs on the subject property in four mapped areas (see Biological Resource Map in Appendix A). Approximately 72 acres of grassland habitat is mapped on the property. Proposed development on the property would result in a permanent loss of ±31 acres of annual grassland habitat.

Grasslands on the property provide potential habitat for three special status animals: San Joaquin kit fox, San Joaquin pocket mouse, and American badger. One special status plant occurs in grassland habitat on the property. Impacts to annual grassland habitat that affect special status species can be mitigated to a less than significant level (Refer to Sections 5.4 and 6.4).

#### 5.1.2 Blue oak woodland

Oak woodlands occupy approximately 65 acres of the property. The proposed project would impact at least 26 acres of oak woodland habitat. Impacts to oak woodland habitat extend beyond the loss of individual trees, and include loss of nesting and foraging habitat for wildlife and the sheltered growing conditions for many native plants. Any road or RV space placed within the woodland habitat is considered an impact, even if oak trees are not removed from that area.

Impacts to individual oak trees on the property are assessed in Section 5.2, below.

### *5.1.3 Riparian*

Huerhuero Creek flows along the northern and eastern edges of the property. The riparian habitat associated with the creek comprises approximately 28 acres of the property. The entire riparian habitat on the property is proposed as open space.

### *5.1.4 Ephemeral drainage*

One small, incised ephemeral drainage occurs on the property that is potentially within the jurisdiction of the United States Army Corps of Engineers (section 404), the Regional Water Quality Control Board (section 401), and the California Department of Fish and Game (DFG code 1603). Impacts that require a permit include installation of culverts, bridges, and outfall structures, or grading activities that result in fill of the jurisdictional area.

The entire length of the ephemeral drainage is located within proposed open space and would not be impacted by the proposed project. RV spaces are proposed along the top of bank. Run-off from the RV spaces is directed at the drainage. If not properly conveyed, the run-off could cause erosion of the banks. In addition, run-off could carry oil and other materials deleterious to aquatic and terrestrial organisms in the drainage.

### *5.1.5 Vernal pools*

Vernal pools are known to harbor federally listed fairy shrimp in the Paso Robles region, as well as other special status species. Protocol level surveys for listed branchiopods are in process. Dry season protocol level surveys did not find rare branchiopods. Vernal pools will be accurately mapped and appropriately surveyed for sensitive species in the winter of 2007-2008.

Vernal pools occur within grassland habitat on flat land in the southern portion of the property. The proposed project will not affect the southern parcel, APN 025-435-007, where two of the three documented vernal pool complexes occur. Road alignments along the southern boundary of the central parcel (APN 025-435-006) are likely to permanently impact the third vernal pool. Plowing of the property conducted in 2007 may have disturbed portions of the mapped vernal pools, and could have impacted previously undocumented vernal pools on the property.

### *5.1.6 Seasonal wetlands*

A formal wetland delineation and a jurisdictional determination have not been conducted for the property. Seasonal wetlands at the southwest corner of the property could be affected by construction of access roads onto the site, or other development. Potential seasonal wetlands occurring in upland areas of the property are not expected to be under state or federal jurisdiction. Loss of state or federal wetlands would be a significant impact requiring mitigation.

## **5.2 Potential Impacts to Oak Trees**

The City of Paso Robles requires removals of oak trees with a diameter at breast height (dbh) of 6 inches or greater to be mitigated by replacement. Diameter at breast (dbh) is measured at 4.5 feet from the ground or, if the trunk is split below 4 feet, at the narrowest point below the split. Impacts include any ground disturbance within the critical root

zone (CRZ), or any trimming of branches 4 inches in diameter or greater. The critical root zone (CRZ), as defined by the City of Paso Robles, is an area of root space that is within a circle circumscribed around the trunk of a tree using a radius of 1 foot per inch dbh, e.g., a 20-inch diameter tree has a CRZ with a radius of 20 feet as measured from the center of the tree (City of El Paso de Robles - Ordinance No. 835 N.S). This measurement often extends beyond the actual drip-line of the tree.

The arborist report by A&T Arborists (December 2007) indicates 24 oak trees would be removed for the project. This includes five trees that are dead (rated zero by arborist report). Impacts to critical root zones or canopies that do not require tree removal are detailed in the report. Impacts to individual oak trees can be mitigated to a less than significant level (refer to Section 6.2). An Oak Tree Map is provided in Appendix A for reference.

### **5.3 Potential Impacts to Common Wildlife**

#### *5.3.1 Nesting habitat*

Impacts to or take of nesting birds could occur if grading or tree removal/trimming is conducted during nesting season (March 15 through August 15). Take of any nesting birds is prohibited by federal and state code. Impacts to or take of nesting birds can be avoided (refer to Section 6.3.1).

#### *5.3.2 Reduction of wildlife movement corridors*

Development of the proposed project will alter common wildlife species' patterns of movement across the property. The upland habitat on the property is not a significant wildlife movement corridor. Impacts to San Joaquin kit fox movement corridors are discussed in Section 5.5.7.

#### *5.3.3 Displacement and/or take*

Common wildlife species currently living on the property or using the property as transients will be displaced by development of the site. Take of common species may occur during construction activities. Displacement and/or take of common wildlife species is not a significant impact requiring mitigation.

### **5.4 Potential Impacts to Special Status Plant Species**

Seven special status plant species have the potential to occur on the property. One special status plant, shining navarretia, was identified and mapped on the property in 2006.

#### *5.4.1 Shining navarretia (Navarretia nigelliformis ssp. radians)*

Shining navarretia (*Navarretia nigelliformis ssp. radians*) was mapped in two locations on the property in 2006. The larger polygon is approximately 8355 square feet (0.19 acres) in size. The smaller polygon is approximately 636 square feet (0.01 acres) in size. The currently proposed project would impact most or all of the smaller polygon of shining navarretia as a result of grading and construction of a spur road accessing RV spaces.



Future land management such as mowing, or development of landscaped areas, could impact the remaining polygon of shining navarretia on the property. Inadvertent impacts could also occur from guests and pets staying at the Motorcoach Resort. The potential for future impacts to occur to shining navarretia on the property can be mitigated to a less than significant level (refer to Section 6.4).

Shining navarretia is on CNPS List 1B.2, indicating that it is fairly endangered in California with 20-80% of occurrences threatened. It occurs in very local patches on the property even though appropriate habitat appears to be present elsewhere.

## 5.5 Potential Impacts to Special Status Animal Species

Eleven special status animals have the potential to occur on the property. Three special status mammals, San Joaquin pocket mouse, San Joaquin kit fox, and American badger, are known to occur in regional grassland habitats. Pallid bat, a California Special Concern species, could occur in oak trees on the property. Four sensitive bird species, golden eagle, white-tailed kite, burrowing owl, and loggerhead shrike, could potentially nest on the property. Only golden eagle was documented nesting on the property in 2006. Two special status crustaceans, vernal pool fair shrimp and California linderiella, and one special status amphibian, Western spadefoot toad, could be present in vernal pools and seasonal wetlands on the property.

### 5.5.1 Special status birds

Burrowing owl could nest and or winter in grassland habitats on the property. Appropriate nesting habitat for loggerhead shrike is present in shrubby riparian vegetation along Huerhuero Creek. White tailed kites could nest in blue oak trees on the property. Golden eagles nested on the property in 2006. Disturbance and/or take could occur if any of these species nest in or near proposed project areas in the future. Potential impacts to special status birds can be mitigated to a less than significant level (refer to Section 6.5.1).

### 5.5.2 Golden eagle

Golden eagles nested in oak woodlands along the steep east facing slope above the Huerhuero Creek (see Appendix A, Site plan with Constraints Overlay). The golden eagle is a CDFG Special Concern Species, Fully Protected. This means that any take of this species is prohibited and can not be authorized by the Department of Fish and Game except for scientific purposes. The definition of “take” under the California Endangered Species Act (CESA) is, “Hunting, pursuing, catching, capturing, and killing individuals (and attempts to do so)”. The California definition includes only acts that cause death, and does not include indirect harm or harassment. Therefore, habitat modifications are often not considered “take” under the CESA. Golden eagles may abandon nests if disturbed. Abandonment of eggs or chicks would result in “take” under the CESA definition.

The nearest development proposed by the current project plan is approximately 550 feet from the golden eagle nest that was occupied in 2006. Construction activities occurring on the property during the nesting season that are more than 500 feet from an occupied golden eagle nest are not expected to result in abandonment of the nest.

Development of the proposed project would result in the loss of foraging habitat directly related to a known golden eagle nesting territory. The cumulative effect of loss of habitat in the vicinity of the property could potentially result in the golden eagles abandoning the property as a nesting territory.

#### 5.5.3 *Pallid bat*

Removal of mature trees with trunk cavities or loose bark could impact roosting bats and/or maternal bat colonies. Potential impacts to roosting bats or maternal bat colonies can be mitigated to a less than significant level (refer to Section 6.5.2).

#### 5.5.4 *San Joaquin pocket mouse*

Small mammal trapping was not conducted as part of this study. San Joaquin pocket mouse could occur on site. Annual grasslands and dry blue oak woodlands on the property could provide potential habitat for San Joaquin pocket mice.

#### 5.5.5 *Western spadefoot toad*

Appropriate breeding habitat for spadefoot toads is present in vernal pools and seasonal wetlands on the property. Surveys of vernal pools on the property did not occur early enough in 2006 to determine whether spadefoot toads are present. In 2007, low rainfall totals did not allow pools on the property to hold water long enough for appropriate surveys. Wet season surveys will continue in the winter of 2007-2008, as conditions allow.

If spadefoot toads are determined to occur on site, grading operations conducted in grassland areas could result in take of this species. Removal of vernal pools and seasonal wetlands on the property would reduce the potential for successful breeding of spadefoot toads on the property.

#### 5.5.6 *Fairy shrimp*

Potential habitat for listed fairy shrimp species may be present in vernal pools and seasonal wetlands on the property. Protocol surveys for these species are currently being conducted. If developments or subsequent activities disturb or remove vernal pools, federally listed fairy shrimp species could be impacted. The Federal Endangered Species Act (FESA), as regulated by USFWS, protects federally listed species and their habitat.

#### 5.5.7 *San Joaquin kit fox*

The property is within the currently mapped range of San Joaquin kit fox. Removal of any grassland habitat on the property would result in a loss of kit fox habitat. Development on the property and subsequent use could discourage kit fox from utilizing remaining habitat and movement corridors along Huerhuero Creek. If walls or wooden fences are built around the property boundaries, the entire property could be removed from potential use by kit fox. Precise acreages cannot be calculated without a finalized project and grading plan; however removal of any designated San Joaquin kit fox habitat would be a significant but mitigable impact (refer to Section 6.5.3).

### 5.5.8 *American badger*

Annual grassland habitat usable by badgers occurs on the property and could be removed by development and subsequent use of the land. Indirect impacts to badgers include the loss of foraging and denning habitat. Direct impacts could occur if a badger takes up residence on the site. The loss of grassland habitat is not a significant impact, although the cumulative loss of habitat in the Paso Robles region has negatively affected badger populations in the area. Disturbance of denning badgers, if present, would be a significant but mitigable impact (refer to Section 6.5.4).

## 5.6 **Potential Impacts from the Golden Hill Road Extension**

The future potential extension of Golden Hill Road would result in additional impacts to biological resources on the property not specified in the analysis in Sections 5.1 through 5.5. The following is a list and brief discussion of potential impacts.

### 5.6.1 *Annual grassland*

The extension road would pass along the west edge of the property, permanently impacting approximately 4.5 acres of annual grassland habitat. Construction of the road may also result in temporary impacts to less than an acre of grassland habitat due to grading activities.

### 5.6.2 *Blue oak woodland*

The extension road would pass through blue oak woodland habitat, resulting in the permanent loss of approximately four acres of oak woodland habitat. The loss of habitat includes the loss of individual oak trees (refer to Section 5.6.5) and the loss of understory habitat that would be paved. In addition, the road would fragment the remaining oak woodland open space on the property from contiguous woodland acreage west of the property.

### 5.6.3 *Riparian*

The extension road would require a crossing of Huerhuero Creek at the north end of the property. A crossing detail was not available at the time this report was prepared. The footprint of the crossing would be approximately half an acre within the riparian habitat. Habitat at the crossing location is a sandy wash riparian zone with a few scattered red willows.

A bridge would result in temporary impacts to vegetation during construction, but would otherwise not alter the hydrology, wildlife movement corridor, or sediment transport in the creek. A paved "Arizona-style crossing" could affect hydrology and sediment transport. Wildlife would still be able to use the creek as a movement corridor.

### 5.6.4 *Vernal pools and seasonal wetlands*

Vernal pools have not been accurately mapped and described on the property due to the lack of rainfall during the 2006-2007 winter season. Topographic features and vegetation were used to map three areas on the property as potential vernal pools or vernal pool complexes.

One complex of numerous small shallow pools beneath power lines along the western property line would be completely removed for the extension of Golden Hill Road. We do not yet know if these depressions function as vernal pools, or if they are isolated wetlands. Dry season protocol level surveys found no evidence of rare branchiopods in this location.

#### 5.6.5 *Oak trees*

The extension road would result in the removal of nine blue oak trees with a total of 247 diameter inches (A&T Arborists, Dec. 2007). Additional trees would incur impacts to the root zone from encroachment during primary grading.

#### 5.6.6 *Special status species*

No special status species were mapped in the vicinity of the proposed Golden Hill Road extension. It is possible that wildlife species could move into the area in the future.

#### 5.6.7 *Nesting birds*

Nesting birds could occur on the ground or in trees within the area proposed for the Golden Hill Road extension. This includes both common and special status species. Grading or tree removal conducted during the nesting season (March 15 through August 15) could result in take of common or special status nesting bird species.

## 6.0 Mitigation Recommendations

We recommend the following biological resource (BR) mitigation measures to reduce project impacts to a less than significant level.

### 6.1 Habitat Mitigations

#### 6.1.1 *Annual grassland*

Impacts to annual grassland habitat in the Paso Robles region are not typically considered significant unless special status species are affected. Grassland habitat on the property is considered potential habitat for the federally endangered San Joaquin kit fox. Loss or permanent degradation of grassland habitat on the property is a significant but mitigable impact (refer to Sections 6.5.3 ).

#### 6.1.2 *Blue oak woodland*

Effective January 1, 2005, State Senate Bill 1334 (Kuehl) requires oak woodland conversions to be subject to CEQA and mitigated. It would do so by requiring all 58 counties in California to adopt oak woodlands management plans and ordinances that require a discretionary permit for oak woodland conversions and set a minimum mitigation standard.

*Mitigation options in SB 1334 include:*

- A monetary contribution to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements.

- Onsite mitigation which requires the dedication in perpetuity of a conservation easement on mitigation lands that are contiguous to the project and that will provide for a biologically functional habitat.
- Offsite mitigation which requires the procurement of oak woodland habitat of equivalent biological value. Those mitigation lands shall be purchased in fee or by a conservation easement and conserved in perpetuity.
- Planting of replacement trees at a five to one ratio, on up to 10 acres , for each oak woodlands conversion project. Monitoring and replacement of dead and diseased trees would be required. The planting mitigation alternative may be used in conjunction with the other mitigation alternatives.
- If the Department of Fish and Game establishes a mitigation bank, the mitigation bank could be used to fulfill the offsite mitigation requirements of an oak woodlands conversion project, but no landowner may be compelled to use the mitigation bank.

Presently the City of Paso Robles does not require specific mitigation for the loss of oak woodland habitat. Impacts to individual oak trees do require mitigation in the City (refer to Section 6.2).

#### *6.1.3 Riparian*

The subject property includes over 5000 linear feet of riparian habitat in Huerhuero Creek. Indirect impacts to riparian habitat and water quality from surface run-off and storm drains should be limited through appropriately designed drainage plans. Drainage plans shall avoid direct outputs of surface run-off into Huerhuero Creek. Storm drains shall incorporate filters that would remove trash and hydrocarbons.

Any outfall structures that deposit run-off into Huerhuero Creek require certification by the Regional Water Quality Control Board (RWQCB), and may require authorization from the United States Army Corps of Engineers and a 1603 Streambed Alteration Agreement from the California Department of Fish and Game. Additional mitigations may be required by the RWQCB to protect water quality.

Setbacks from riparian habitat are typically 50 feet, as per CDFG recommendations, from the top of bank or the outer edge of riparian vegetation. Alteration of natural flood plains must be consistent with FEMA guidelines.

#### *6.1.4 Ephemeral drainage*

One ephemeral drainage occurs on the property as a tributary to Huerhuero Creek. The currently proposed project would not impact the ephemeral drainage; therefore no mitigation is required.

#### *6.1.5 Vernal pools*

Vernal pools are a sensitive habitat type of special concern in California. In the Paso Robles area, grassland vernal pools provide potential habitat for three special status wildlife species, including one federally listed species of fairy shrimp.

**BR-1. Avoidance and protection of vernal pools on the property.** Vernal pools shall be avoided and protected where possible. If listed fairy shrimp species are found in vernal pools on the property, the vernal pools shall be avoided and a 50-foot setback distance shall be observed for all activities. If rare species are not found and vernal pools cannot be avoided, a vernal pool mitigation plan shall be prepared by a qualified biologist that specifies creation of vernal pool habitat in kind at a one to one ratio within open space areas on the property.

**BR-2. Interpretive signs shall be developed in cooperation with the project biologist** to inform guests at the Resort of the sensitive biological resources located on and near the property. Signs shall be placed on at least two sides of all vernal pools or vernal pool complexes that remain within the project open space areas. The signs shall provide general information about vernal pools in the Paso Robles region, including potential rare species that could be present.

#### 6.1.6 Seasonal wetlands

Jurisdictional wetlands are not expected to occur in the development areas, therefore no mitigation is recommended.

### 6.2 Oak Tree Mitigations

Oak tree impacts and mitigations shall be addressed by the project arborist. The following mitigation recommendations are modeled after guidelines set forth in the Paso Robles Tree Ordinance (City of El Paso de Robles - Ordinance No. 835 N.S).

- ✓ **BR-3.** Tree canopies and trunks within 50 feet of proposed disturbance zones should be mapped and numbered by a certified arborist or qualified biologist and a licensed land surveyor. Data for each tree should include date, species, number of stems, diameter at breast height (dbh) of each stem, critical root zone (CRZ) diameter, canopy diameter, tree height, health, habitat notes, and nests observed.
- ✓ **BR-4.** An oak tree protection plan shall be prepared and approved by the City of Paso Robles.
- ✓ **BR-5.** Impacts to the oak canopy or critical root zone (CRZ) should be avoided where practicable. Impacts include pruning, any ground disturbance within the dripline or CRZ of the tree (whichever distance is greater), and trunk damage.
- BR-6.** Impacts to oak trees shall be assessed by a licensed arborist. Mitigations for impacted trees shall comply with the City of Paso Robles tree ordinance.
- ✓ **BR-7.** Replacement oaks for removed trees must be equivalent to 25% of the diameter of the removed tree(s). For example, the replacement requirement for removal of two trees of 15 inches dbh (30 total diameter inches), would be 7.5 inches (30" removed x 0.25 replacement factor). This requirement could be satisfied by planting five 1.5 inch trees, or three 2.5 inch trees, or any other combination totaling 7.5 inches. A minimum of two 24 inch box, 1.5 inch trees shall be required for each oak tree removed.

- ✓ **BR-8.** Replacement trees should be seasonally maintained (browse protection, weed reduction and irrigation, as needed) and monitored annually for at least 7 years. Replacement trees shall be of local origin, and of the same species as was impacted or removed.

### **6.3 Common Wildlife Mitigations**

#### *6.3.1 Nesting habitat*

Migratory non-game native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory non-game birds (as listed under the Federal MBTA).

- BR-9. Within one week of ground disturbance or tree removal/trimming activities,** if work occurs between March 15 and August 15, nesting bird surveys shall be conducted. To avoid impacts to nesting birds, grading and construction activities that affect trees and grasslands shall not be conducted during the breeding season from March 15 to August 15. If construction activities must be conducted during this period, nesting bird surveys shall take place within one week of habitat disturbance. If surveys do not locate nesting birds, construction activities may be conducted. If nesting birds are located, no construction activities shall occur within 100 feet of nests until chicks are fledged. Construction activities shall observe a 300-foot buffer for occupied raptor nests. A 500-foot buffer shall be observed from occupied nests of all special status species (refer to BR-12 and BR-13). A pre-construction survey report shall be submitted to the lead agency immediately upon completion of the survey. The report shall detail appropriate fencing or flagging of the buffer zone and make recommendations on additional monitoring requirements.

#### *6.3.2 Reduction of wildlife movement corridors*

Development on the property could reduce the potential for San Joaquin kit fox to move through Huerhuero Creek. The loss of potential movement corridor habitat for the federally listed endangered San Joaquin kit fox can be mitigated (refer to BR-17).

#### *6.3.3 Displacement and/or take*

Wildlife expected to occur on the property includes common species such as gray fox, red fox, mule deer, coyote, bobcat, striped skunk, and several species of rodents. Mitigations for impacts to common wildlife species are usually not required. Displacement of special status animals is addressed in Section 6.5.

### **6.4 Mitigations for Special Status Plant Species**

#### *6.4.1 Shining navarretia (Navarretia nigelliformis ssp. radians)*

Two patches of shining navarretia were mapped during a spring 2006 floristic survey of the property. Shining navarretia was mapped in annual grassland habitat on open hillsides. This species has very specific micro-habitat and soil requirements. Abundance

and distribution may vary greatly from year to year. We are not aware of any mitigation projects that have been conducted in San Luis Obispo County with this species.

We recommend avoidance of shining navarretia and protection of its habitat on the property. The project, as currently planned, would permanently impact the smaller of two polygons on the property. An estimated 0.01 acres of grassland supporting approximately 500 shining navarretia plants (2006 data) would be removed.

To protect shining navarretia from future impacts, the following mitigation measures are recommended:

- BR-10. If the project design cannot avoid shining navarretia on the property, a mitigation and monitoring plan shall be developed by the project biologist to replace lost navarretia habitat at a 1:1 ratio on-site. The mitigation plan will provide details on appropriate mitigation sites, seed collection and distribution methods, and maintenance and monitoring requirements.**
- BR-11. Interpretive signs shall be developed in cooperation with the project biologist to inform guests at the Resort of the sensitive biological resources located on and near the property. Signage shall be placed on all sides of the rare plant occurrence, and shall have specific information about the plant and its ecology, including photographs.**

## **6.5 Mitigations for Special Status Animal Species**

### *6.5.1 Special status birds*

If work is conducted on the property from March 15 through August 15 pre-construction surveys for nesting birds are required (see BR-9). If occupied nests of special status birds (e.g. Golden eagle, white-tailed kite, burrowing owl) are present, the following additional mitigation recommendations shall be implemented:

- BR-12. All occupied nests shall be mapped using GPS or survey equipment. The mapped locations shall be placed on a copy of the grading plans with a 500-foot buffer indicated. Work shall not be allowed within the 500 foot buffer while the nest is in use by eagles. The buffer zone shall be delineated on the ground with orange construction fencing where it overlaps work areas.**
- BR-13. Occupied nests of special status bird species that are within 500 feet of project work areas shall be monitored bi-monthly through the nesting season to document nest success and check for project compliance with buffer zones. Once nests are deemed inactive and/or chicks have fledged and are no longer dependant on the nest, work can commence.**
- BR-14. Interpretive signs shall be developed in cooperation with the project biologist to inform guests at the Resort of the sensitive biological resources located on and near the property. If the golden eagle nest continues to be occupied seasonally at the time the Resort opens to the public, signs shall be placed on the hilltop to exclude entry within approximately 300 feet of the eagle nest.**



### 6.5.2 Pallid bat

Roosting bats and/or maternal bat colonies may be present in trees with appropriate cavities or loose bark.

**BR-15. Prior to removal of any trees over 20 inches dbh**, a survey shall be conducted by a qualified biologist to determine if any of the trees proposed for removal or trimming harbor sensitive bat species or maternal bat colonies. Maternal bat colonies may not be disturbed.

### 6.5.3 San Joaquin kit fox

San Joaquin kit fox could occur in the project area. The project will result in a net loss of kit fox habitat. The following mitigation recommendations are designed to reduce the potential for direct impacts to kit fox to a less than significant level. The subject property is within the three-to-one mitigation ratio area (acres replaced per acres impacted).

**BR-16.** Prior to issuance of grading and/or construction permits, the applicant shall submit evidence to the County of San Luis Obispo, Department of Planning and Building, Environmental and Resource Management Division (County) (see contact information below) that states that one or a combination of the following three San Joaquin kit fox mitigation measures has been implemented:

- a. Provide for the protection in perpetuity, through acquisition of fee or a conservation easement of **[Total number of mitigation acres required]** acres of suitable habitat in the kit fox corridor area (e.g. within the San Luis Obispo County kit fox habitat area, northwest of Highway 58), either on-site or off-site, and provide for a non-wasting endowment to provide for management and monitoring of the property in perpetuity. Lands to be conserved shall be subject to the review and approval of the California Department of Fish and Game (Department) and the County.

This mitigation alternative (a.) requires that all aspects of this program must be in place before County permit issuance or initiation of any ground disturbing activities.

- b. Deposit funds into an approved in-lieu fee program, which would provide for the protection in perpetuity of suitable habitat in the kit fox corridor area within San Luis Obispo County, and provide for a non-wasting endowment for management and monitoring of the property in perpetuity.

Mitigation alternative (b) above, can be completed by providing funds to The Nature Conservancy (TNC) pursuant to the Voluntary Fee-Based Compensatory Mitigation Program (Program). The Program was established in agreement between the Department and TNC to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents who must mitigate the impacts of projects in accordance with the California Environmental Quality Act (CEQA). The fee, payable to “The Nature Conservancy”, would total **[\$Amount of fee based on**

**\$2500 per acre]**. This fee is calculated based on the current cost-per-unit of \$2500 per acre of mitigation, which is scheduled to be adjusted to address the increasing cost of property in San Luis Obispo County; your actual cost may increase depending on the timing of payment. This fee must be paid after the Department provides written notification about your mitigation options but prior to County permit issuance and initiation of any ground disturbing activities.

- c. Purchase [**Total number of mitigation acres required**] credits in a Department-approved conservation bank, which would provide for the protection in perpetuity of suitable habitat within the kit fox corridor area and provide for a non-wasting endowment for management and monitoring of the property in perpetuity.

Mitigation alternative (c) above, can be completed by purchasing credits from the Palo Prieto Conservation Bank (see contact information below). The Palo Prieto Conservation Bank was established to preserve San Joaquin kit fox habitat, and to provide a voluntary mitigation alternative to project proponents who must mitigate the impacts of projects in accordance with the California Environmental Quality Act (CEQA). The cost for purchasing credits is payable to the owners of The Palo Prieto Conservation Bank, and would total **\$[Amount of mitigation acres required (i.e. credits), currently priced at \$2500 per credit]**. This fee is calculated based on the current cost-per-credit of \$2500 per acre of mitigation. The fee is established by the conservation bank owner and may change at any time. Your actual cost may increase depending on the timing of payment. Purchase of credits must be completed prior to County permit issuance and initiation of any ground disturbing activities.

**BR-17. Prior to issuance of grading and/or construction permits**, the applicant shall provide evidence that they have retained a qualified biologist acceptable to the City. The retained biologist shall perform the following monitoring activities:

- i. **Prior to issuance of grading and/or construction permits and within 30 days prior to initiation of site disturbance and/or construction**, the biologist shall conduct a pre-activity (i.e. pre-construction) survey for known or potential kit fox dens and submit a letter to the City reporting the date the survey was conducted, the survey protocol, survey results, and what measures were necessary (and completed), as applicable, to address any kit fox activity within the project limits.
- ii. **The qualified biologist shall conduct weekly site visits during site-disturbance activities** (i.e. grading, disking, excavation, stock piling of dirt or gravel, etc.) that proceed longer than 14 days, for the purpose of monitoring compliance with required Mitigation Measures BR-19 through BR-26. Site disturbance activities lasting up to 14 days do not require weekly monitoring by the biologist unless observations of kit fox or their dens are made on-site or the qualified biologist recommends monitoring for

some other reason (see BR-19iii). When weekly monitoring is required, the biologist shall submit weekly monitoring reports to the City.

- iii. **Prior to or during project activities**, if any observations are made of San Joaquin Kit fox, or any known or potential San Joaquin kit fox dens are discovered within the project limits, the qualified biologist shall re-assess the probability of incidental take (e.g. harm or death) to kit fox. At the time a den is discovered, the qualified biologist shall contact USFWS and the CDFG for guidance on possible additional kit fox protection measures to implement and whether or not a Federal and/or State incidental take permit is needed. If a potential den is encountered during construction, work shall stop until such time the USFWS determines it is appropriate to resume work.

If incidental take of kit fox during project activities is possible, **before project activities commence**, the applicant must consult with the USFWS. The results of this consultation may require the applicant to obtain a Federal and/or State permit for incidental take during project activities. The applicant should be aware that the presence of kit foxes or known or potential kit fox dens at the project site could result in further delays of project activities.

- iv. **In addition**, the qualified biologist shall implement the following measures:
  1. **Within 30 days prior to initiation of site disturbance and/or construction**, fenced exclusion zones shall be established around all known and potential kit fox dens. Exclusion zone fencing shall consist of either large flagged stakes connected by rope or cord, or survey laths or wooden stakes prominently flagged with survey ribbon. Each exclusion zone shall be roughly circular in configuration with a radius of the following distance measured outward from the den or burrow entrances:
    - Potential kit fox den: 50 feet
    - Known or active kit fox den: 100 feet
    - Kit fox pupping den: 150 feet
  2. All foot and vehicle traffic, as well as all construction activities, including storage of supplies and equipment, shall remain outside of exclusion zones. Exclusion zones shall be maintained until all project-related disturbances have been terminated, and then shall be removed.
  3. If kit foxes or known or potential kit fox dens are found on site, daily monitoring by a qualified biologist shall be required during ground disturbing activities.

**Monitoring:** Required prior to issuance of a grading and/or construction permit. Compliance will be verified by the City Planning Division.

- BR-18. Prior to issuance of grading and/or construction permits**, the applicant shall clearly delineate the following as a note on the project plans: *“Speed signs of 25 mph (or lower) shall be posted for all construction traffic to minimize the probability of road mortality of the San Joaquin kit fox”*. Speed limit signs shall be installed on the project site **within 30 days prior to initiation of site disturbance and/or construction**.
- BR-19. During the site disturbance and/or construction phase**, grading and construction activities after dusk shall be prohibited unless coordinated through the City, during which additional kit fox mitigation measures may be required.
- BR-20. Prior to issuance of grading and/or construction permit and within 30 days prior to initiation of site disturbance and/or construction**, all personnel associated with the project shall attend a worker education training program, conducted by a qualified biologist, to avoid or reduce impacts on sensitive biological resources (i.e. San Joaquin kit fox). At a minimum, as the program relates to the kit fox, the training shall include the kit fox’s life history, all mitigation measures specified by the City, as well as any related biological report(s) prepared for the project. The applicant shall notify the City shortly prior to this meeting. A kit fox fact sheet shall also be developed prior to the training program, and distributed at the training program to all contractors, employers and other personnel involved with the construction of the project.
- BR-21. During the site-disturbance and/or construction phase**, to prevent entrapment of the San Joaquin kit fox, all excavations, steep-walled holes and trenches in excess of two feet in depth shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Trenches shall also be inspected for entrapped kit fox each morning prior to onset of field activities and immediately prior to covering with plywood at the end of each working day. Before such holes or trenches are filled, they shall be thoroughly inspected for entrapped kit fox. Any kit fox so discovered shall be allowed to escape before field activities resume, or removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
- BR-22. During the site-disturbance and/or construction phase**, any pipes, culverts, or similar structures with a diameter of four inches or greater, stored overnight at the project site shall be thoroughly inspected for trapped San Joaquin kit foxes before the subject pipe is subsequently buried, capped, or otherwise used or moved in any way. If during the construction phase a kit fox is discovered inside a pipe, that section of pipe will not be moved. If necessary, the pipe may be moved only once to remove it from the path of activity, until the kit fox has escaped.
- BR-23. During the site-disturbance and/or construction phase**, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of only in closed containers. These containers shall be regularly removed from the site.

Food items may attract San Joaquin kit foxes onto the project site, consequently exposing such animals to increased risk of injury or mortality. No deliberate feeding of wildlife shall be allowed.

**BR-24. Prior to, during and after the site-disturbance and/or construction phase,** use of pesticides or herbicides shall be in compliance with all local, State and Federal regulations. This is necessary to minimize the probability of primary or secondary poisoning of endangered species utilizing adjacent habitats, and the depletion of prey upon which San Joaquin kit foxes depend.

**BR-25. During the site-disturbance and/or construction phase,** any contractor or employee that inadvertently kills or injures a San Joaquin kit fox or who finds any such animal either dead, injured, or entrapped shall be required to report the incident immediately to the applicant and City. In the event that any observations are made of injured or dead kit fox, the applicant shall immediately notify the USFWS and CDFG by telephone. In addition, formal notification shall be provided in writing within three working days of the finding of any such animal(s). Notification shall include the date, time, location and circumstances of the incident. Any threatened or endangered species found dead or injured shall be turned over immediately to CDFG for care, analysis, or disposition.

**BR-26. Prior to final inspection, or occupancy, whichever comes first,** should any long internal or perimeter fencing be proposed or installed, the applicant shall do the following to provide for kit fox passage:

- i. If a wire strand/pole design is used, the lowest strand shall be no closer to the ground than 12 inches.
- ii. If a more solid wire mesh fence is used, 8" x 12" openings near the ground shall be provided every 100 yards
- iii. Upon fence installation, the applicant shall notify the City to verify proper installation. Any fencing constructed after issuance of a final permit shall follow the above guidelines

**Monitoring (San Joaquin Kit Fox Measures BR-18 to BR-26):** Compliance will be verified by the City of Paso Robles, Planning Division in consultation with the California Department of Fish and Game. As applicable, each of these measures shall be included on construction plans.

#### 6.5.4 *American badger*

American badger could occur in the project areas. The project will result in a net loss of badger habitat. Mitigation is not required for loss of badger habitat. To ensure take of live badgers does not occur, the following mitigation recommendation shall be implemented:

**BR-27. A pre-construction survey shall be conducted within thirty days of beginning work on the project** to identify if badgers are using the site. The results of the survey shall be sent to the project manager, CDFG, and the City of Paso Robles.

If the pre-construction survey finds potential badger dens, they shall be inspected to determine whether they are occupied. The survey shall cover the entire property, and shall examine both old and new dens. If potential badger dens are too long to completely inspect from the entrance, a fiber optic scope shall be used to examine the den to the end. Inactive dens may be excavated by hand with a shovel to prevent re-use of dens during construction. If badgers are found in dens on the property between February and July, nursing young may be present. To avoid disturbance and the possibility of direct take of adults and nursing young, and to prevent badgers from becoming trapped in burrows during construction activity, no grading shall occur within 100 feet of active badger dens between February and July. Between July 1 and February 1 all potential badger dens shall be inspected to determine if badgers are present. During the winter badgers do not truly hibernate, but are inactive and asleep in their dens for several days at a time. Because they can be torpid during the winter, they are vulnerable to disturbances that may collapse their dens before they rouse and emerge. Therefore, surveys shall be conducted for badger dens throughout the year. If badger dens are found on the property during the pre-construction survey, the CDFG wildlife biologist for the area shall be contacted to review current allowable management practices.

#### 6.5.5 *Salinas pocket mouse*

Salinas pocket mouse could occur on the property. Development on the property would result in a net loss of pocket mouse habitat. Mitigation is not required for loss of pocket mouse habitat.

Special status pocket mice are very unlikely to occur on the subject site, therefore, no mitigation measures are recommended to reduce the potential of take. The Department of Fish and Game has not provided guidance regarding mitigation for potential impacts to this species.

#### 6.5.6 *Western spadefoot toad*

Spadefoot toads breed in ephemeral pools in the Paso Robles region. They are known to occur in the vicinity of the subject property. Our surveys of the property were conducted too late in the season to locate breeding spadefoot toads, however it is likely that they occur. Prior to development an appropriately timed survey shall be conducted to determine the presence or absence of spadefoot toad on the property. If spadefoot toads

are found, a mitigation plan, which may include avoidance, capture, and relocation, will be developed. The goal of the mitigation plan would be to reduce potential impacts to this species to a less than significant level.

#### 6.5.7 *Fairy shrimp*

Two sensitive species of fairy shrimp are known to occur in ephemeral pools in the Paso Robles region: vernal pool fairy shrimp (endangered) and California linderiella (no listing status).

A protocol survey for listed fairy shrimp is currently being conducted according to United States Fish and Wildlife Service guidelines (FWS 1996). As part of this study all vernal pools on the property will be mapped. The survey will consist of either two full wet season surveys within a five year period, or two consecutive seasons of one full wet season survey and one dry season survey.

Reports will be provided to FWS within 90 days of the last survey for each season, as required in the interim guidelines.

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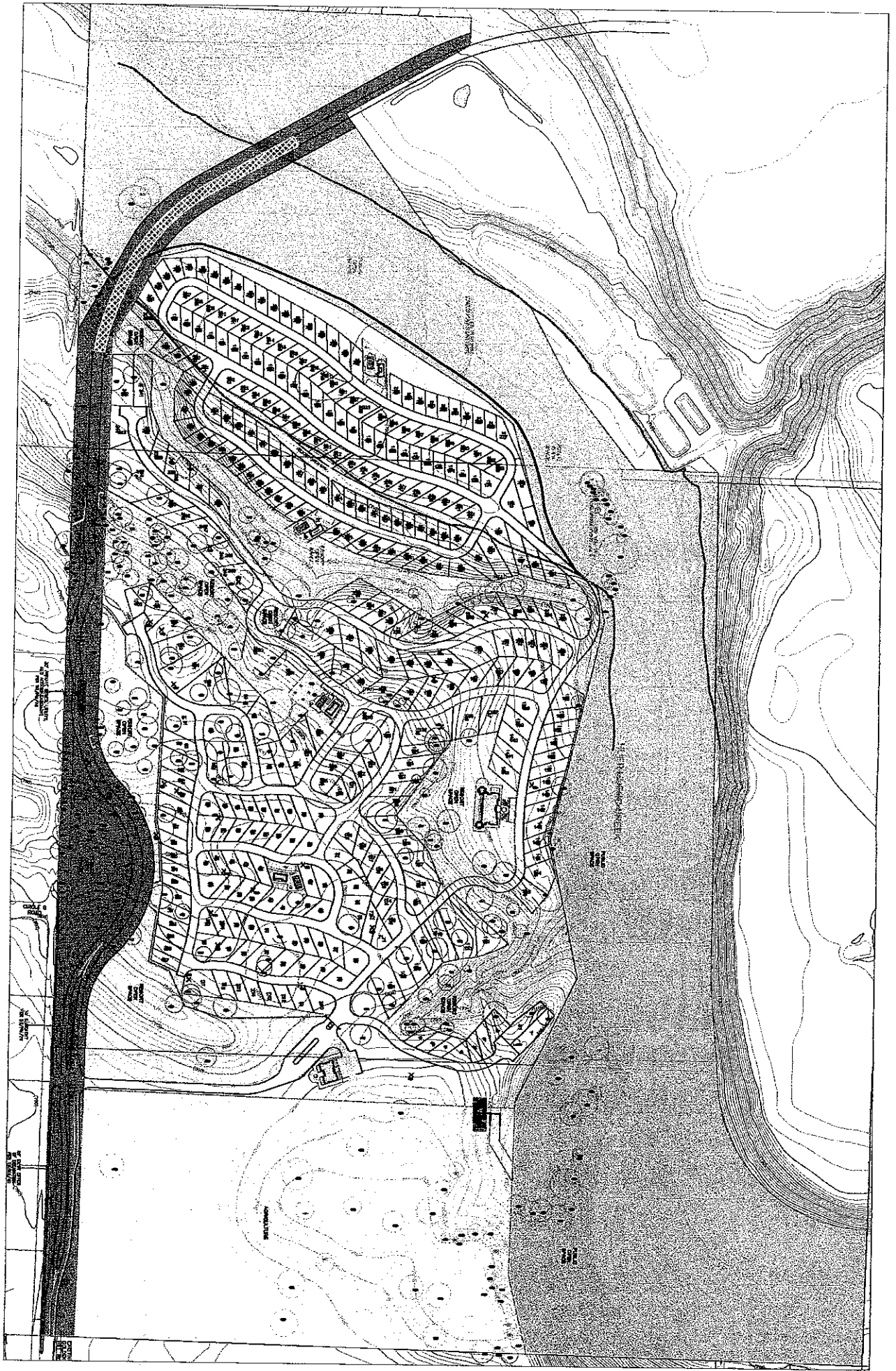
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- Witham, C. W. (ed.). 1998. *Ecology, Conservation, and Management of Vernal Pool Ecosystems*. Proceedings from a 1996 Conference. CNPS, Sacramento, California.

## APPENDIX A – Maps

- **Site Plan**
- **Biological Resource Map**
- **Oak Tree Map**
- **Site Plan with Constraints Overlay**





Paso Robles  
 Motorcoach Resort  
 APN 025-435-005, -006, -007

## Biological Resource Map

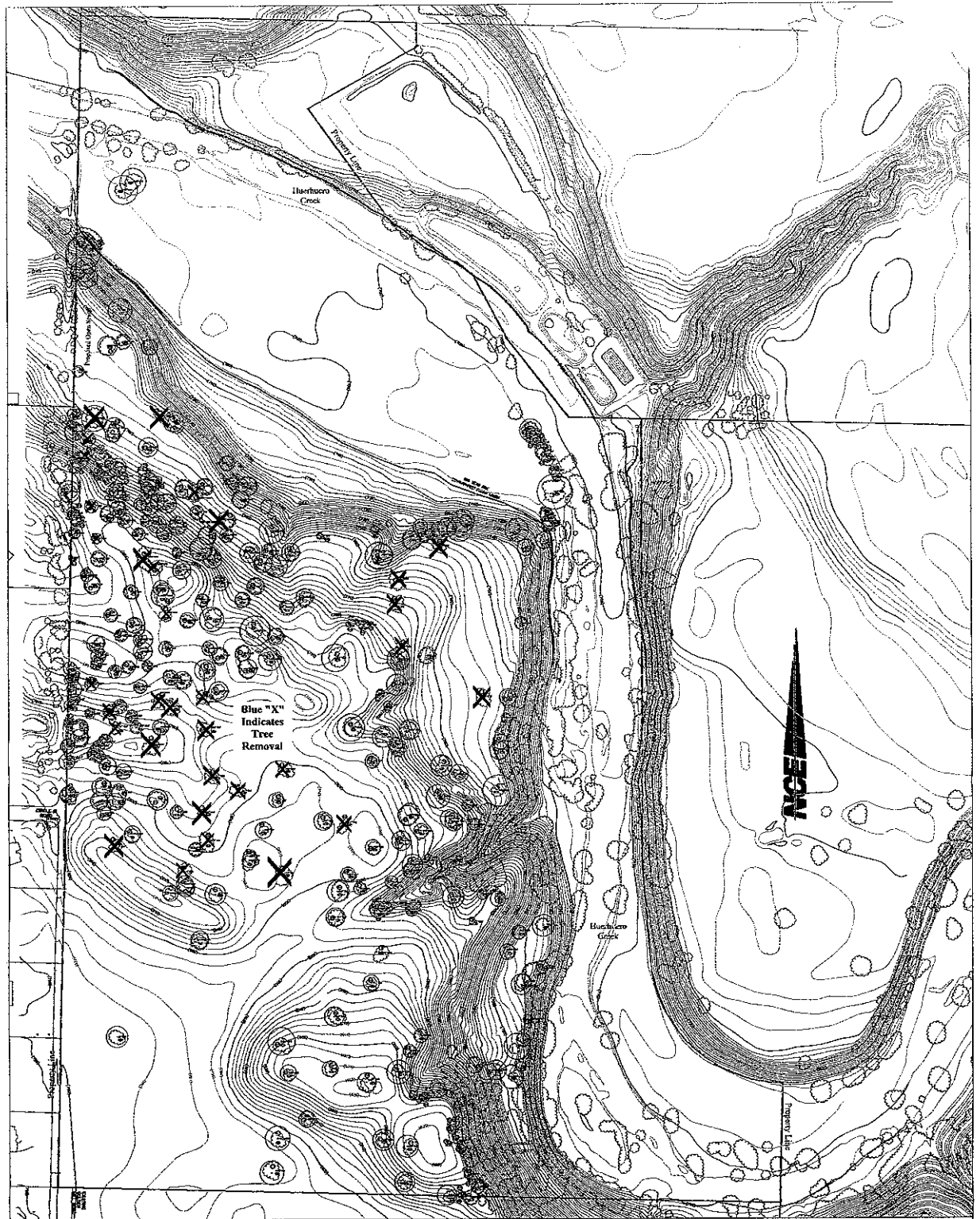
January 2008

Biological resource overlay by:

**Althouse and Meade Inc.**  
 1875 Wellsona Road  
 Paso Robles, CA 93446

Topographic and tree survey by:

**North Coast Engineering, Inc.**  
 725 Creston Road, Suite B  
 Paso Robles, CA 93446



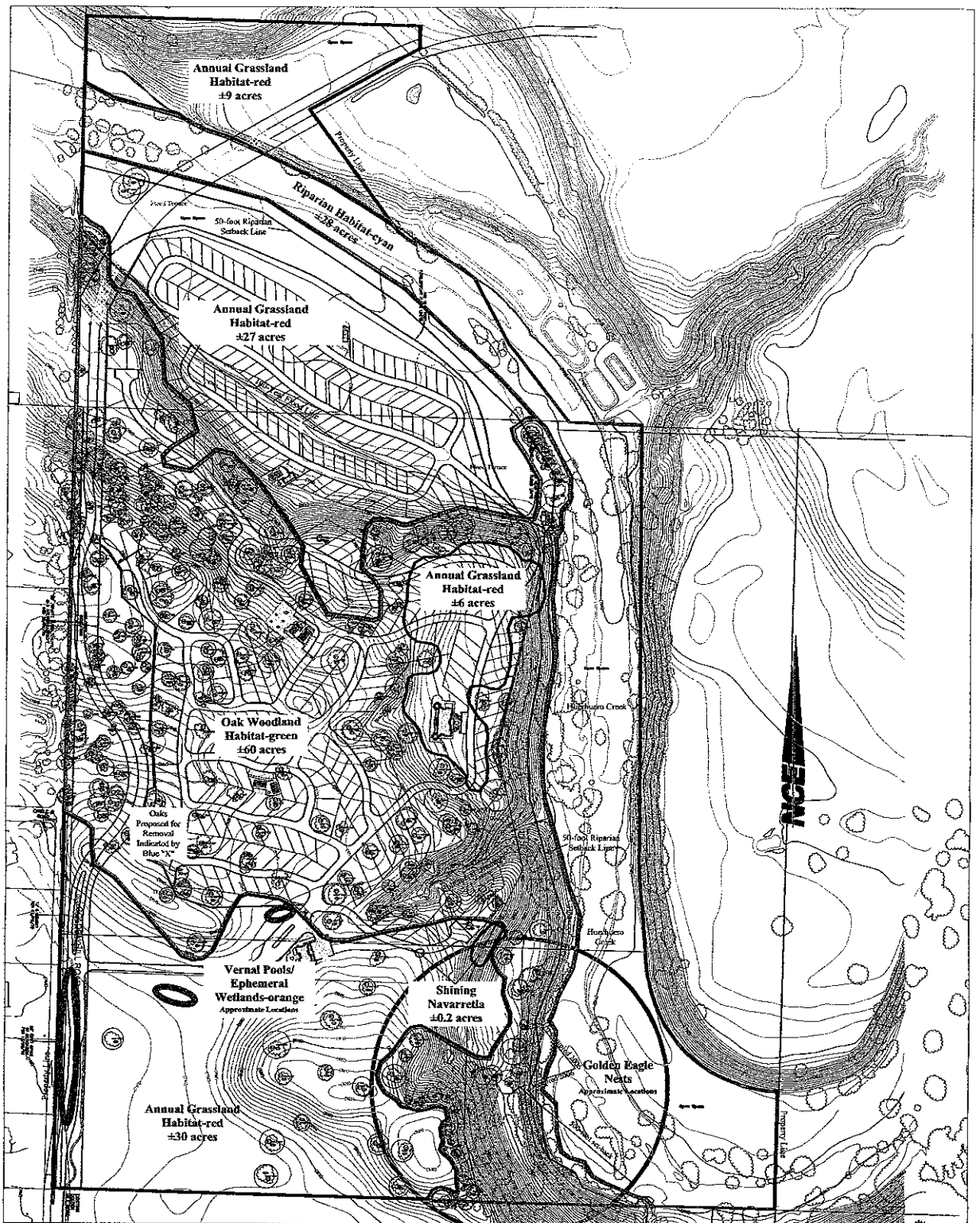
Paso Robles  
 Motorcoach Resort  
 APN 025-435-005, -006, -007

## Oak Tree Map

January 2008

Map modifications by:  
**Althouse and Meade Inc.**  
 1875 Wellsona Road  
 Paso Robles, CA 93446

Topographic and tree survey by:  
**North Coast Engineering, Inc.**  
 725 Creston Road, Suite B  
 Paso Robles, CA 93446



Paso Robles  
Motorcoach Resort  
APN 025-435-005, -006, -007

### Site Plan with Constraints Overlay

January 2008

Biological resource overlay by:  
**Althouse and Meade Inc.**  
1875 Wellsona Road  
Paso Robles, CA 93446

Topographic and tree survey by:  
**North Coast Engineering, Inc.**  
725 Creston Road, Suite B  
Paso Robles, CA 93446

## APPENDIX B – Figures

- **Figure 1. Location Map**
- **Figure 2. USGS Topographic Map**
- **Figure 3. USDA Soils Map**
- **Figure 4. Aerial Photograph**
- **Figure 5. CNDDDB GIS Map**

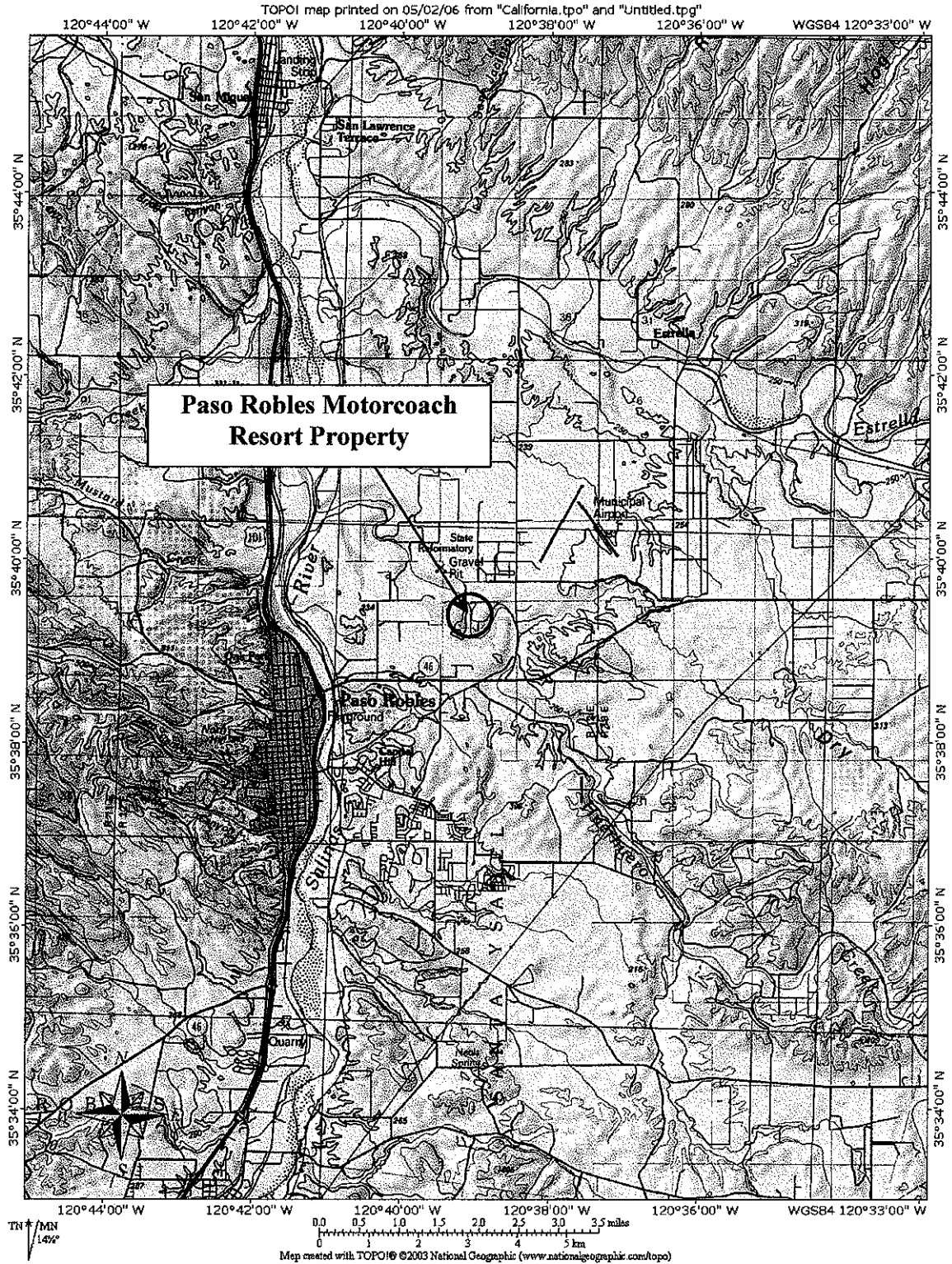


FIGURE 1. LOCATION MAP. The Paso Robles Motorcoach Resort property is located in the northeastern corner of the City of Paso Robles (blue circle), San Luis Obispo County, California. The property is within the Paso Robles USGS 7.5 minute quadrangle.



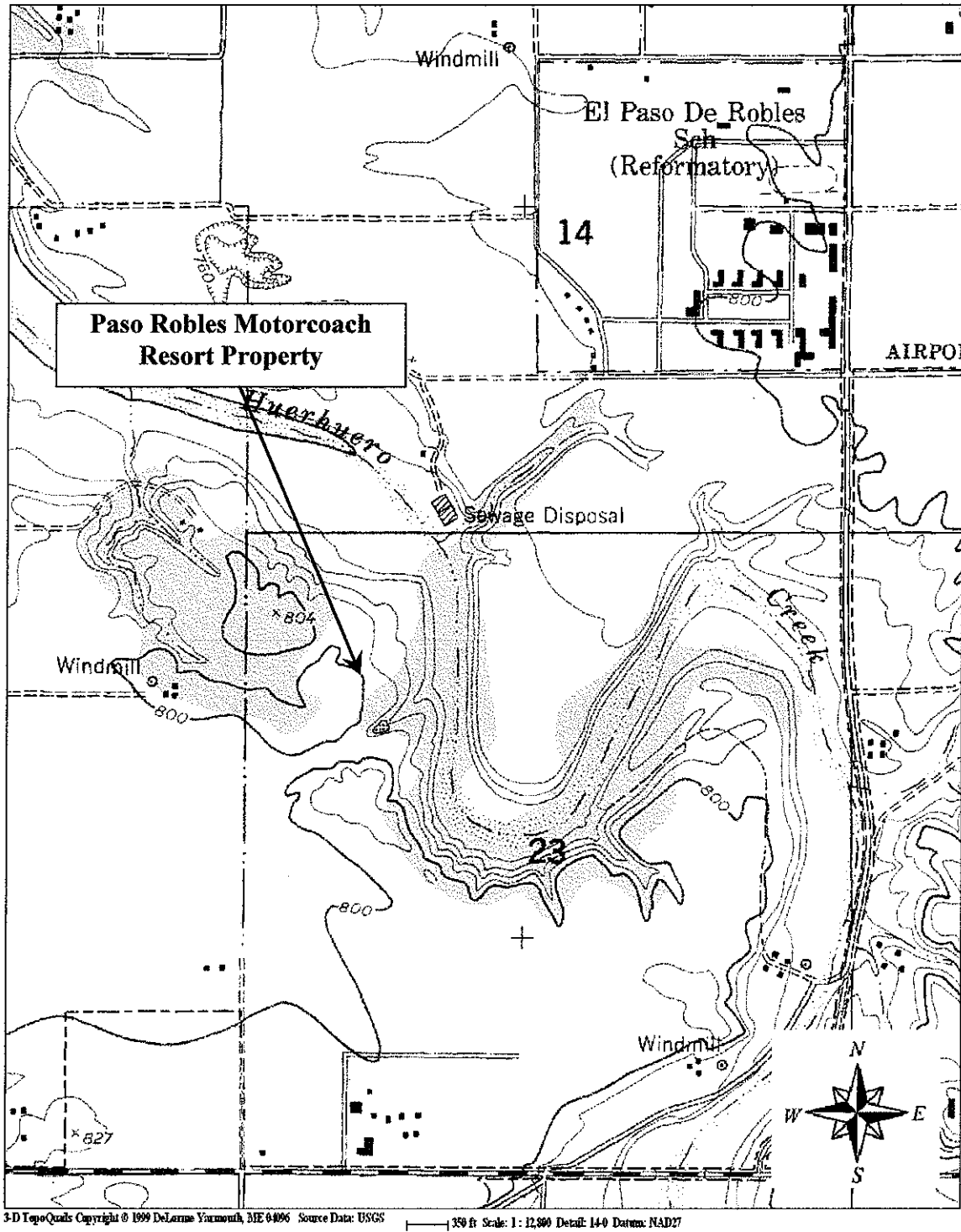


FIGURE 2. USGS TOPOGRAPHIC MAP. The Paso Robles Motorcoach Resort property is situated north of Highway 46 East at the north end of Golden Hill Road, along Huerfano Creek.

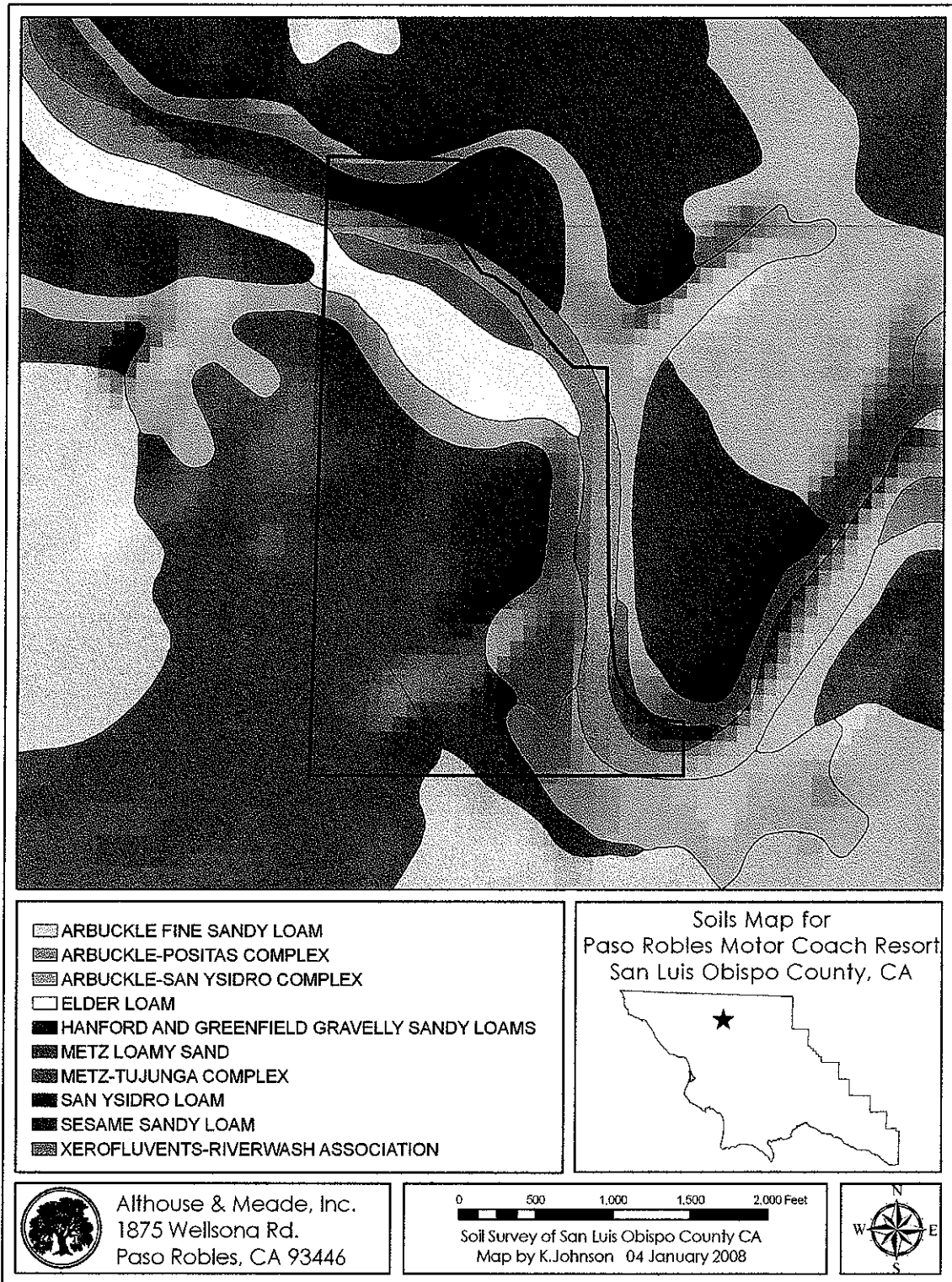


FIGURE 3. USDA SOILS MAP. The approximate location of the property is designated above on the USDA Soil Survey of San Luis Obispo County, California, Paso Robles Area (1984) map. Nine soil types occur on the property.

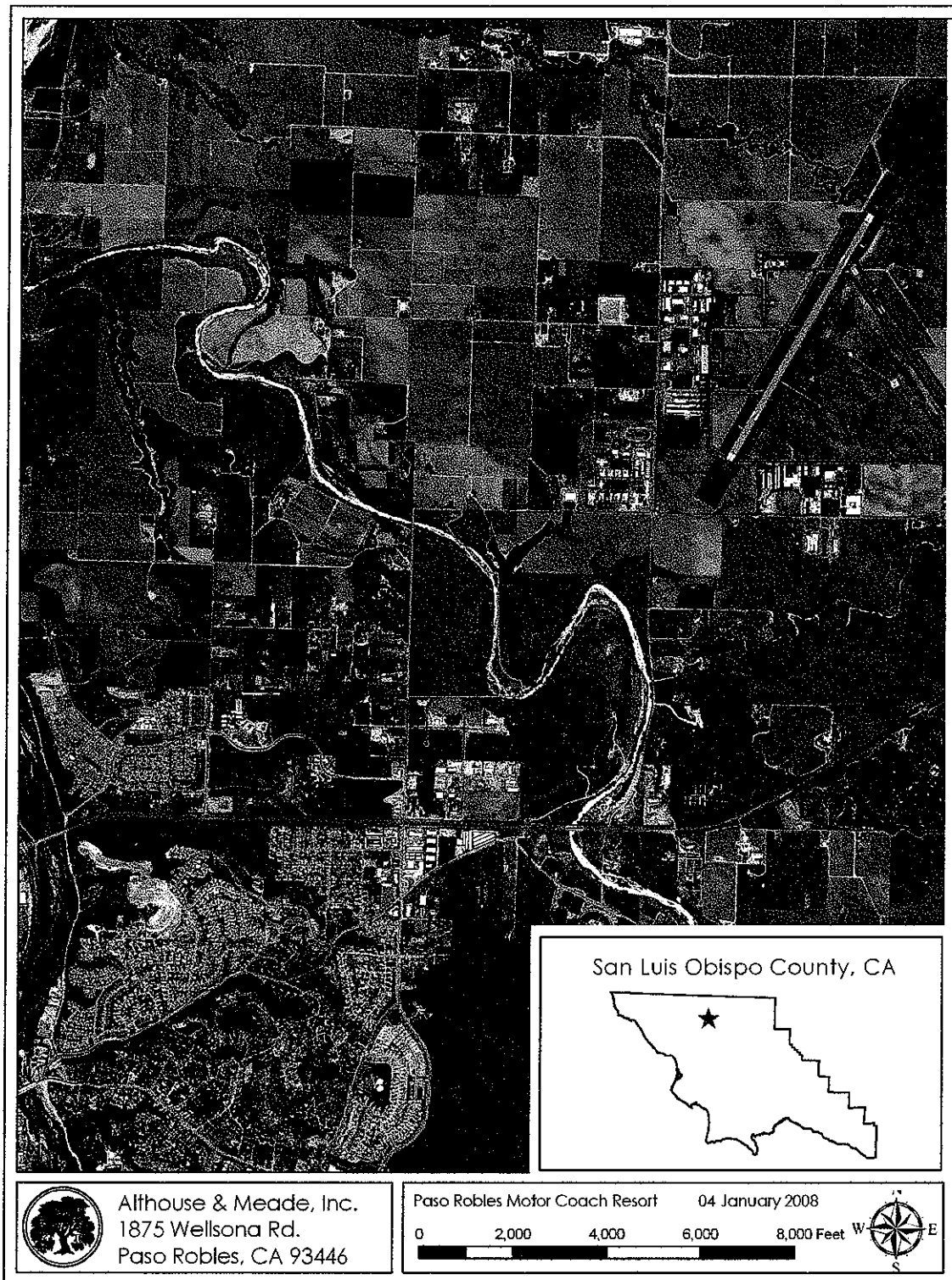


FIGURE 4. AERIAL PHOTOGRAPH. Aerial photograph provided by Golden State Aerials, Inc., dated 11/2/02.

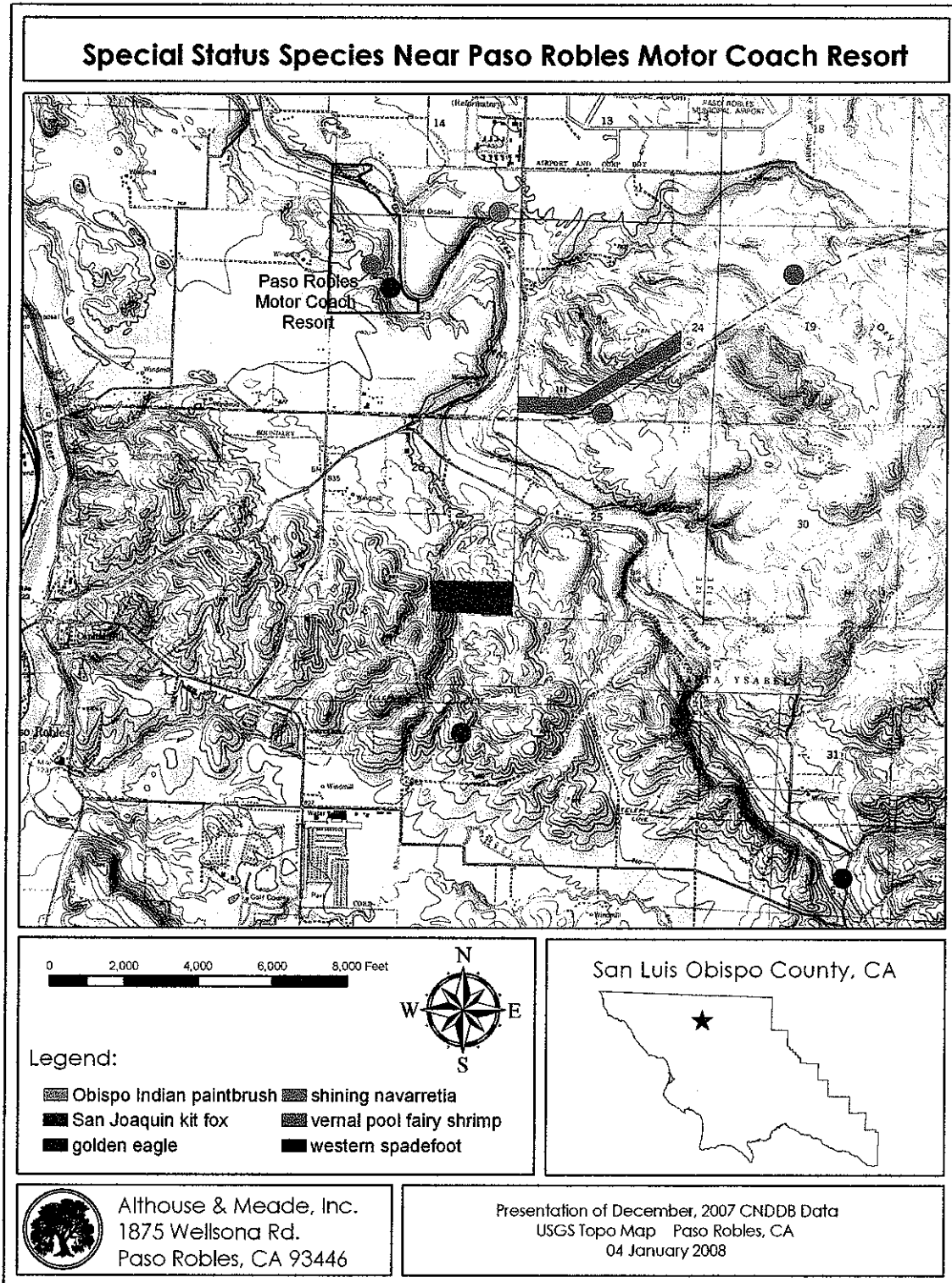


FIGURE 5. CNDDDB GIS DATA. Polygons are shown for all special status species with locality data in the California Natural Diversity Database in the vicinity of the property.

## **APPENDIX C – Photographs**



Photo 1. Grassland with occasional scattered oak trees occupies a large portion of the property. View southwest at south end of the property, May 2006.



Photo 2. The property is currently grazed by cattle. Unpaved ranch roads are present.



Photo 3. Grassland with scattered oaks in the southwest corner of the property. A vernal depression is visible in the center of the photograph (note arrow).

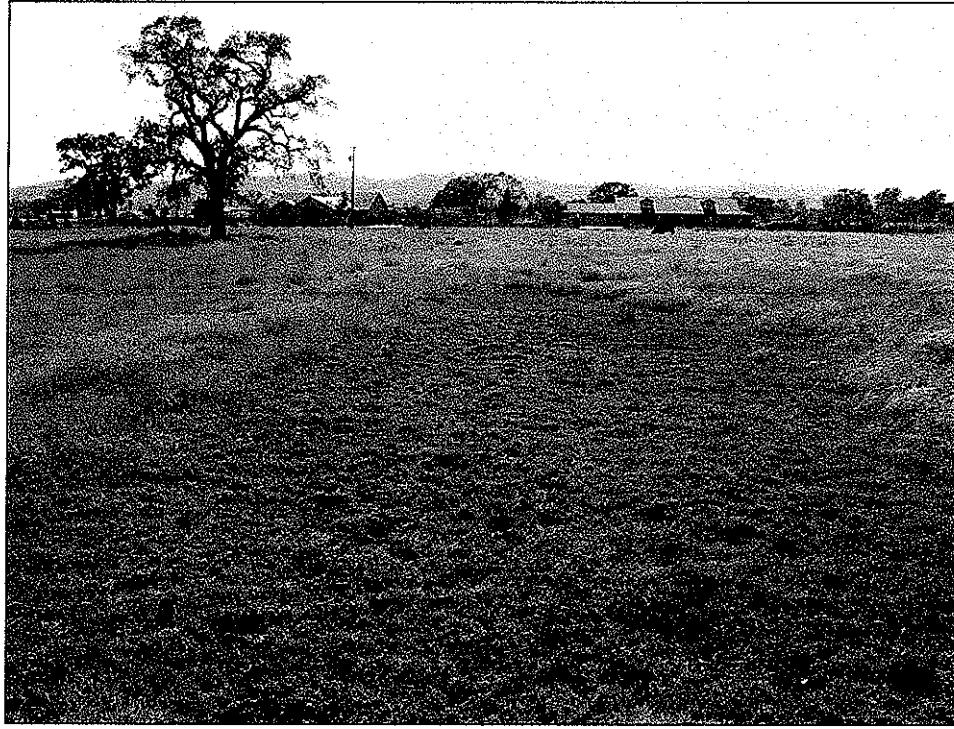


Photo 4. Vernal pools were dry during our first site visit on May 4, 2006, but were discernible by the vegetation and topography.



Photo 5. Isolated seasonal wetlands occur in small patches along the western property boundary. Photo taken May 24, 2006.



Photo 6. Many mature blue oaks and occasional valley oaks occur on the property in oak woodland and grassland habitats. Photo taken May 4, 2006.



Photo 7. Riparian habitat along Huerhuero Creek includes a mixture of oak trees, riparian trees, riparian shrubs, and herbaceous vegetation.





Photo 8. California wild rose thickets occur in patches along the banks of Huerhuero Creek.



Photo 9. Some portions of the streambed support herbaceous vegetation. Smaller shrubs occur on sandbars, while large shrubs and trees are dominant on banks and stream terraces.



Photo 10. Scattered mature cottonwoods and valley oaks are present on the stream banks. Annual grasses dominate occasional open areas of the riparian corridor.



Photo 11. An ephemeral drainage conducts storm water off hillsides into Huerhuero Creek. Remnants of an old dam are still present.



Photo 12. View west of the lower end of the ephemeral drainage just before its confluence with Huerhuero Creek.



Photo 13. Grassland habitat occurs on the floodplain and low terraces adjacent to Huerhuero Creek at the north end of the property. View northeast.



Photo 14. An occupied golden eagle nest was found on the property in 2006, in a blue oak tree along Huerhuero Creek.



Photo 15. Shining navarretia (*Navarretia nigelliformis* ssp. *radians*), a CNPS List 1B.2 species, was mapped in two locations on the property.

## **APPENDIX D – Status Codes**

## Status Codes

### *Element Ranking*

#### **NDDB Codes**

Each plant or animal (element) is given a number based on its taxonomy and accession into the natural diversity database (NDDB).

#### **Global Ranking**

- G1 = Less than 6 viable element occurrences (EO's), OR less than 1,000 individuals, OR less than 2,000 acres  
G2 = 6-20 EO's OR 1,000-3,000 individuals OR 2,000-10,000 acres.  
G3 = 21-100 EO's OR 3,000-10,000 individuals OR 10,000-50,000 acres.  
G4 = Apparently secure. This rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.  
G5= Population or stand demonstrably secure to ineradicable due to being commonly found in the world. NO THREAT RANK.

#### **State Ranking**

(Same as Global ranking, plus threat designation attached to the S-rank)

- S1 = Less than 6 viable element occurrences (EO's), OR less than 1,000 individuals, OR less than 2,000 acres.  
    S1.1 = very threatened  
    S1.2 = threatened  
    S1.3 = no current threats known  
S2 = 6-20 EO's OR 1,000-3,000 individuals OR 2,000-10,000 acres.  
    S2.1 = very threatened  
    S2.2 = threatened  
    S2.3 = no current threats known  
S3 = 21-100 EO's OR 3,000-10,000 individuals OR 10,000-50,000 acres.  
    S3.1 = very threatened  
    S3.2 = threatened  
    S3.3 = no current threats known  
S4 = Apparently secure within California. This rank is clearly lower than S3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. NO THREAT RANK.  
S5= Population or stand demonstrably secure to ineradicable in California. NO THREAT RANK.

Note: By adding a question mark to the rank: e.g., S2? This represents more certainty than S2S3, but less than S2.

## **California Native Plant Society's (CNPS) Lists and R-E-D Code (Rarity, Endangerment, Distribution)**

The CNPS Ranking Working Group was formed to review the ranking system in the CNPS *Inventory of Rare and Endangered Plants (Inventory)* and discuss needed modifications. This group decided to discontinue the use of the R-E-D (Rarity-Endangerment-Distribution) Code and to instead convey this information in a clearer way through modifying the CNPS List and including other information in the *Inventory*. This decision and the associated modifications were approved by the CNPS Board of Directors at their August 2005 meeting.

A new Threat Code extension has been added following the CNPS List (e.g. 1B.1, 2.2 etc.). This extension replaces the E (Endangerment) value from the R-E-D Code. The main difference is that the number coding is now reversed to reduce confusion and represent this information in parallel with the threat rankings that the California Natural Diversity Database (CNDDDB) uses. Therefore the logic is reversed so that the lower the number, the higher the corresponding threat level.

### CNPS Lists

- 1A = Presumed extinct in California.
- 1B = Rare or Endangered in California and elsewhere.
- 2 = Rare or Endangered in California, more common elsewhere.
- 3 = Plants for which we need more information (Review list).
- 4 = Plants of limited distribution (Watch list).

### **New Threat Code extensions and their meanings:**

- .1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 – Fairly endangered in California (20-80% of occurrences threatened)
- .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

## APPENDIX E – CNDDDB Reports

- **Golden Eagle (*Aquila chrysaetos*)**
- **Shining Navarretia (*Navarretia nigelliformis* ssp. *radians*)**



### California Native Species Field Survey Form

Mail to:  
**Natural Diversity Database**  
 California Department of Fish and Game  
 1807 13<sup>th</sup> Street, Suite 202  
 Sacramento, CA 95814

*For Office Use Only*

Source Code \_\_\_\_\_ Quad Code \_\_\_\_\_  
 Elm Code \_\_\_\_\_ Occ. No. \_\_\_\_\_  
 EO Index No. \_\_\_\_\_ Map Index No. \_\_\_\_\_

**Date of Field Work:** 5 - 24 - 2006  
month (mm) date (dd) year (yyyy)

**Scientific Name:** Aquila chrysaetos

**Common Name:** Golden Eagle

<p><b>Species Found?</b> <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <small>if not, why?</small></p> <p>Total No. Individuals _____ Subsequent Visit? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Is this an existing NDDB occurrence? <input type="checkbox"/> yes, Occ. # _____ <input checked="" type="checkbox"/> no <input type="checkbox"/> unk.</p> <p>Collection? If yes: _____  <small>Number Museum / Herbarium</small></p>	<p><b>Reporter:</b> <u>Jason Dart</u></p> <p><b>Address:</b> <u>Althouse and Meade, Inc.</u>  <u>1875 Wellsona Road Paso Robles, CA 93446</u></p> <p><b>Email Address:</b> <u>jason@althouseandmeade.com</u></p> <p><b>Phone:</b> <u>(805) 467-1041</u></p>
--	---

<p><b>Plant Information</b></p> <p>Phenology: _____  <small>% vegetative % flowering % fruiting</small></p>	<p><b>Animal Information</b></p> <p>Age Structure: <u>2</u> # adults <u>1</u> # juveniles # unknown</p> <p><input type="checkbox"/> breeding <input type="checkbox"/> wintering <input type="checkbox"/> burrow site <input type="checkbox"/> rookery <input checked="" type="checkbox"/> nesting <input type="checkbox"/> other</p>
---	--

**Location (please also attach or draw map on back)**  
 Huerfueero Creek, between Golden Hill Road and Airport Road, Paso Robles

County: San Luis Obispo County Landowner / Mgr.: Private

Quad Name: Paso Robles Elevation: 720'

T \_\_\_\_\_ R \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_

UTM: Zone: \_\_\_\_\_ (10, 11) Datum: NAD27 (NAD83, NAD27, WG584, other)

Source: USGS topo map program (GPS, map & type, etc.) Point Accuracy: \_\_\_\_\_ Meters

UTM Coordinates N35.65393 / W120.65149

**Habitat Description** (plant communities, dominants, associates, substrates/soils, aspects/slope)  
 An active golden eagle nest was located in a blue oak tree (*Quercus douglasii*) on an east facing oak woodland slope on the west bank of Huerfueero Creek in eastern Paso Robles. A single juvenile was in the nest. Adults were observed hunting ground squirrels in the vicinity. Grazed annual grassland and scattered oak trees and woodland slopes are in the vicinity. A second unoccupied nest was in a nearby oak.

Other rare species? \_\_\_\_\_

**Site Information** Overall site quality:  Excellent  Good  Fair  Poor

Current / surrounding land use: Grazing, residential

Visible disturbances / possible threats: The 160-acre parcel is conducting a feasibility study for development.

Comments: Locals report nesting by golden eagles in this vicinity for at least 15 years.

<p><b>Determination:</b> (check one or more, and fill in blanks)</p> <p><input type="checkbox"/> Keyed (cite reference) _____</p> <p><input type="checkbox"/> Compared with specimen housed at: _____</p> <p><input type="checkbox"/> Compared with photo / drawing in: _____</p> <p><input type="checkbox"/> By another person (name): _____</p> <p><input type="checkbox"/> Other: _____</p>	<p><b>Photographs:</b> (check one or more)</p> <table style="width: 100%;"> <tr> <td>Slide</td> <td>Print</td> </tr> <tr> <td>Plant / animal</td> <td><input type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> <tr> <td>Habitat</td> <td><input type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> <tr> <td>Diagnostic feature</td> <td><input type="checkbox"/> <input type="checkbox"/></td> </tr> </table> <p>May we obtain duplicates at our expense? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p>	Slide	Print	Plant / animal	<input type="checkbox"/> <input checked="" type="checkbox"/>	Habitat	<input type="checkbox"/> <input checked="" type="checkbox"/>	Diagnostic feature	<input type="checkbox"/> <input type="checkbox"/>
Slide	Print								
Plant / animal	<input type="checkbox"/> <input checked="" type="checkbox"/>								
Habitat	<input type="checkbox"/> <input checked="" type="checkbox"/>								
Diagnostic feature	<input type="checkbox"/> <input type="checkbox"/>								

FG/WHDAB/1747 Rev.1189

Highway 1, Route 2, Box 417  
San Luis Obispo, CA 93405  
(805) 440-0378

April 17, 2007

Dan Meade, PhD.  
Althouse and Meade, Inc.  
1875 Wellsona Road  
Paso Robles, CA 93446

**Subject: Wet-season survey data for listed vernal pool fairy shrimp on the Golden Hills Road project site in Paso Robles, CA.**

Dear Dr. Meade:

This following is a summary of wet-season surveys data that was collected on February 28 and March 17, 2007 within Pools 1-4 on the Golden Hills Road project site.

**Wet Season Survey Dates and Findings**

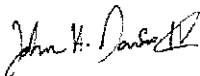
Survey Number	Date	Days Since Inundation	Surface Area: Pool Depth	Water Temp: Air Temp	Species Observed <sup>1</sup>
1	02/28/07 <sup>2</sup>	Approx. 7 days	Pool 1: 1.5 m <sup>2</sup> : 9.1 cm Pool 2: 1.1 m <sup>2</sup> : 7.6 cm Pool 3: N/A: N/A Pool 4: N/A: N/A	Pool 1: 18.8 °C: 14.5 °C Pool 2: 21.0 °C: 14.5 °C Pool 3: N/A: N/A Pool 4: N/A: N/A	<ul style="list-style-type: none"><li>• Ostracods</li><li>• Nematodes</li></ul>
2	03/17/07	Dry, no standing water	N/A	N/A	N/A

<sup>1</sup> Pools are named 1-4 from South to North. Pool 1 is located at the entry gate.  
<sup>2</sup> Four other road puddles were surveyed for signs of fairy shrimp on 2/28/07.  
NM = Not Measured, N/A = Not Applicable (i.e. Dry Pool)

No fairy or tadpole shrimp were observed during USFWS protocol surveys on the Golden Hills Road project site. The presence of ostracods, however, indicates that the on-site depressions become inundated seasonally with rainfall. Ostracods often co-occur with fairy shrimp in seasonal or vernal pools, yet the presence of ostracods is independent of the presence fairy shrimp. This 2006-2007 wet-season survey does not conclusively determine the presence or absence of fairy shrimp on the project site. In addition, the data included herein is unlikely to be considered a complete wet-season survey by the USFWS.

Please let me know if I can further assist you on fairy shrimp work for the Golden Hills Road project. Thank you again for selecting me for the LVPB wet-season surveys.

Sincerely,



John H. Davis IV, M.S.  
Ecologist  
USFWS Permit #TE-110095-0

# **ALTHOUSE AND MEADE, INC.**

## **BIOLOGICAL AND ENVIRONMENTAL SERVICES**

1875 Wellsona Road • Paso Robles, CA 93446 • Telephone (805) 467-1041 • Fax (805) 467-1021

December 17, 2008  
File #531.01

Lynne Dee Althouse, M.S.  
(805) 459-1660 (cell)  
lynnedee@althouseandmeade.com

Daniel E. Meade, Ph.D.  
(805) 705-2479 (cell)  
dan@althouseandmeade.com

Darren Nash  
Associate Planner  
Department of Planning and Building  
City of Paso Robles  
1000 Spring Street  
Paso Robles, CA 93446

Re: Paso Robles Motorcoach Resort, Supplemental measures for kit fox protection –  
Addendum to Biological Report

Dear Mr. Nash:

This letter is an addendum to the Biological Report for the Paso Robles Motorcoach Resort, dated January 2008, by Althouse and Meade, Inc. The biological report includes eleven mitigation measures to avoid and compensate for potential impacts to San Joaquin kit fox. In recent conversations with the U.S. Fish and Wildlife Service and the Department of Fish and Game, additional measures were discussed that could enhance the project for use by kit fox. A substantial change in the project design was made that would result in a significantly wider natural habitat corridor along Huer huero Creek.

Measures to be incorporated into the Paso Robles Motorcoach project, in addition to those specified in the Biological Report include the following:

1. **Kit fox friendly fencing** shall be incorporated into all fences on the property. For chain link, wildlife, no-climb, or other wire fences with wire openings at ground level less than eight inches square, kit fox passages shall be made in the fences every 100 yards. Passages shall be created by cutting wire and placing spreader bars to form a smooth opening of 8" wide by 12" high, or as specified by the Endangered Species Recovery Program. In solid walls, an eight inch diameter concrete pipe shall be placed at ground level in the wall every 100 yards.
2. **Four SJKF escape dens and a chambered den** shall be constructed as per guidelines provided by the Endangered Species Recovery Program (see attached information). The precise location of each den shall be designated in the field by a qualified kit fox biologist (see attached proposed den map).
3. **All pets on the property** shall be kept on a leash at all times. Owners shall be required to clean up after their pets. Resort maintenance personnel shall conduct daily clean up on the property to remove pet waste.

4. **Lighting** shall be shielded to prevent direct lighting of the riparian corridor. All lighting shall be directed down and shall be of low intensity.
5. **Use of poisons** including rodenticides on the property should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe labels and other restrictions, mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent poison must be utilized, zinc phosphide should be used because of proven lower risk to kit fox (U.S. Fish and Wildlife Service, 1999).
6. **Quiet hours** shall be observed after ten p.m. every night to reduce disturbance. Generators will not be permitted to run at the resort at any time.
7. **Speed limits.** To avoid accidental injury to animals on the property a speed limit of 10 miles per hour shall be enforced on the property for all vehicles. Speed limits shall be posted at the entrance gate and throughout roadways on the property.
8. **To enhance habitat for use by kit fox** vegetation management shall be conducted on neighboring properties, including the City sewer facility on the north bank of Huer huero Creek adjacent to the Paso Robles Motorcoach Resort property. Work shall consist of removal of overgrown vegetation and removal of barrier fence when appropriate.
9. **Neighborhood fencing improvements** shall be conducted where fencing is a barrier to kit fox movement on properties adjacent to the Paso Robles Motorcoach Resort property. Improvements will consist of either replacement of fences with kit fox friendly fencing, or creation of kit fox passages in existing fences every 100 yards where feasible.

The above described mitigation measures, when employed on the project site, would reduce potential impacts to San Joaquin kit fox. In consideration of these additional mitigation measures and the substantial widening of the proposed open space corridor, adjustment of offsite mitigation requirements may be appropriate. The reduction of the mitigation ratio for kit fox payments from four to one can be made with review and approval by the Department of Fish and Game.

Sincerely,

Daniel E. Meade, Ph.D.

EXHIBITS

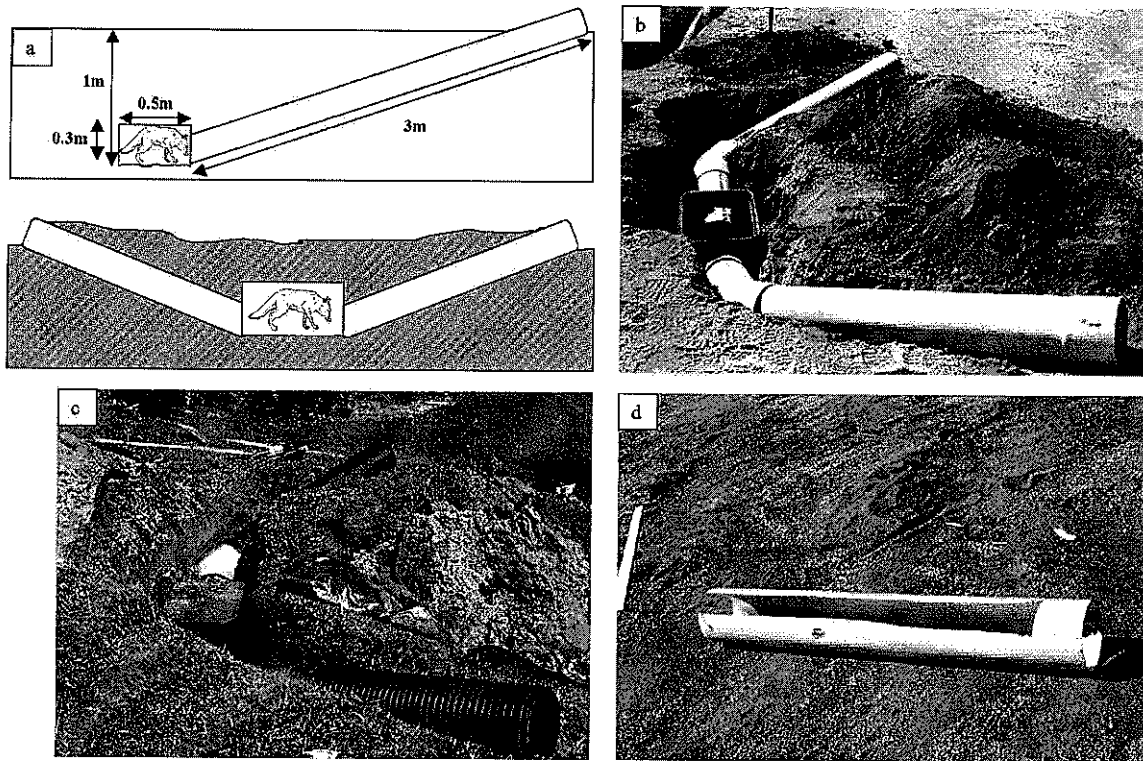
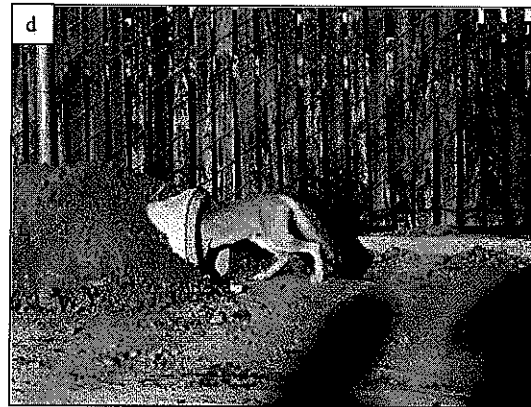
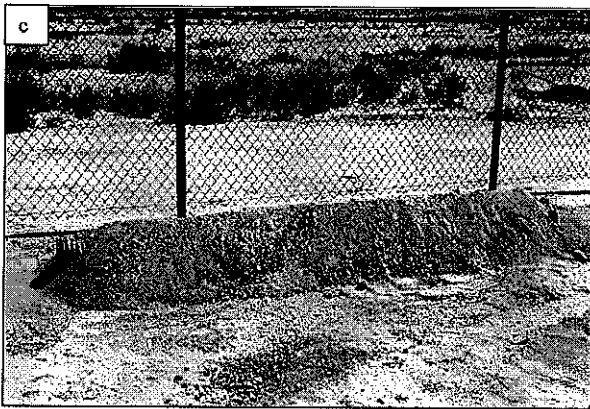
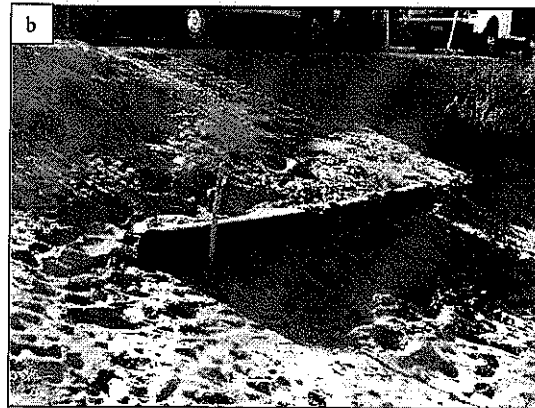
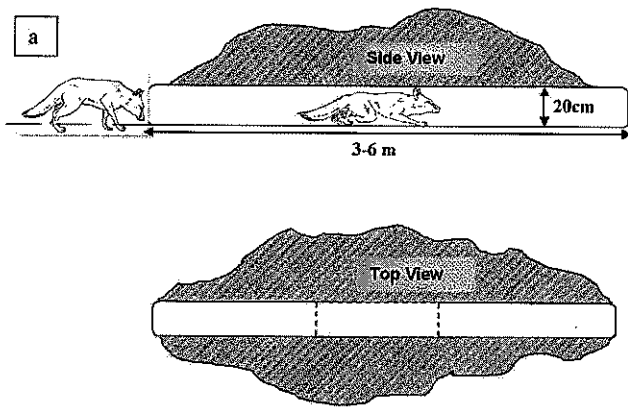


Figure 1. Artificial subterranean dens for San Joaquin kit fox at Bakersfield, CA. a) Artificial den schematic. b) PVC two-entrance chamber den under construction. c) High-density polyethylene two-entrance den. d) PVC tunnel with floor removed longitudinally.

EXHIBITS



## EXHIBITS

Figure 2. Artificial escape dens for San Joaquin kit fox at Bakersfield, CA. a) Escape den schematic. b) High-density polyethylene escape den under construction. c) Completed den. d) Kit fox entering escape den.

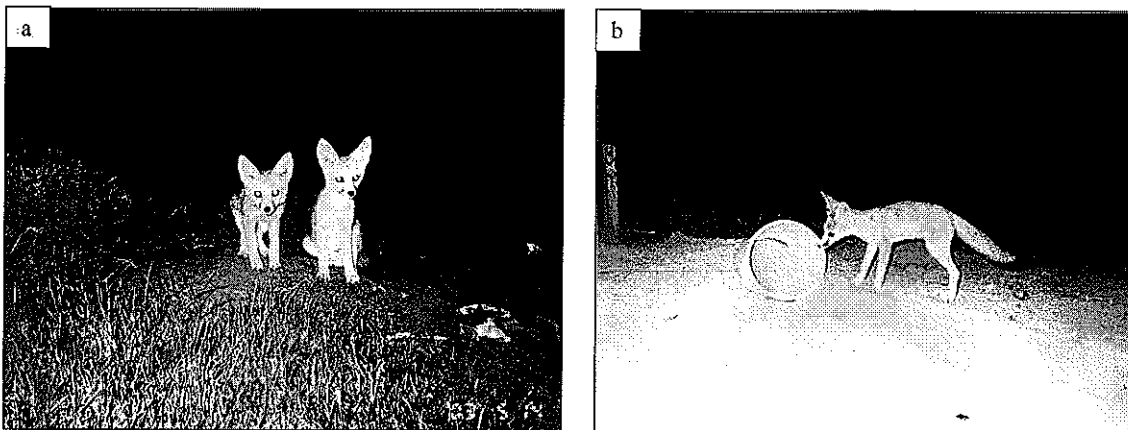


Figure 3. Kit fox pups at artificial subterranean dens at a golf course (a) and drainage basin (b) in Bakersfield, CA.

### **Artificial Den Designs**

#### **Escape Dens**

Designed to provide escape cover for kit foxes. Two different lengths were used to determine whether kit foxes preferred the greater seclusion associated with a longer den.

#1: A 10-ft long length of pipe placed on the surface of the ground and covered with several inches of dirt to provide thermal insulation.

#2: A 20-ft long length of pipe placed on the surface of the ground and covered with several inches of dirt to provide thermal insulation.

#### **Subterranean Dens**

Designed to provide escape cover as well as diurnal resting cover for kit foxes. The 2 designs used will determine preference by foxes for 1 versus 2 entrances.

## EXHIBITS

#3: A 10-ft length of pipe with one end at the surface and one end buried approximately 3 ft underground. Underground end is open to allow foxes to expand the den and even create new entrances.

#4: A 3-ft length of pipe buried approximately 3 ft underground and accessed by 2 5-ft long entrance pipes.

### Chambered Dens

Designed to provide escape cover and diurnal resting cover for kit foxes, and also provides a chamber for resting or reproduction. The 2 designs used will determine preference by foxes for 1 versus 2 entrances. Also, 2 different chamber designs were used to determine whether foxes exhibit any preference among designs.

#5: A chamber buried approximately 3 ft deep with one 5-ft long entrance pipe.

#6: A chamber buried approximately 3 ft deep with two 5-ft long entrance pipes.

Artificial dens all were constructed by hand. All complexes of 2-3 dens required approximately 8-10 person hours for construction, including the transportation of materials to each site. At 6 of the 11 sites, the holes for placement of the dens were excavated by hand. At the 5 other sites, the Bakersfield Water Resources Department provided a backhoe and crew to excavate den holes.

### Artificial Den Materials

A goal of this project was to test the use of easily obtainable, relatively inexpensive materials to construct artificial dens. Using such materials will reduce costs of artificial dens thereby increasing the potential use of this mitigation strategy.

### Den Tunnels

Four materials were used for den tunnels:

8"-diameter PVC pipe

8"-diameter corrugated galvanized pipe

8"-diameter corrugated plastic pipe

10"-diameter concrete pipe (8" not available)

In some dens, strips were cut from the bottom of PVC and plastic pipes to facilitate drainage.

For bends in tunnels, 45-degree or 90-degree elbows made of either PVC, plastic or aluminum were used. Any openings around joints were covered with a piece of thick "carpet runner" plastic to exclude dirt.

### Den Chambers

Two types of chamber structures were used:



## EXHIBITS

Plastic irrigation valve boxes (approximately 30" long, 20" wide, 20" tall)

Igloo-style dog house (approximately 30" diameter at base, 24" tall)

Both chamber designs have open bottoms. Holes were cut into the sides of the chambers where tunnel pipes entered.

EXHIBITS

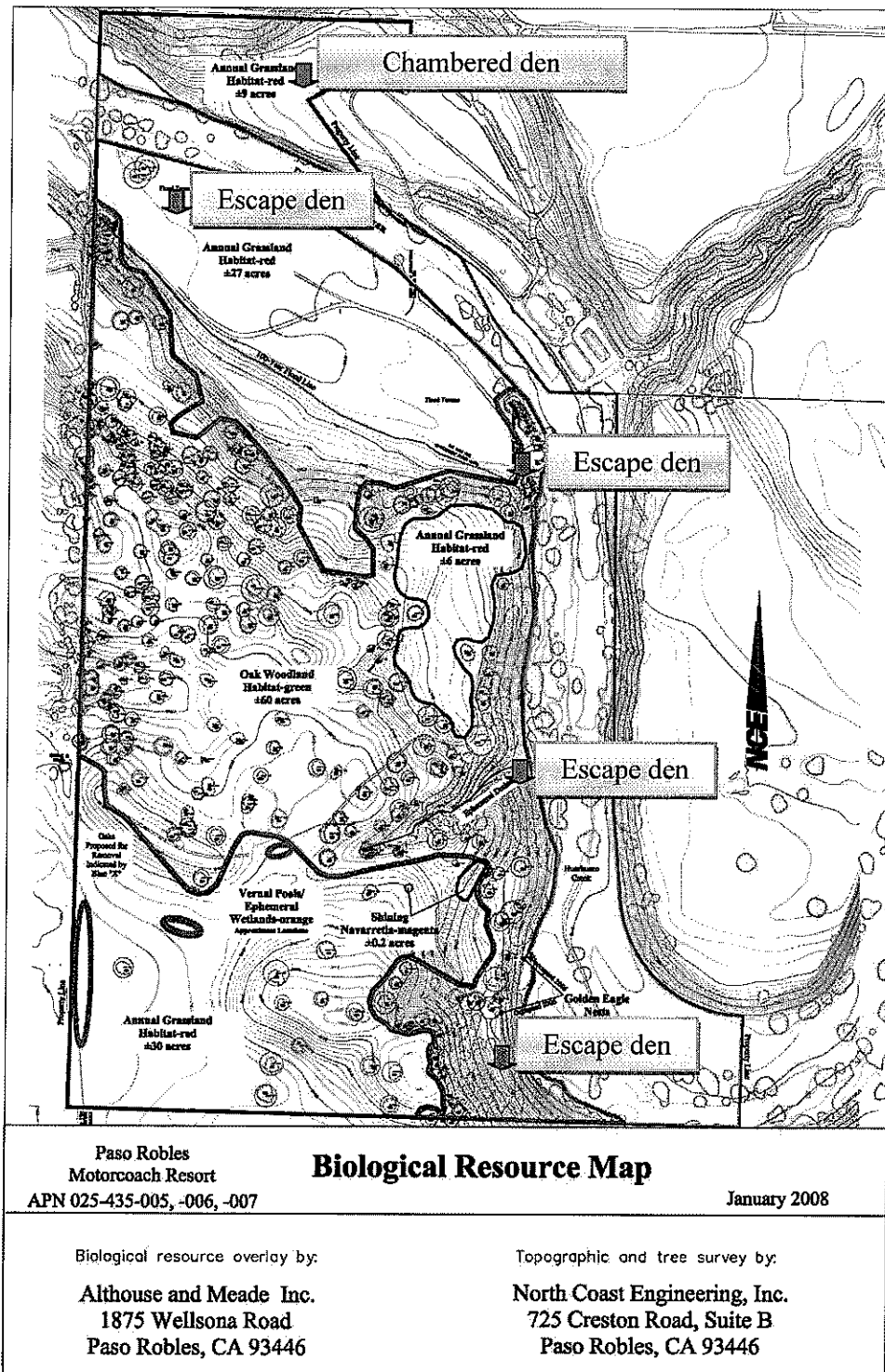


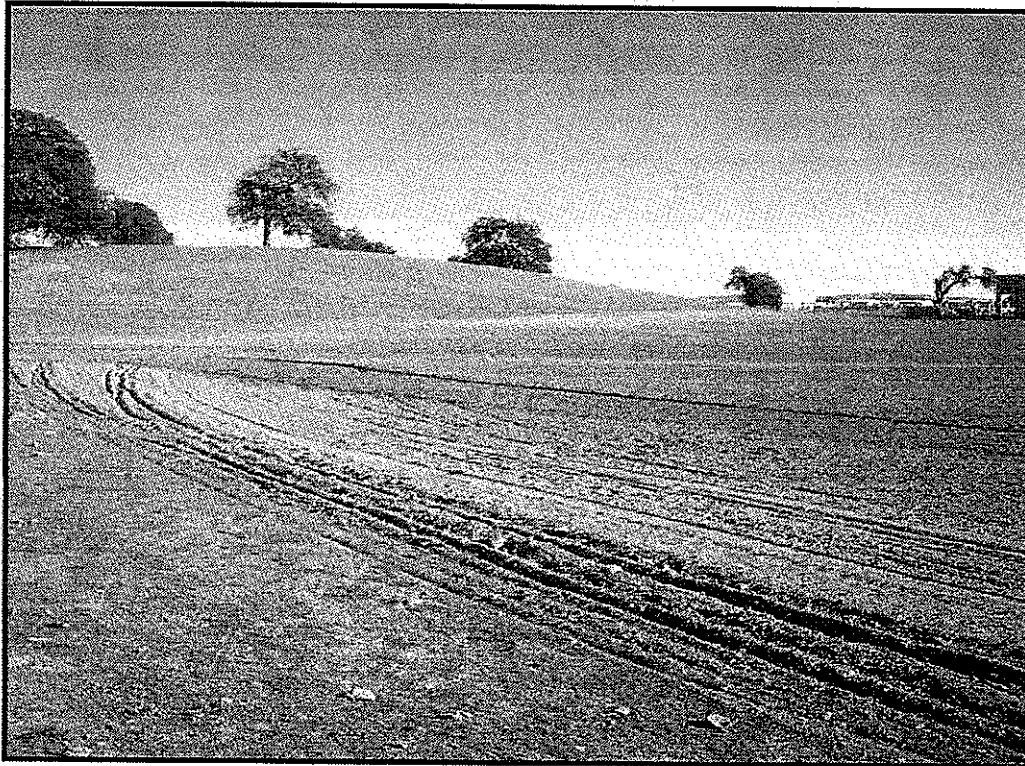
Figure 4. Proposed den map. Escape and chambered den locations on the biological resources map.

Paso Robles

JUN 18 2008

Planning Division

**DRY-SEASON SAMPLING  
FOR  
FEDERALLY-LISTED LARGE BRANCHIOPODS  
AT THE  
PASO 160 PROJECT**



*Prepared for:* ALTHOUSE & MEADE, INC.  
1875 Wellsona Road  
Paso Robles, CA 93446  
*Contact:* Daniel E. Meade, Ph.D.  
(805) 467-1041

*Prepared by:* HELM BIOLOGICAL CONSULTING  
2273 Nolen Drive  
Lincoln, CA 95648  
*Contact:* Brent Helm  
(916) 543-7397

January 2008

**Exhibit E-3**  
Biological Report - Dry Season Sampling  
GPA 09-001, RZ 09-001, PD 08-001,  
CUP 08-001, & PRAL 07-0293  
(PR Motorcoach Resort)



# HELM

BIOLOGICAL CONSULTING  
2273 Nolen Drive, Lincoln, CA 95648

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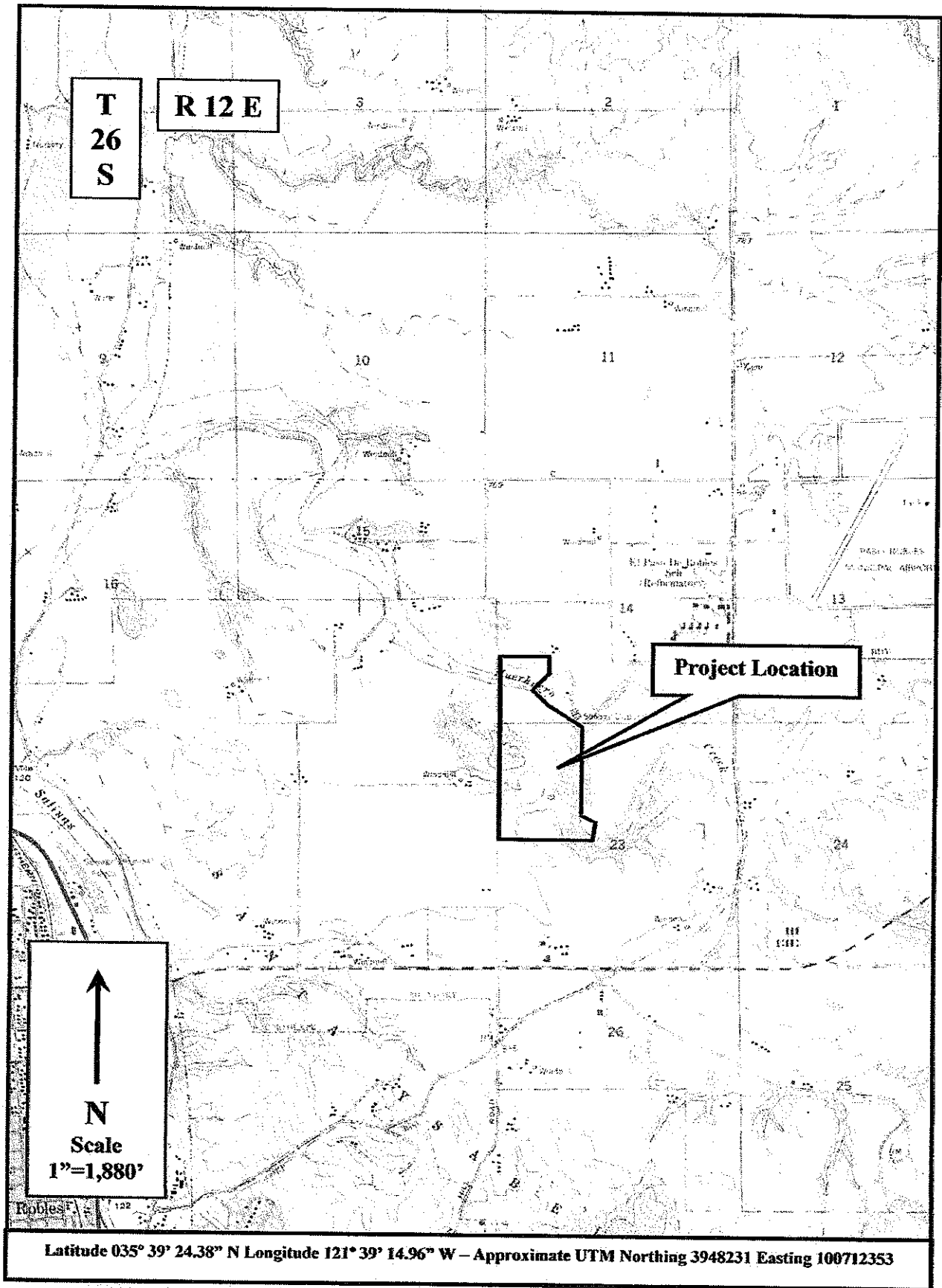
## DRY-SEASON SAMPLING FOR FEDERALLY-LISTED LARGE BRANCHIOPODS AT THE PASO 160 PROJECT

### INTRODUCTION

Helm Biological Consulting was contracted by Althouse & Meade, Inc. to conduct dry-season sampling for large branchiopods (fairy shrimp, tadpole shrimp, and clam shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [*Lepidurus packardii*]) at the Paso 160 Project.

The Paso 160 Project is approximately 160 acres and is located east of the city of Paso Robles, north of Tractor Street, east of Golden Hill Road and west of Airport Road, San Luis Obispo County, California. Additionally, the Paso 160 Project is located in the southwest ¼ of Section 14 and the northwest ¼ of Section 23, Township 26 South, and Range 12 East of the Paso Robles U.S. Geological Survey 7.5 minute topographic quadrangle map (Center: Latitude 038° 39' 24.38" North; Longitude 121° 39' 14.96" West; UTM 3948231 Northing; and UTM 100712353 Easting) (Figure 1).

This report discusses the methods and results of the dry-season sampling efforts for the presence of federally-listed large branchiopod at the Paso 160 Project.



**Figure 1. Paso 160 Project Location**  
 (Source: U.S. Geological Survey Paso Robles 7.5 minute Topographic Quadrangle Map)



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## METHODS

Dr. Brent Helm and Mr. Todd Wood conducted dry-season sampling on December 5, 2007 as authorized by the U.S. Fish and Wildlife Service (USFWS) (Appendix A). Sampling was conducted under permit TE-795930-5 of Section 10(a)(1)(A) of the federal Endangered Species Act, 16 U.S.C. 1531 et seq., and its implementing regulations. Methods generally followed USFWS's Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (1996) and are described below.

All areas that potentially could support federally-listed large branchiopods were sampled. Potential habitat for federally-listed large branchiopods is defined as any seasonal inundated depression that on average ponds water 2.0 inches or greater in depth for 14 or more consecutive days for fairy shrimp and 30 or more consecutive days for tadpole shrimp. Potential habitat characteristics of large branchiopods are based on the life history of Central Valley endemics (Eriksen and Belk 1999; Helm 1998, 1999; Helm and Vollmar 2002). The presence of water marks, algae mats, driftlines, hydrophytic vegetation ("water-loving plants"), slope, contributing watershed, maximum potential ponding depth, and aquatic arthropods (i.e., crustaceans and insects) exoskeletons were helpful indicators for evidence of ponding depth and duration. Habitats that swiftly flow water (e.g., creeks, streams, and ephemeral drainages) or semi-to-permanently inundated areas that support population of predators (e.g. bullfrogs, fish, and crayfish) were generally not considered suitable habitat for federally-listed large branchiopods.

Dry-season sampling involved the collection of a minimum of ten-soil sub-samples mainly from the lowest topographic areas within each basin considered potential habitat onsite. Soil samples were placed in liter size plastic freezer bags and marked with the project name, basin number, and date. The soil was then transported to Helm Biological Consulting's laboratory for processing and analysis.

In the laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The



soil retained from the 75-micron diameter pore size sieve was then removed and thinly ( $\approx 1.0$  mm) spread into plastic petri dishes.

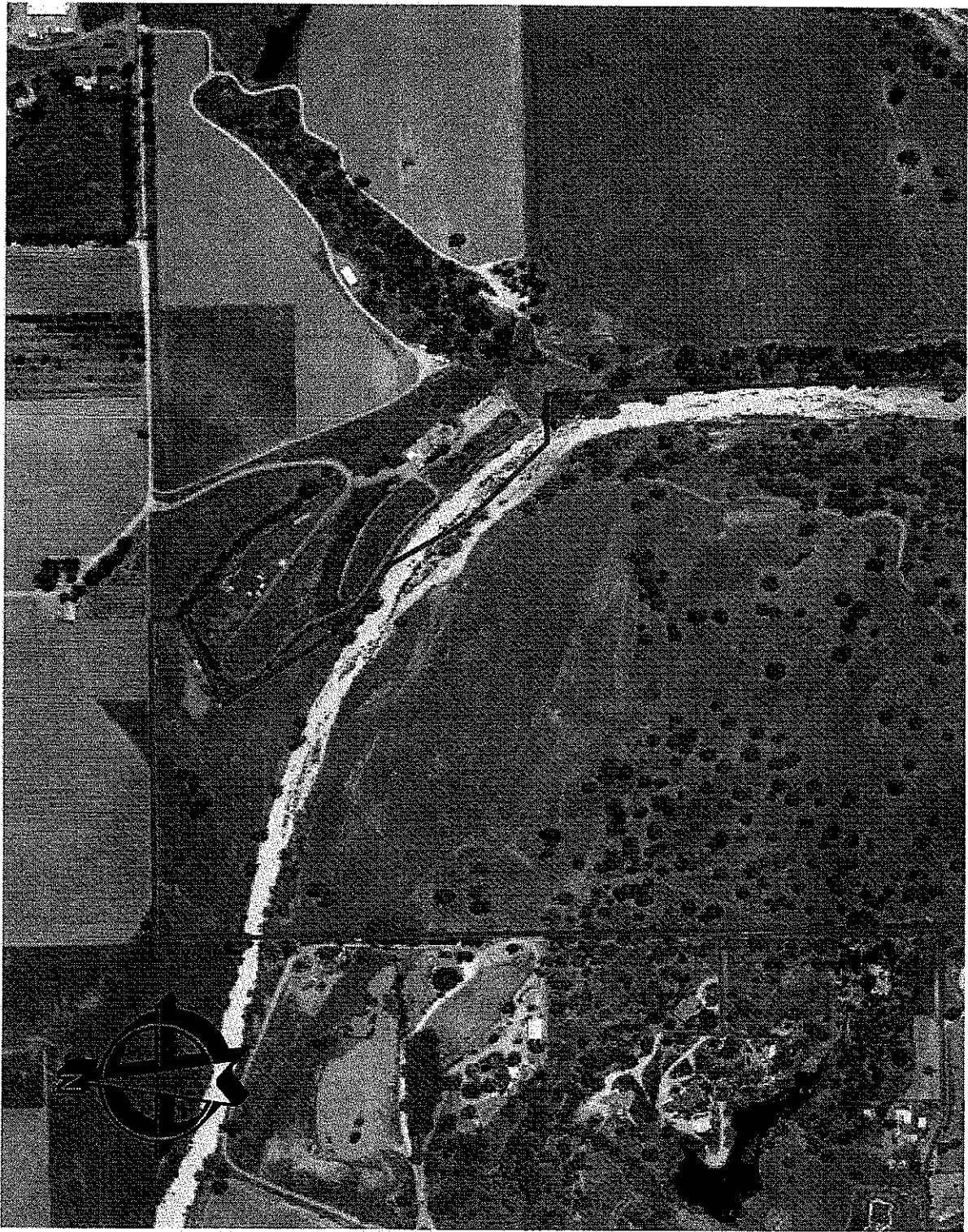
The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Hill and Shepard 1998, Mura 1991, and Gilchrist 1978) were used to identify and compare any cysts observed within the soil samples.

### RESULTS

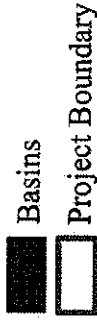
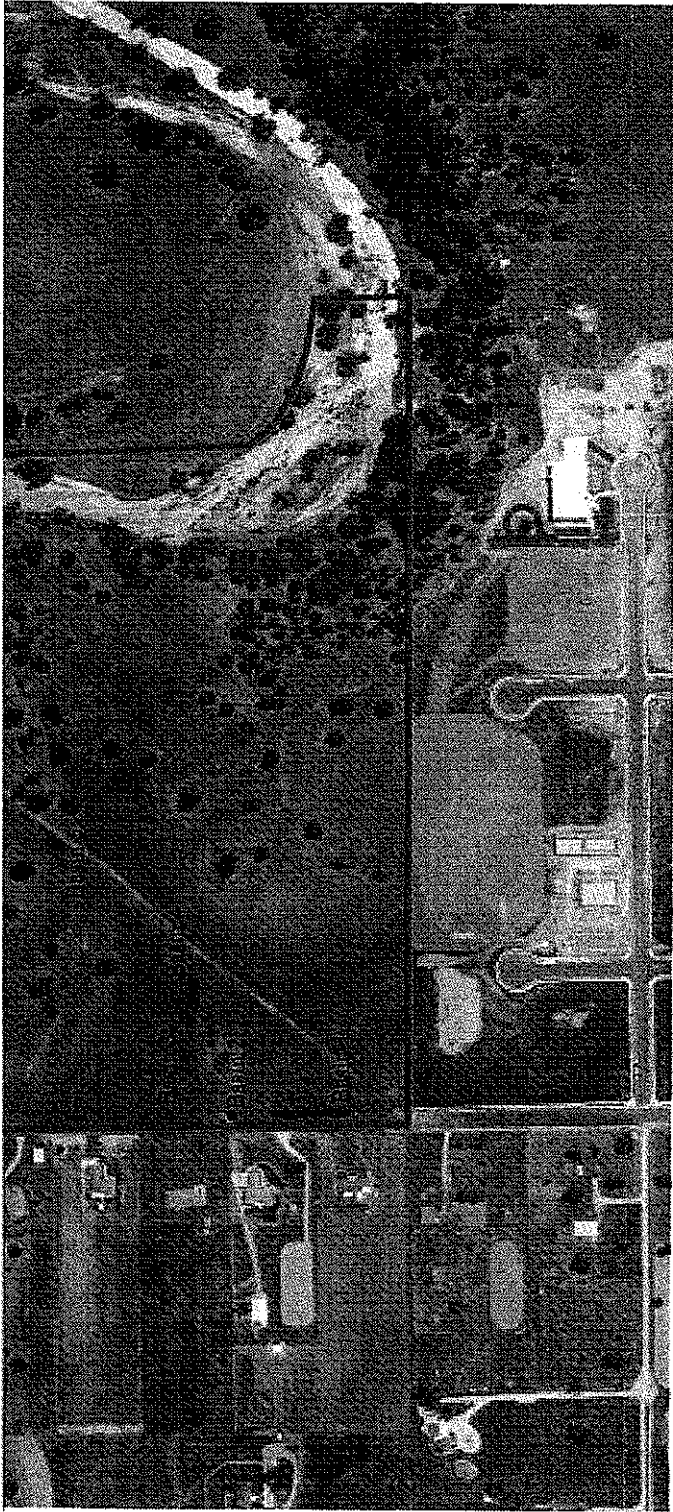
A total of five basins were sampled using dry-season techniques (Figure 2). This included three basins identified by Althouse & Meade, Inc. and labeled by Helm Biological Consulting (HBC) as (Basin 1, Basin 4, and Basin 5) and an additional two basins (Basin 2 and Basin 3) identified by HBC as potential federally-listed large branchiopod habitat. Visual examinations of the soil collected from the basins on site did not reveal any evidence of federally-listed large branchiopods (e.g., cysts or carapaces of *Lepidurus* sp.) (Table 1). Representative photographs of the basins on site are in Appendix B.

Table 1. Results of Soil Examinations

Basin No.	Insect Exo-Skeletons	Micro-Turbularian Cysts	Hydracarina Live/Eggs	Nematoda	Collembola
Basin 1	X	X	X		X
Basin 2	X	X			X
Basin 3	X				X
Basin 4	X	X	X		X
Basin 5	X	X	X	X	X







Scale 1:4,800

Prepared by: **HELM**  
ECOLOGICAL CONSULTING  
2273 Naden Drive, Lincoln, CA 95648  
(Aerial photograph is from NRCS 2006)

**Figure 2. Potential Federally-Listed Large Branchiopod Habitat  
at the Paso 160 Project**



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## LITERATURE CITED

- Eriksen, C. H., and D. Belk. 1999. Fairy shrimps of California's puddles, pools, and playas. Mad River Press, Inc. Eureka, CA. 196 pp.
- Gilchrist, B. M. 1978. Scanning electron microscope studies of the egg shell in some Anostraca (Crustacea: Branchiopoda). *Cell Tiss. Res.* 193: 337-351.
- Helm, B. P. 1998. Biogeography of eight large branchiopods endemic to California. Pages 124-139 in Witham, C. W., E. T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff. (eds.). Ecology, conservation, and management of vernal pool ecosystems – proceeding from a 1996 conference. California Native Plant Society, Sacramento, CA. 285 pp.
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- Mura, G. 1991. SEM morphology of resting eggs in the species of the genus *Branchinecta* from North America. *J. Crust. Biol.* 11: 432-436.
- U. S. Fish and Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. 11 pp.



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## APPENDIX A. USFWS AUTHORIZATION LETTER

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Large Branchiopod Sampling  
Paso 160 Project

Ph: (916) 543-7397  
Fax: (916) 543-7398



United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003



IN REPLY REFER TO:  
2008-B-0025

October 29, 2007

Dan Meade, Ph.D.  
Althouse and Meade, Inc.  
1875 Wellsona Road  
Paso Robles, California 93446

Subject: Authorization to Commence a Dry-season Survey for Listed Vernal Pool Branchiopods at the Paso 160 Project, Paso Robles, California.

Dear Dr. Meade:

We have reviewed your request, received by electronic mail on October 12, 2007, to conduct a dry-season survey for federally listed vernal pool branchiopods at the Paso 160 Project, Paso Robles, California. The proposed survey will follow the U.S. Fish & Wildlife's Interim Survey Guidelines to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. All areas determined to be potential habitat, identified earlier in 2007 when water was ponding, will be sampled for federally-listed branchiopods. The proposed survey will be conducted by Brent Helm, Ph.D. in accordance with the terms and conditions of recovery permit TE-795930-4.

We hereby authorize Dr. Helm to conduct the dry-season survey. We remind you of your responsibilities in reporting survey results to us, regardless of findings, and suggest that Dr. Helm review the permit for any special conditions that must be met. If you have any questions, please contact Christopher Diel of my staff at (805) 644-1766, extension 305.

Sincerely,

David M. Pereksta  
Assistant Field Supervisor



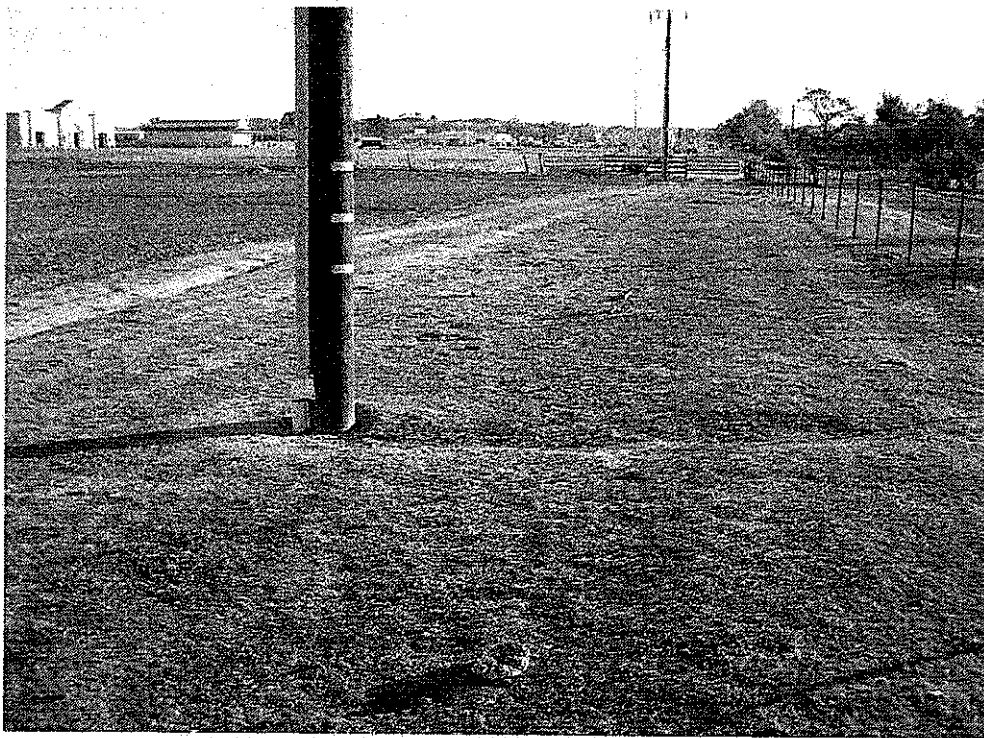
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## APPENDIX B. REPRESENTATIVE PHOTOGRAPHS

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Large Branchiopod Sampling  
Paso 160 Project

Ph: (916) 543-7397  
Fax: (916) 543-7398



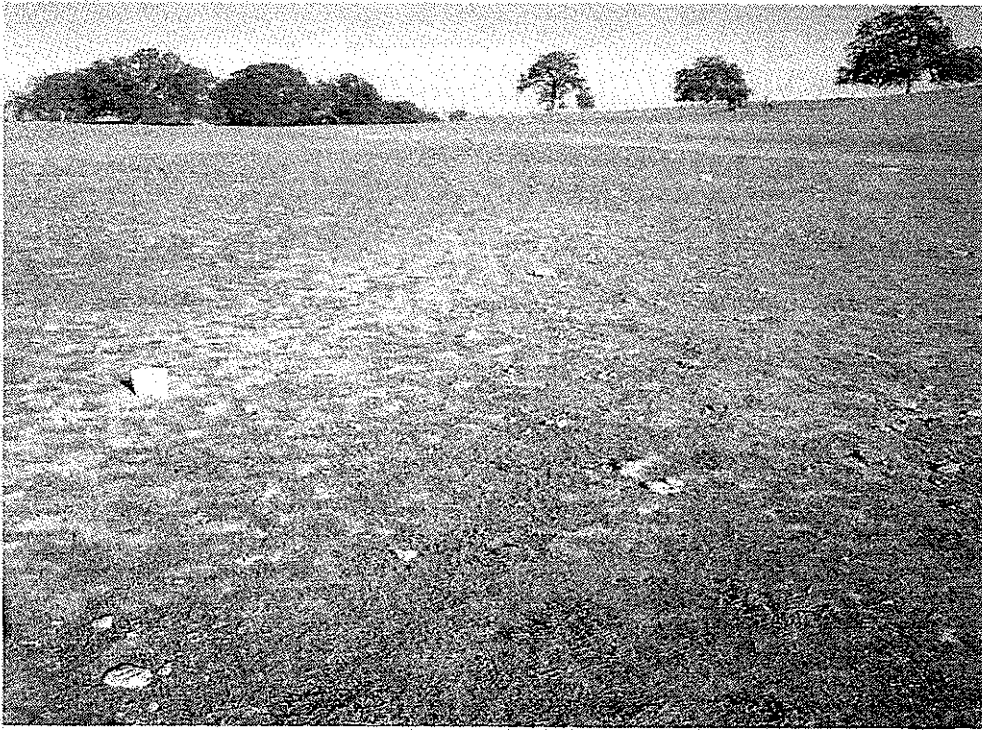
**Paso 160 Project – Basin 1 southern portion**



**Paso 160 Project – Basin 1 northern portion**



**Paso 160 Project – Basin 2**



**Paso 160 Project – Basin 4**

## **ALTHOUSE AND MEADE, INC.**

BIOLOGICAL AND ENVIRONMENTAL SERVICES

1875 Wellsona Road • Paso Robles, CA 93446 • Telephone (805) 467-1041 • Fax (805) 467-1021

September 27, 2007

File #531.02

Lynne Dee Althouse, M.S.  
(805) 459-1660 (cell)  
lynnedee@althouseandmeade.com

Daniel E. Meade, Ph.D.  
(805) 705-2479 (cell)  
dan@althouseandmeade.com

City of Paso Robles  
Department of Planning and Building  
Attention: Darren Nash  
1000 Spring Street  
Paso Robles, CA 93446

Re: Golden Eagle nest line of sight study

Dear Mr. Nash:

As per the recommendation of the United States Fish and Wildlife Service, a line of sight analysis has been performed by North Coast Engineering, Inc. Results of the study (attached) show that the golden eagle nest used last year is approximately 500 feet from the nearest proposed pad location. The direct line of site from the nest is blocked from the park construction area by numerous large blue oak trees. The configuration of slope, trees and nest location results in a line of sight that is forty-five feet above the highest pad location. This result means that the proposed development is not visible from the golden eagle nest at the closest proximity of the development to the nest. There may be small areas of the development area approximately 650 feet west of the nest that are visible through gaps in vegetation.

Although use of the nest was not documented during 2008, nest condition in the fall suggests that it was used in the spring of 2008. Construction activities were finishing on business park buildings approximately 530 feet south of the nest. In addition, the roadways and infrastructure of Airport Road business park north of the eagle nest were constructed in 2008. Eagles appear to have not abandoned the location even though construction has occurred at the business parks over the last several years. Golden eagles often have several nest sites, sometimes up to 0.5 miles apart that they alternately use from year to year.

Golden eagles have a typical foraging range of 3 to 4 miles encompassing up to 20 square miles (12,800 acres). They typically hunt from perches on trees or rocks in areas of high prey density. The eagles that use the Paso Robles motorcoach resort property probably forage in open space on the property, in open grasslands on Airport property, the grassland / plowed land immediately to the east that borders Airport Road, grasslands along Dry Creek, and other grassland and woodlands within five miles including lands west of the Salinas River.

### **Exhibit E-4**

Biological - 9-27-07 letter, Golden Eagle  
GPA 09-001, RZ 09-001, PD 08-001,  
CUP 08-001, & PRAL 07-0293  
(PR Motorcoach Resort)

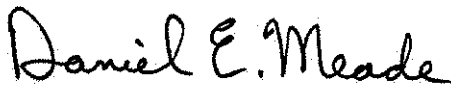


Use of the existing nest during nearby construction suggests eagles may occupy the nest even with activities in the vicinity. We have observed eagles remain successfully nesting at Rancho Santa Ysabel with active construction within 500 feet upslope of the nest. In that case there was a direct unobstructed line of sight to the nest from road and residence construction sites. Each nesting site is different, and there is not an assurance that eagles will behave the same way at the motor coach resort property.

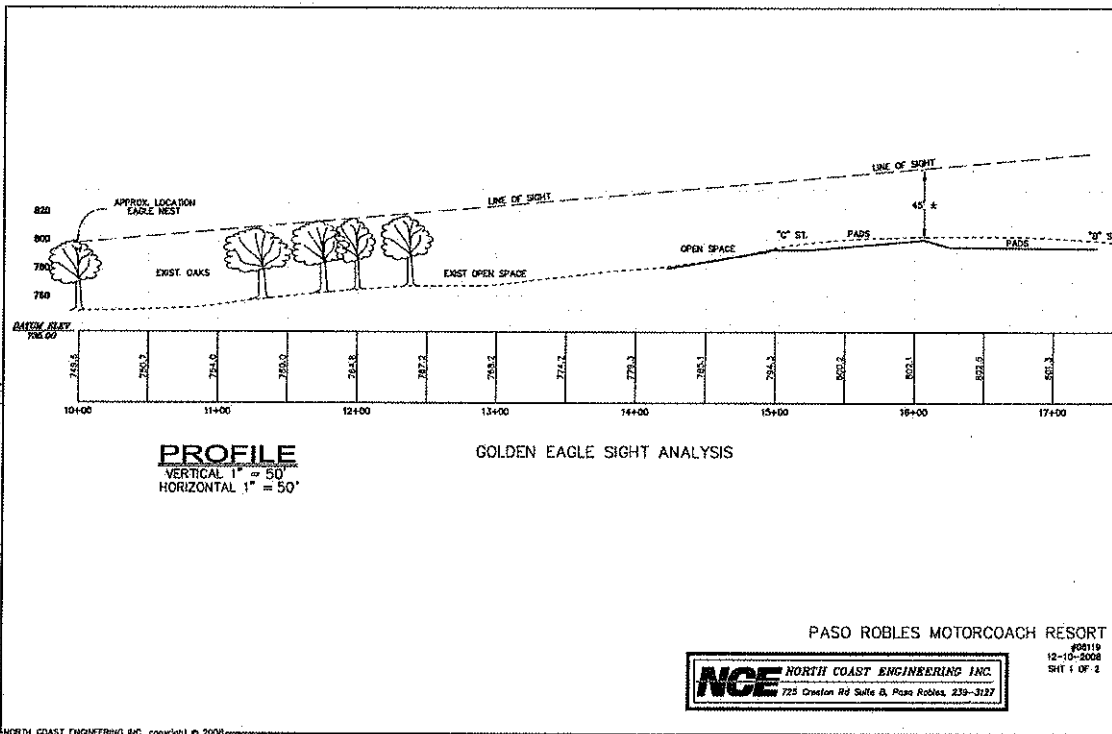
Because golden eagle is a fully protected species, we recommend that to prevent disturbance to nesting eagles, if construction is planned between January 30<sup>th</sup> and August 15<sup>th</sup>, a pre-construction survey should be conducted to determine if eagles are present. If eagles are not present after March 15<sup>th</sup>, work could commence. If eagles are present on the nest, work within 500 feet of the occupied nest should be delayed until after either adult eagles have left the nest, or eagle chicks have fledged and are no longer dependant on the nest as determined by a qualified biologist. At the commencement of work, a qualified biologist should monitor the eagles. If commencement of construction disturbs the eagles, the qualified monitor would be authorized to stop construction activity within range of the nest that causes disturbance to the eagles. Work within that area could commence once the eagle chicks have fledged and are no longer dependant on the nest.

Once construction is complete, the ongoing activity within the motor coach park appears to be shielded by trees surrounding the nest and the hillslope above the nest.

Sincerely,

A handwritten signature in black ink that reads "Daniel E. Meade". The signature is written in a cursive, flowing style.

Daniel E. Meade, Ph.D.



**PROFILE**  
 VERTICAL 1" = 50'  
 HORIZONTAL 1" = 50'

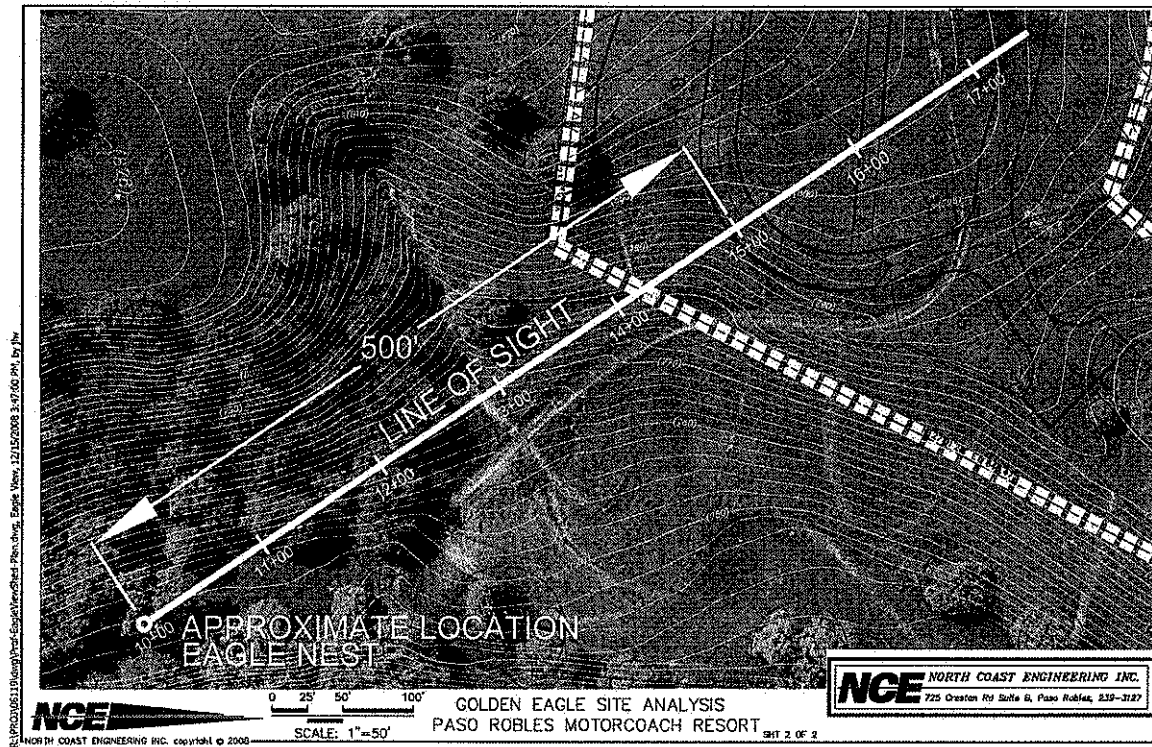
**GOLDEN EAGLE SIGHT ANALYSIS**

PASO ROBLES MOTORCOACH RESORT

**NCE** NORTH COAST ENGINEERING INC.  
 725 Oregon Rd Suite 6, Paso Robles, 239-3127

002119  
 12-10-2008  
 SH1 1 OF 2

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# Kit Fox Habitat Evaluation Form

## Cover Sheet

Project Name Paso Robles Motorcoach Resort Date **3-13-2008**

**APN 025-435-005, -006, -007**

Project Location **Golden Hill Road, Paso Robles**

Include project vicinity map and project boundary on copy of U.S.G.S. 7.5. minute map (size may be reduced)

U.S.G.S. Quad Map Name **Paso Robles**

Lat/Long or UTM coordinates (if available) **N35° 39' 17"**

**W120° 38' 56"**

Project Description: **Construct a 380 space outdoor recreation resort. Construction will consist of roads, parking pads, utilities and hook-up stations, and support buildings.**

Project Size: **73.1 acres** Amount of Kit Fox Habitat Affected: **±73.1 acres**


Quantity of WHR Habitat Types Impacted (i.e. – 2 acres annual grassland, 3 acres blue oak woodland)

WHR type	<b>California annual grassland</b>	<b>±35.3 acres</b>
	<b>Oak woodland</b>	<b>±37.8 acres</b>

### Comments:

Areas calculated from topography and site survey map by North Coast Engineering, Inc., and biological resources overly by Althouse and Meade, Inc.

Form Completed by:



*Mike McGowan*

Revised 03/02

## San Joaquin Kit Fox Habitat Evaluation Form

**Is the project within 10 miles from a recorded San Joaquin kit fox observation or within contiguous suitable habitat as defined in Question 2(A-E)?**

**YES – Continue with evaluation form**

**NO – Evaluation form/surveys are not necessary**

1. Importance of the project area relative to Recovery Plan for Upland Species of the San Joaquin Valley, California (Williams et al, 1998).
  - A. Project would block or degrade an existing corridor linking core populations or isolate a subpopulation (20).**
  - B. Project is within a core population (15)
  - C. Project area is identified within satellite population (12)
  - D. Project area is within a corridor linking satellite populations (10)
  - E. Project area is not within any of the previously described areas but is within known kit fox range (5)
2. Habitat characteristics of the project area.
  - A. Annual grassland or saltbush scrub present >50% of site (15)**
  - B. Grassland or saltbush scrub present but comprises <50% of project area (10)
  - C. Oak savannah present on >50% of site (8)
  - D. Fallow ag fields or grain/alfalfa crops (7)
  - E. Orchards/vineyards (5)
  - F. Intensively maintained row crops or suitable vegetation absent (0)
3. Isolation of project area
  - A. Project area surrounded by contiguous kit fox habitat as described in Question 2a-e (15)
  - B. Project area adjacent to at least 40 acres of contiguous habitat or part of an existing corridor (10)**
  - C. Project area adjacent to <40 acres of habitat but linked by existing corridor (i.e. - river, canal, aqueduct) (7)
  - D. Project area surrounded by ag but less than 200 yards from habitat (5)
  - E. Project area completely isolated by row crops or development and is greater than 200 yards from potential habitat (0)
4. Potential for increased mortality as a result of the project implementation. Mortality may come from direct (e.g. – construction related) or indirect (e.g. –vehicle strikes due to increases in post development traffic) sources.
  - A. Increase in mortality likely (10)
  - B. Unknown mortality effects (5)**
  - C. No long term effect on mortality (0)
5. Amount of potential kit fox habitat affected
  - A. > 320 acres (10)
  - B. 160-319 acres (7)
  - C. 80-159 acres (5)**
  - D. 40-79 acres (3)
  - E. <40 acres (1)

6. Results of project implementation
  - A. **Project site will be permanently converted and will no longer support foxes (10)**
  - B. Project area will be temporarily impacted but will require periodic disturbance for ongoing maintenance (7)
  - C. Project area will be temporarily impacted and no maintenance necessary (5)
  - D. Project will result in changes to agricultural crops (2)
  - E. No habitat impacts (0)
  
7. Project shape
  - A. **Large block (10)**
  - B. Linear with >40 foot right-of way (5)
  - C. Linear with <40 foot right-of-way (3)
  
8. Have San Joaquin kit foxes been observed within 3 miles of the project area within the last 10 years?
  - A. Yes (10)
  - B. No (0)

**Scoring**

1. Recovery importance	20
2. Habitat condition	15
3. Isolation	10
4. Mortality	5
5. Quantity of habitat impacted	5
6. Project results	10
7. Project shape	10
8. Recent observations	0

**Total** 75

Kit Fox Habitat Evaluation

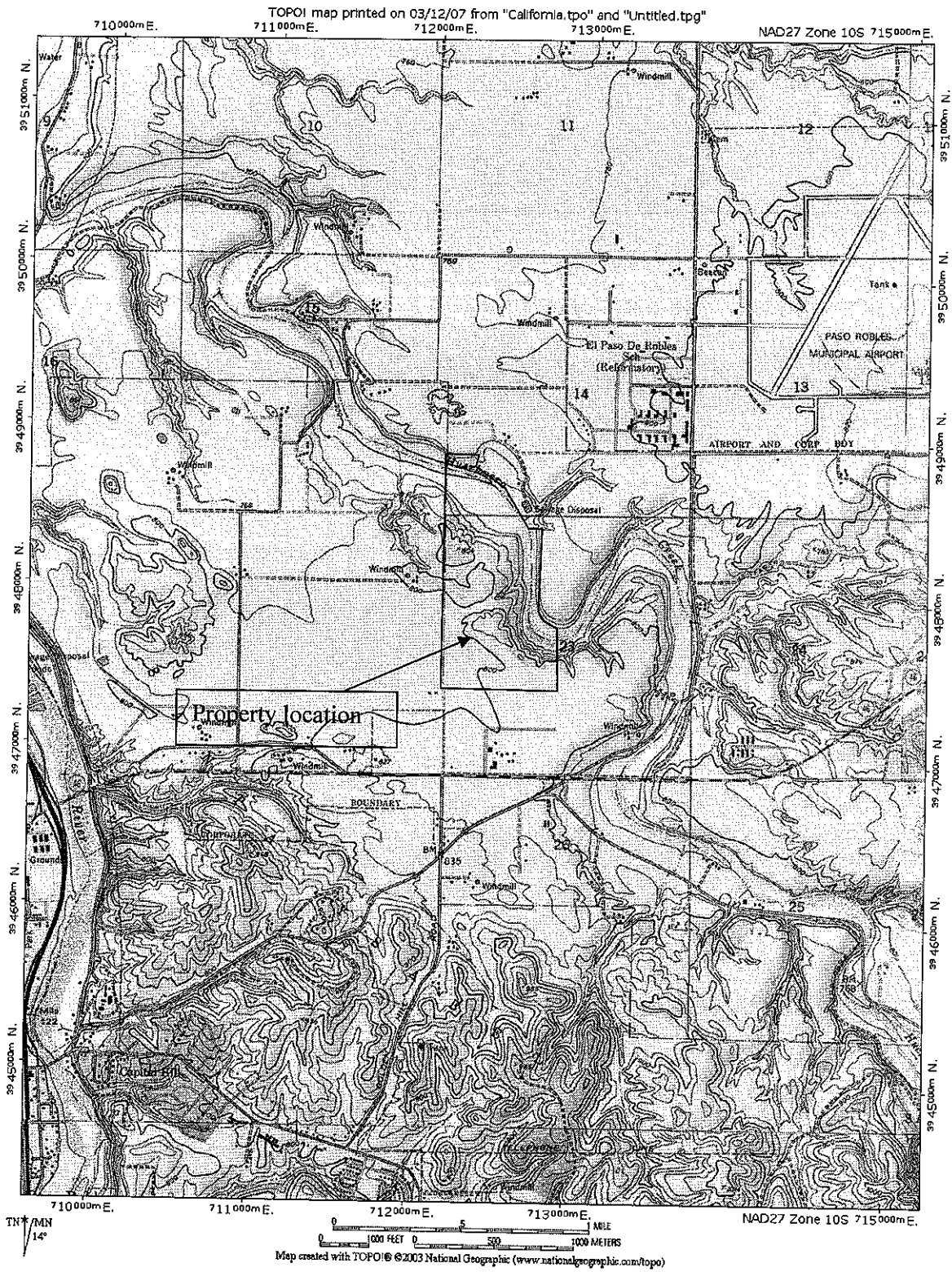
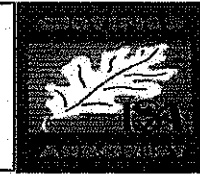


FIGURE 1. USGS TOPOGRAPHIC MAP. The proposed Outdoor Recreation Resort site is located at the end of Golden Hill Road, Paso Robles.

*Outdoor Recreation Resort, Paso Robles, CA*

# A & T ARBORISTS

P.O. BOX 1311 TEMPLETON, CA 93465 (805) 434-0131



## Tree Preservation Plan For Paso Robles Motorcoach Resort

Prepared by A & T Arborists  
and Vegetation Management

Chip Tamagni  
Certified Arborist #WE 6436-A

A handwritten signature in black ink, appearing to read 'Chip Tamagni'.

Steven Alvarez  
Certified Arborist #WE 511-A

A handwritten signature in black ink, appearing to read 'Steven Alvarez'.

PD # \_\_\_\_\_

Building Permit # \_\_\_\_\_

Exhibit F  
Arborist Report  
GPA 09-001, RZ 09-001, PD 08-001,  
CUP 08-001, & PRAL 07-0293  
(PR Motorcoach Resort)



## **Project Description:**

In section 10.01.010 section A Purpose and Intent of the Paso Robles Oak Tree Ordinance, it states:

“It is declared that the public interest and welfare requires that the city establish a program for the preservation of oak trees in order to maintain the heritage and characteristics of the City of El Paso de Robles (“The Pass of the Oaks”) as well as preserve the beauty and identity of the community”.

Preserving is defined as: protect from harm, maintain, to keep from spoiling. This project was designed with extensive effort being made to protect the healthy trees mainly through avoidance and minor encroachment into the critical root zones along with proper trimming, removal of the diseased/severely declining trees and extensively replanting new trees for the enjoyment of future generations.

The project involves three parcels totaling 160 acres located at the north end of Golden Hill Road and extending east to Huer Huero Creek in Paso Robles. Plans are to construct an upscale motor coach resort on parcel 2 with approximately 332 spaces. The property has literally hundreds of blue oaks (*Quercus douglasii*) scattered over the rolling hills along with valley oaks (*Quercus lobata*) located in the alluvial soils near the river. The area has been historically used for cattle grazing for approximately the past 70 years. This fact has resulted in very poor regeneration of new oaks. Cattle tend to compact the soil under the trees which proves difficult for regeneration. In addition, the cattle eat many of the acorns. The few seedlings that do sprout are readily consumed by the cattle and squirrels. The few young oaks on the property that have survived past the seedling stage have been repeatedly browsed from cattle and will most likely never grow to maturity with the current land use. Many studies have proven cattle grazing to be the number one cause of poor oak regeneration in California. There are many blue oaks on the property approaching 200 years old. Some are in relatively good condition considering they have never been maintained. Others have suffered major limb failures and decay has set in to the main trunks. Others have fallen over and died. Overall, the majority of the property is an aging blue oak woodland with very few trees in the 0-70 year age class.

With a property of this size, designing a project around the viable trees is of utmost importance. Instead of redesigning the project once trees have been given a condition rating, this project was purposely designed to preserve most of the higher quality trees. These trees can be trimmed thereby extending their lives by helping to prevent large failures resulting in less decay. In addition, regular maintenance and inspection will provide information to protect the oaks from insects and disease. Inversely, planning roads and buildings around trees with a short useful life expectancy is not productive long term stewardship of the land. Removing poor quality, potentially dangerous trees and replacing them with young trees is recommended. Once decay or cavities are present, trees becomes hazardous to targets under the tree (ie. building, pedestrian, roadway).

Before any conceptual plans were designed for the project, all the oak trees that were either bordering or in the middle of the project were surveyed as to location, size

and drip line. A & T Arborists visited each individual tree and established a condition rating from one to ten (described below). The results were turned over to North Coast Engineering. We recommended putting all efforts into designing around the higher conditioned trees and potentially removing (with re-planting mitigations) the lower rated trees. The current plan reflects that effort.

Approximately 336 trees were surveyed with the total number of trees on the property approaching 600. Current plans call for the removal of 24 blue oaks (five of which are dead) with a total diameter of 724 inches requiring mitigation and one live oak measuring 38 inches. Dead trees or stumps account for 141 diameter inches. Replacement requirements per section 10.01.050 F dictates 181 diameter inches of replacement blue oaks to be replanted on the site. Without intervention of cattle, the new trees will help re-establish an age class to the area which it is currently lacking.

A design concept for the Golden Hill Road extension has also been developed with the project. Extensive efforts have been made to design the road to meander the two lane arterial around as many trees as possible. Nine additional trees will have to be removed for Golden Hill Road construction. Total diameter of those trees is 247 inches, therefore requiring 62 inches of replacement trees.

The project has many spaces that have oak trees. All parking areas for motorcoaches will be constructed outside of the critical root zones. Most cut and fill grading will be outside of the critical root zones. Where cuts are necessary near trees and proper slopes cannot be maintained, retaining walls will be constructed at the edge of the critical root zones to protect the trees.

We suggest that a field trip with city council members, city staff, planning commission members, etc. would be beneficial in the review of this project. All potentially removed trees could be viewed in the field and their specific deficiencies can be discussed and observed.

#### **Specific Mitigations Pertaining to the Project:**

First, a pre-construction meeting is absolutely mandatory for this project for all contractors involved. A copy of this report should be given to all construction managers and signed. Each manager shall keep a sign-off sheet for all employees identifying that they have been trained in all applicable mitigation measures. Every member of any construction crew shall be trained. Because most of the trees are going to be protected with regard to critical root zone encroachment all standard mitigations below shall be well understood.

This project is planned to be completed in phases, therefore installing tree protection fencing for the entire project at one time is not required. Before a phase is started, fencing shall be installed at the edge of all critical root zones (or lines of encroachment) prior to any grading. Each phase of fencing shall be inspected by the project arborist and a letter to the City Planning Department shall be on file prior to issuance of grading permits.

In order to preserve the protected trees on site, Class II trimming (described below) is strongly recommended of all centrally located trees (ie. trees within individual spaces,

next to roads, etc.) We feel trimming will not only enhance the aesthetics of the project but will primarily help to insure the lifespan of the trees by lowering risk of limb failures. Pruning should commence as soon as possible.

The term "critical root zone" or CRZ is an imaginary circle around each tree. The radius of this circle (in feet) is equal to the diameter (in inches) of the tree. For example, a 10 inch diameter tree has a critical root zone with a ten foot radius from the tree. Working within the CRZ usually requires mitigations and/or monitoring by a certified arborist.

Of the few impacted trees, most have a minimal impact of between 5 and 10 percent. Impacts consist of grading for roads or trenching for retaining walls. As specified on the spreadsheet, these activities shall be monitored by the project arborist and documented on a tree by tree basis as to the activity and whether roots were encountered and properly pruned.

Some of the largest CRZ impacts will be to trees #1350, 1351, and 1352. An existing farm road is located in the path of the new road. The new road width will be 24 feet wide requiring additional cut on the uphill side of the road and fill down slope. Trees #1351 and #1352 shall require an application of plant growth regulator three to six months prior to grading. Standard monitoring and root pruning by the project arborists shall also be required. Tree #1350 has existing fill at its base from when the old farm road was cut. Some additional fill will be deposited within the critical root zone. A tree well is required if there is any potential for soil to be placed up against the trunk. The tree well can be constructed with either a gravity block wall or pressure treated wood. Tree #1283 is planned to have a 25% CRZ impact due to trenching for a retaining wall. This tree will require some additional mitigations including anti fungal treatment, insecticide treatment and plant growth regulator. On a case by case basis, the arborists may decide one or more of the above treatments may be required for additional impacted trees depending on the size and number of impacted roots during construction. Other factors including current tree health will be considered. All treatments will be documented on the city required monitoring forms and reported to the San Luis Obispo County Agricultural Commissioner on a monthly basis.

### **Specific Mitigations of Golden Hill Road Extension**

Just south of tree #1086, a drainage pipe is planned under the road that will deliver runoff under the road near trees #1118, #1119 and #1147. This area has historically served as a natural drainage basin. Plans are to continue to utilize this natural basin with a regulated outflow during high runoff periods. There does not appear to be any substantial changes to water build up in that area. Several trees may require clearance pruning prior to road grading to avoid any branch tearing. There are some potential areas where fill will encroach into drip lines. The arborists may, in development of final plans, require gravity walls to keep soil away from the trunks of saved trees. There will be a series of retaining walls constructed near trees #1192, #1207, and #1208. All three of these trees will require arborist monitoring for root pruning and chemical mitigations to reduce stress on those trees.

All trees potentially impacted by this project are numbered and identified on the grading plan, in the field with an aluminum tag, and the spreadsheet. Tree protection fencing is shown on the grading plan. In the field, oak trees to be removed have red tape attached to the tag. Both critical root zones and approximate drip lines are outlined on the plans.

If pruning is necessary for building, road, or driveway clearance, removal of limbs larger than 6 inches in diameter will require a city approved permit along with a deposit paid in advance (to the City of Paso Robles). The city will send out a representative to approve or deny the permit. Only 25% of the live crown may be removed.

### Tree Rating System

A rating system of 1-10 was used for visually establishing the general health and condition of each tree on the spreadsheet. The rating system is defined as follows:

<u>Rating</u>	<u>Condition</u>
0	Deceased
1	Evidence of massive past failures, extreme disease and is in severe decline.
2	Evidence of multiple past failures, cavities, disease and/or insect infestations. Overall reflects trees in decline.
3	Some past failures, some pests or structural defects that may be mitigated by class IV pruning.
4	May have had minor past failures, excessive deadwood or minor structural defects that can be mitigated with Class II, Class I pruning.
5	Relatively healthy tree with little visual, structural and/or pest defects and problems. Maintenance would some Class I pruning.
6	Healthy tree that probably can be left in its natural state with some minor dead wood removal and Class I pruning.
7-9	Has had proper arboricultural pruning and attention or have no apparent structural defects.
10	Specimen tree with perfect shape, structure and foliage in a protected setting (i.e. park, arboretum).

Aesthetic quality on the spreadsheet is defined as follows:

- **poor** - tree has little visual quality either due to severe suppression from other trees, past pruning practices, location or sparse foliage
- **fair** - visual quality has been jeopardized by utility pruning/obstructions or partial suppression and overall symmetry is average
- **good** - tree has good structure and symmetry either naturally or from prior pruning events and is located in an area that benefits from the trees position
- **excellent** - tree has great structure, symmetry and foliage and is located in a premier location. Tree is not over mature.

### Standard Mitigation Measures:

The following standard mitigation measures/methods must be fully understood and followed by anyone working within the critical root zone of any native tree. Any necessary clarification will be provided by us (the arborists) upon request.

It is the responsibility of the **owner or project manager** to provide a copy of this tree protection plan to any and all contractors and subcontractors that work within the critical root zone of any native tree and confirm they are trained in maintaining fencing, protecting root zones and conforming to all tree protection goals. It is highly recommended that each contractor sign and acknowledge this tree protection plan.

Any future changes (within the critical root zone) in the project will need Project Arborist review and implementation of potential mitigation measures before any said changes can proceed.

**Airspading:** Airspading involves using highly compressed pushed through a small nozzle to dislodge and remove soil from around roots without damaging them. Airspading is primarily used for utility trenching within the critical root zone. Soil is blown out of the trench then conduit is routed under the exposed roots and re-buried leaving the roots intact. Airspading is also used during excavation to clean off roots for proper pruning. Airspading can be used for exploratory trenching to determine whether or not roots are in the vicinity for future design options.

**Arborist Monitoring:** An arborist shall be present for selected activities (trees identified on spreadsheet and items bulleted below). The monitoring does not necessarily have to be continuous but observational at times during these activities. It is the responsibility of the **owner(s) or their designee** to inform us prior to these events so we can make arrangements to be present. All monitoring will be documented on the field report form which will be forwarded to the project manager and the City of Paso Robles Planning Department. This is a large project requiring extensive grading activities. The project arborists may require a full time monitor during certain periods of construction if the volume dictates it. At a minimum, the following will be required:

- pre-construction fence placement inspection for each phase
- all grading and trenching identified on the spreadsheet
- a minimum of three days per week during construction phases
- any other encroachment the arborist feels necessary

**Chip Mulch:** All areas within the critical root zone of the trees that can be fenced shall receive a 4-6" layer of chip mulch to retain moisture, soil structure and reduce the effects of soil compaction.

**Construction Materials And Waste:** No liquid or solid construction waste shall be dumped on the ground within the critical root zone of any native tree. The critical root zone areas are not for storage of materials either.

**Equipment Operation:** Vehicles and all heavy equipment shall not be driven under the trees, as this will contribute to soil compaction. Also there is to be no parking of equipment or personal vehicles in these areas. All areas behind fencing are off limits unless pre-approved by the arborist.

**Existing Surfaces:** The existing ground surface within the critical root zone of all oak trees shall not be cut, filled, compacted or pared, unless shown on the grading plans **and** approved by the arborist.

**Exposed Roots:** Any exposed roots shall be re-covered the same day they were exposed. If they cannot, they must be covered with burlap or another suitable material and wetted down 2x per day until re-buried.

**Fencing:** The proposed fencing shall be shown in orange ink on the grading plan. It must be a minimum of 4' high chain link, snow or safety fence staked (with t posts 8 feet on center) at the edge of the critical root zone or line of encroachment for each tree or group of trees. The fence shall be up before any construction or earth moving begins for each phase. The owner shall be responsible for maintaining an erect fence throughout the construction period. The arborist(s), upon notification, will inspect the fence placement once it is erected. After this time, fencing shall not be moved without arborist inspection/approval. If the orange plastic fencing is used, a minimum of four zip ties shall be used on each stake to secure the fence. All efforts shall be made to maximize the distance from each saved tree. Weather proof signs shall be permanently posted on the fences every 50 feet, with the following information:

<p><b>Tree Protection Zone</b> No personnel, equipment, materials, and vehicles are allowed Do not remove or re-position this fence without calling: A &amp; T Arborists 434-0131</p>
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**Fertilization and Cultural Practices:** As the project moves toward completion, the arborist(s) may suggest either fertilization and/or mycorrhiza applications that will benefit tree health. Mycorrhiza offers several benefits to the host plant, including faster growth, improved nutrition, greater drought resistance, and protection from pathogens.

**Grading Within The Critical Root Zone:** Grading should not encroach within the critical root zone unless authorized. Grading should not disrupt the normal drainage pattern around the trees. Fills should not create a ponding condition and excavations should not leave the tree on a rapidly draining mound.

**Landscape:** All landscape within the critical root zone shall consist of drought tolerant or native varieties. Lawns shall be avoided. All irrigation trenching shall be routed around critical root zones, otherwise above ground drip-irrigation shall be used. It is the owner's responsibility to notify the landscape contractor regarding this mitigation.

**Paving Within The Critical Root Zone:** Pervious surfacing is preferred within the critical root zone of any oak tree with more than 35% CRZ encroachment. If pavers are required, the areas are outlined on the grading plans. Areas that require a cut deeper than 24 inches are not normally candidates for pavers as the roots are usually pruned, therefore there are none to protect. Areas that require minimal grading (<6 inches) or fill >35% of the CRZ are more suitable. Pavers must be interlocking with a minimum of 10% void space backfilled with pea gravel. Geo textile fabric shall be permeable. Depending on use within the CRZ, pavers may or may not be required. Vertical perforated tubing with drainage grates may be required instead. Unless changes are made during the construction phase, the arborists feel there will be no pavers required at this time.

**Pre-Construction Meeting:** An on-site pre-construction meeting with the Arborist(s), Owner(s), Planning Staff, and the earth moving team shall be required for this project. Prior to final occupancy, a letter from the arborist(s) shall be required verifying the health/condition of all impacted trees and providing any recommendations for any additional mitigation. The letter shall verify that the arborist(s) were on site for all grading and/or trenching activity that encroached into the critical root zone of the selected native trees, and that all work done in these areas was completed to the standards set forth above.

**Pruning** Class 4 pruning includes-Crown reduction pruning shall consist of reduction of tops, sides or individual limbs. A trained arborist shall perform all pruning. No pruning shall take more than 25% of the live crown of any native tree. Any trees that may need pruning for road/home clearance shall be pruned **prior** to any grading activities to avoid any branch tearing.

**Soil Aeration Methods:** Soils within the critical root zone that have been compacted by heavy equipment and/or construction activities must be returned to their original state before all work is completed. Methods include water jetting, adding organic matter, and boring small holes with an auger (18" deep, 2-3' apart with a 2-4" auger) and the application of moderate amounts of nitrogen fertilizer. The arborist(s) shall advise.

**Trenching Within Critical Root Zone:** All trenching within the critical root zone of native trees shall be **hand dug**. All major roots shall be avoided whenever possible. All exposed roots larger than 1" in diameter shall be clean cut with sharp pruning tools and not left ragged. A **Mandatory** meeting between the arborists and grading contractor(s) must take place prior to work start.

**Utility Placement:** All utilities, sewer and storm drains shall be placed down the roads and driveways and when possible outside of the critical root zones. The arborist shall supervise trenching within the critical root zone. **All trenches in these areas shall be exposed by air spade or hand dug with utilities routed under/over** roots larger than 3 inches in diameter.

The attached spreadsheet includes trees listed by number, species and multiple stems if applicable, scientific name, diameter at breast height (4.5'), condition (scale from poor to excellent), status (avoided, impacted, removed, exempt), percent of critical root zone

impacted, mitigation required (fencing, root pruning, monitoring), construction impact (trenching, grading), recommended pruning, aesthetic value and individual tree notes along with canopy spread.

If all the above mitigation measures are followed, we feel there will be no long-term significant impacts to the remaining oak trees.

Please let us know if we can be of any future assistance to you for this project.

Steven G. Alvarez  
Certified Arborist #WC 0511

  
Chip Tamagni

Certified Arborist #WE 6436-A





TREE PROTECTION SPREAD SHEET GOLDEN HILL 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS
1046	VO	Q. lobata	36	2	A	0%	NONE	fencing	NO	II	good	nesting holes, deadwood	AS
1001	BO	Q. doug.	46	1	A	0%	NONE	fencing	NO		poor	massive failures	AS
1004	BO	Q. doug.	42	2	A	0%	NONE	fencing	NO		fair	past failures	AS
1005	BO	Q. doug.	28	7	A	0%	NONE	fencing	NO	II	excel.	to be in vineyard	AS
1006	BO	Q. doug.	36	2	A	0%	NONE	fencing	NO		fair	massive failures	AS
1008	BO	Q. doug.	38	3	A	0%	NONE	fencing	NO		fair	past failures, mistletoe	AS
1007	BO	Q. doug.	34	2	A	0%	NONE	fencing	NO	II	fair	new and old failures	AS
1033	BO	Q. doug.	34	4	A	0%	NONE	fencing	NO		good		AS
1032	BO	Q. doug.	6	3	A	0%	NONE	fencing	NO		fair	suppressed	AS
1031	BO	Q. doug.	13	6	A	0%	NONE	fencing	NO		good		AS
1030	BO	Q. doug.	26	4	A	0%	NONE	fencing	NO		good	decay at base	AS
1029	BO	Q. doug.	23	4	A	0%	NONE	fencing	NO		good	mistletoe, v crotch	AS
1028	BO	Q. doug.	17	3	A	0%	NONE	fencing	NO		good	bad crotch	AS
1027	BO	Q. doug.	15	5	A	0%	NONE	fencing	NO		good	mistletoe	AS
1026	BO	Q. doug.	15	4	A	0%	NONE	fencing	NO		fair	deadwood	AS
1025	BO	Q. doug.	6	5	A	0%	NONE	fencing	NO		good		AS
1023	BO	Q. doug.	8	2	A	0%	NONE	fencing	NO		poor	mistletoe	AS
1024	BO	Q. doug.	9	3	A	0%	NONE	fencing	NO		fair	mistletoe	AS
1022	BO	Q. doug.	16	4	A	0%	NONE	fencing	NO		good	deadwood	AS
1021	BO	Q. doug.	16	4	A	0%	NONE	fencing	NO		good		AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME (E.W.O.= WHITE OAK)  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 4'6"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
 14 = NORTH SOUTH/ EAST WEST CANOPY SPREAD IS AS SHOWN TO SCALE ON PLANS

TREE PROTECTION SPREAD SHEET GOLDEN HILL 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS
1020	BO	Q. doug.	14	6	A	0%	NONE	fencing	NO		good		EW
1019	BO	Q. doug.	12	5	A	0%	NONE	fencing	NO		good	canker on trunk	AS
1018	BO	Q. doug.	24	5	A	0%	NONE	fencing	NO		good	deadwood	AS
1015	BO	Q. doug.	4	2	A	0%	NONE	fencing	NO		poor	suppressed, mistletoe	AS
1016	BO	Q. doug.	9	1	A	0%	NONE	fencing	NO		poor	highly suppressed, mistl.	AS
1017	BO	Q. doug.	15	2	A	0%	NONE	fencing	NO		fair	mistletoe, bad crotch	AS
1014	BO	Q. doug.	14	3	A	0%	NONE	fencing	NO		fair	mistletoe	AS
1009	BO	Q. doug.	40	2	A	0%	NONE	fencing	NO		fair	cavities, failures	AS
1002	BO	Q. doug.	22	4	A	0%	NONE	fencing	NO		good	ground squirrels	AS
1003	BO	Q. doug.	24	3	A	0%	NONE	fencing	NO		good	stressed	AS
1010	BO	Q. doug.	32	2	A	0%	NONE	fencing	NO		excel.	massive failure, cavity	AS
1011	BO	Q. doug.	27	3	A	0%	NONE	fencing	NO		fair	dieback	AS
1013	BO	Q. doug.	28	3	A	0%	NONE	fencing	NO		good	cavities, failures	AS
1012	BO	Q. doug.	47	3	A	0%	NONE	fencing	NO		excel.	cavities, failures	AS
1034	BO	Q. doug.	33	4	A	0%	NONE	fencing	NO		excel.	past failures	AS
1035	BO	Q. doug.	27	5	A	0%	NONE	fencing	NO		excel.		AS
1036	BO	Q. doug.	40	2	R	100%	GR	NONE	NO		good	conks, nesting holes	AS
1131	BO	Q. doug.	10	5	A	0%	NONE	fencing	NO		excel.		AS
1133	BO	Q. doug.	25	5	A	0%	NONE	fencing	NO		good		AS
1132	BO	Q. doug.	37	4	A	0%	NONE	fencing	NO		fair	mistletoe	AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 4'6"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 13 = FIELD NOTES  
 13= NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 3

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1130	BO	Q. doug	37	4	A	0%	NONE	fencing	NO		good	cavity	AS
1129	BO	Q. doug	20	4	A	0%	NONE	fencing	NO		good	none	AS
1128	BO	Q. doug	12	4	A	0%	NONE	fencing	NO		fair	suppressed	AS
1039	BO	Q. doug	23	4	A	0%	NONE	fencing	NO		good	undermined roots	AS
1038	BO	Q. doug	12	2	A	0%	NONE	fencing	NO		poor	mostly suppressed	AS
1037	BO	Q. doug	23	3	A	0%	NONE	fencing	NO		excel.	cavity	AS
1044	BO	Q. doug	32	6	A	0%	NONE	fencing	NO	II	excel.	none	AS
1043	BO	Q. doug	35	4	A	0%	NONE	fencing	NO	II	excel.	40% lean south	AS
1042	BO	Q. doug	25	5	A	0%	NONE	fencing	NO	II	excel.	none	AS
1041	BO	Q. doug	20	3	A	0%	NONE	fencing	NO	II	good	major cavity	AS
1040	BO	Q. doug	21	5	A	0%	NONE	fencing	NO		good	small deadwood	AS
1063	BO	Q. doug	24	5	A	0%	NONE	fencing	NO		good	suppressed	AS
1064	BO	Q. doug	35	4	A	0%	NONE	fencing	NO		fair	past failures	AS
1065	BO	Q. doug	10	4	A	0%	NONE	fencing	NO		fair	major deadwood	AS
1066	BO	Q. doug	33	3	A	0%	NONE	fencing	NO	II	good	nesting holes past falls	AS
1068	BO	Q. doug	28	5	A	0%	NONE	fencing	NO	II	good	good structure	AS
1067	BO	Q. doug	33	3	I	10%	TR	F,RP,M	YES	II	fair	stressed appearance	AS
1062	BO	Q. doug	27	5	A	0%	NONE	fencing	NO	II	excel.	massive past failure	AS
1070	BO	Q. doug	30	2	A	0%	NONE	fencing	NO		fair	none	AS
1071	BO	Q. doug	30	3	A	0%	NONE	fencing	NO		good	past failures	AS

- 1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH
- 2 = TREE TYPE: COMMON NAME IE. W.O. = WHITE OAK
- 3 = SCIENTIFIC NAME
- 4 = TRUNK DIAMETER @ 45"
- 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT
- 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL
- 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE
- 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCING
- 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,
- 10 = ARBORIST MONITORING REQUIRED: YES/NO
- 11 = PERSCRIBED PRUNING: CLASS 1-4
- 12 = AESTHETIC VALUE
- 12 = FIELD NOTES
- 13 = NORTH SOUTH/ EAST WEST CANOPY SPREAD

12/23/2008

TREE PROTECTION SPREAD SHEET GOLDEN HILL 4

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1072	BO	Q. doug.	40	2	I	10%	GR	F,RP,M	YES	II	fair	past failure, cavity	AS
1073	BO	Q. doug.	19	4	A	0%	NONE	fencing	NO		fair		AS
1069	BO	Q. doug.	20	5	A	0%	NONE	fencing	NO		good		AS
1306	BO	Q. doug.	55	5	A	0%	NONE	fencing	NO		excel.	cavity	AS
1307	BO	Q. doug.	31	3	A	0%	NONE	fencing	NO		good	past failure	AS
1305	BO	Q. doug.	32	2	I	10%	GR	F,RP,M	YES		fair	past failure	AS
1331	BO	Q. doug.	36	4	A	0%	NONE	fencing	NO		good	nesting holes, cankers	AS
1308	BO	Q. doug.	26	5	A	0%	NONE	fencing	NO		good	v crotch	AS
1332	BO	Q. doug.	17	6	A	0%	NONE	fencing	NO		good		AS
1304	BO	Q. doug.	41	3	R	100%	GR	NONE	NO		good	nesting holes	AS
1309	BO	Q. doug.	28	3	A	0%	NONE	fencing	NO		good	nesting holes	AS
1300	BO	Q. doug.	26	6	A	0%	NONE	fencing	NO	II	excel.		AS
1301	BO	Q. doug.	32	2	R	100%	GR	NONE	NO		good	soon to fail, cavity	AS
1302	BO	Q. doug.	38	5	A	0%	NONE	fencing	NO		good		AS
1303	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1310	BO	Q. doug.	36	5	A	0%	NONE	fencing	NO		good		AS
1311	BO	Q. doug.	14	3	A	0%	NONE	fencing	NO		fair	mistletoe	AS
1312	BO	Q. doug.	14	4	A	0%	NONE	fencing	NO		good	mistletoe	AS
1330	BO	Q. doug.	34	7	I	<5%	GR	fencing	NO		excel.		AS
1075	BO	Q. doug.	23	4	A	0%	NONE	fencing	NO		good	dieback	AS

1 = TREE #, MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE; COMMON NAME (E.W.O. = WHITE OAK)  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 48"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
 14 = NORTH-SOUTH/EAST-WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 5

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS
1074	BO	Q. doug	25	4	A	0%	NONE	fencing	NO		good	SUPPRESSED	EW
1076	BO	Q. doug	35	4	A	0%	NONE	fencing	NO		good	CAVITY, FAILURES	AS
1078	BO	Q. doug	24	4	A	0%	NONE	fencing	NO	II	excel.	PAST FAILURES	AS
1077	BO	Q. doug	47	6	I	10%	GR	F,RP,M	YES	II	excel.	HEAVY END WEIGHT	AS
1079	BO	Q. doug	34	2	R	100%	GR	NONE	NO		fair	PAST FAILURES, CAVITY	AS
1080	BO	Q. doug	31	3	I	5%	GR	F,RP,M	YES	II	fair	PAST FAILURES, CAVITY	AS
1082	BO	Q. doug	28	2	R	100%	GR	NONE	NO		fair	MAJ LIMB LOSS LEAN	AS
1081	BO	Q. doug	24	5	A	0%	NONE	fencing	NO	II	excel.	10% LEAN EAST	AS
1083	BO	Q. doug	34	2	R	100%	GR	NONE	NO		fair	MAJ LIMB LOSS LEAN	AS
1084	BO	Q. doug	35	2	R	100%	GR	NONE	NO		fair	MAJ LIMB LOSS LEAN	AS
1057	BO	Q. doug	42	1	R	100%	GR	NONE	NO		poor	STAGE HEAD	AS
1056	BO	Q. doug	27	0	R	100%	GR	NONE	NO		dead	DEAD TREE	AS
1055	BO	Q. doug	30	3	I	5%	GR	F,RP,M	YES	II	fair	TWIG DIE BACK	AS
1047	BO	Q. doug	22	4	A	0%	NONE	fencing	NO	II	good	HEAVY MIS. TOE	AS
1050	BO	Q. doug	24	3	I	10%	GR	F,RP,M	YES	II	fair	15% LEAN SOUTH	AS
1049	BO	Q. doug	28	4	A	0%	NONE	fencing	NO	II	fair	MIS. TOE M/L/L	AS
1048	BO	Q. doug	50	1	R	100%	GR	NONE	NO		poor	MAJ CRACK @ TRUNK	AS
1045	BO	Q. doug	30	5	A	0%	NONE	fencing	NO	II	excel.	10% LEAN SOUTH	AS
1051	BO	Q. doug	35	2	A	0%	NONE	fencing	NO	II	poor	50% TREE BROKE OFF	AS
1053	BO	Q. doug	29	4	A	0%	NONE	fencing	NO	II	good	LARGE BEE.H IN CAVITY	AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 13= FIELD NOTES  
 13= NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 6

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1054	BO	Q. doug.	27	2	A	0%	NONE	fencing	NO		fair	nesting holes, cavity	AS
1052	BO	Q. doug.	29	3	A	0%	NONE	fencing	NO	II	fair	suppressed by 1053	AS
1060	BO	Q. doug.	40	2	R	40%	GR	NONE	NO		poor	cavity at base, limb loss	AS
1061	BO	Q. doug.	28	4	I	5%	GR	F,RP,M	YES	II	fair	good structure	AS
1058	BO	Q. doug.	22	3	A	0%	NONE	fencing	NO	II	fair	mistletoe, cavities	AS
1059	BO	Q. doug.	35	4	I	5%	GR	F,RP,M	NO	II	good	mistletoe, good structure	AS
1115	BO	Q. doug.	24	4	A	0%	NONE	fencing	NO	II	good	twig dieback	AS
1116	BO	Q. doug.	29	5	A	0%	NONE	fencing	NO	II	excel.	good structure	AS
1127	BO	Q. doug.	28	1	A	0%	NONE	fencing	NO	II	poor	major limb loss	AS
1126	BO	Q. doug.	26	1	A	0%	NONE	fencing	NO		poor	major limb loss	AS
1117	BO	Q. doug.	32	5	A	0%	NONE	fencing	NO	II	excel.	good structure	AS
1125	BO	Q. doug.	28	3	A	0%	NONE	fencing	NO		fair	utility pruned	AS
1124	BO	Q. doug.	22	3	A	0%	NONE	fencing	NO		fair	suppressed by 1124	AS
1123	BO	Q. doug.	27	4	A	0%	NONE	fencing	NO		good	mistletoe	AS
1122	BO	Q. doug.	24	4	A	0%	NONE	fencing	NO		good	wire at base	AS
1113	BO	Q. doug.	19	4	A	0%	NONE	fencing	NO	II	good	twig dieback	AS
1112	BO	Q. doug.	19	4	A	0%	NONE	fencing	NO	II	good	mistletoe	AS
1111	BO	Q. doug.	29	3	A	0%	NONE	fencing	NO	II	fair	major limb loss	AS
1110	BO	Q. doug.	26	3	I	15%	GR	F,RP,M	YES	II	fair	major limb loss	AS
1104	BO	Q. doug.	37	2	R	25%	TR	NONE	NO		poor	major limb loss	AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 13= FIELD NOTES  
 13= NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 7

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1090	BO	Q. doug.	27	4	A	0%	NONE	fencing	NO	II	fair	lean 10 deg. South	AS
1085	BO	Q. doug.	44	1	R	0%	hazard	NONE	NO		poor	major limb loss	AS
1086	BO	Q. doug.	20	2	I	15%	GR	F,R,P,M	YES		fair	mistletoe, dieback	AS
1089	BO	Q. doug.	20	5	A	0%	NONE	fencing	NO	II	excel.	good structure	AS
1087	BO	Q. doug.	27	1	R	100%	GR	NONE	NO		poor	major limb loss	AS
1118	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO	II	good	twig dieback	AS
1114	BO	Q. doug.	20	2	A	0%	NONE	fencing	NO	II	fair	mistletoe, bad structure	AS
1119	BO	Q. doug.	29	5	A	0%	NONE	fencing	NO		excel.	good structure	AS
1147	BO	Q. doug.	29	5	A	0%	NONE	fencing	NO		excel.	healthy, good structure	AS
1121	BO	Q. doug.	14	5	A	0%	NONE	fencing	NO		excel.	road side	AS
1120	BO	Q. doug.	15	3	A	0%	NONE	fencing	NO		fair	wire @ base	AS
1146	BO	Q. doug.	15	3	A	0%	NONE	fencing	NO		fair	wire @ base	AS
1145	BO	Q. doug.	18	4	A	0%	NONE	fencing	NO		good	good structure	AS
1148	BO	Q. doug.	17	4	A	0%	NONE	fencing	NO	II	good	good structure	AS
1149	BO	Q. doug.	25	4	R	100%	GR	NONE	NO		excel.	good structure	AS
1088	BO	Q. doug.	24	4	I	10%	GR	F,R,P,M	YES	II	excel.	good structure	AS
1094	BO	Q. doug.	27	2	R	100%	GR	NONE	NO		poor	nesting holes, bee hive	AS
1091	BO	Q. doug.	37	2	R	100%	GR	NONE	NO		fair	bad structure	AS
1103	BO	Q. doug.	28	2	R	100%	GR	NONE	NO		good	windswept north, cavity	AS
1102	BO	Q. doug.	32	4	A	0%	NONE	fencing	NO	II	good	good structure	AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME (E.W.O. = WHITE OAK)  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 4'6"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
 13 = NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 8

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1313	BO	Q. doug.	46	4	A	0%	NONE	fencing	NO	II	excel.	cavities, past failures	AS
1317	BO	Q. doug.	7	3	A	0%	NONE	fencing	NO		good	mistletoe	AS
1316	BO	Q. doug.	5	4	A	0%	NONE	fencing	NO		good		AS
1314	BO	Q. doug.	8	4	A	0%	NONE	fencing	NO		good		AS
1315	BO	Q. doug.	10	4	A	0%	NONE	fencing	NO		good	mistletoe	AS
1322	BO	Q. doug.	29	4	I	10%	TR	F,RP,M	YES	II	good	past failures	AS
1323	BO	Q. doug.	30	4	I	10%	TR	F,RP,M	YES	II	excel.	poor crotches	AS
1299	BO	Q. doug.	23	5	I	10%	TR	F,RP,M	YES	II	good	deadwood	AS
1105	BO	Q. doug.	39	5	A	0%	NONE	fencing	NO	II	excel.		AS
1106	BO	Q. doug.	31	5	I	5%	TR	F,RP,M	YES	II	excel.	deadwood	AS
1107	BO	Q. doug.	28	4	I	5%	TR	F,RP,M	YES	II	good	stressed	AS
1298	BO	Q. doug.	51	4	A	0%	NONE	fencing	NO	II	excel.	past failures	AS
1294	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO	II	good		AS
1324	BO	Q. doug.	29	4	I	5%	GR	F,RP,M	YES	II	good	past failures	AS
1293	BO	Q. doug.	38	4	A	0%	NONE	fencing	NO	II	good	past failures	AS
1281	BO	Q. doug.	31	4	I	5%	GR	F,RP,M	YES	II	good	cavity, splits	AS
1280	BO	Q. doug.	34	5	A	0%	NONE	fencing	NO		good		AS
1282	BO	Q. doug.	25	5	A	0%	NONE	fencing	NO		good		AS
1284	BO	Q. doug.	31	4	I	5%	GR	F,RP,M	YES		good	past failures	AS
1325	BO	Q. doug.	11	6	A	0%	NONE	fencing	NO		good		AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE.W.O.= WHITE OAK  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 12 = FIELD NOTES  
 13= NORTH-SOUTH/EAST WEST CANOPY SPREAD



TREE PROTECTION SPREAD SHEET GOLDEN HILL 9

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1321	BO	Q. doug.	15	6	A	0%	NONE	fencing	NO		good		AS
1320	BO	Q. doug.	46	3	A	0%	NONE	fencing	NO		good	deadwood	AS
1319	BO	Q. doug.	36	2	A	0%	NONE	fencing	NO		good	past failure, cavity	AS
1283	BO	Q. doug.	42	6	I	25%	GR	F,RP,M	YES	IV	excel.		AS
1285	BO	Q. doug.	24	4	I	5%	GR	F,RP,M	YES	II	good	cavity	AS
1278	BO	Q. doug.	38	0	R	0%	NONE	NONE	NO		dead	dead stump	AS
1277	BO	Q. doug.	29	4	A	0%	NONE	fencing	NO	II	good	cavity	AS
1219	BO	Q. doug.	23	6	A	0%	NONE	fencing	NO		excel.		AS
1222	BO	Q. doug.	27	2	R	0%	hazard	NONE	NO		fair	massive cavity	AS
1223	BO	Q. doug.	25	6	I	5%	GR	F,RP,M	YES	II	excel.		AS
1221	BO	Q. doug.	30	4	A	0%	NONE	fencing	NO	II	fair	stressed	AS
1220	BO	Q. doug.	33	2	A	0%	NONE	fencing	NO		fair	cavity, nesting holes	AS
1165	BO	Q. doug.	24	2	A	0%	NONE	fencing	NO		fair	cavity, past failures	AS
1166	BO	Q. doug.	28	5	A	0%	NONE	fencing	NO		good		AS
1164	BO	Q. doug.	29	5	A	0%	NONE	fencing	NO		excel.	mistletoe	AS
1163	BO	Q. doug.	38	2	A	0%	NONE	fencing	NO		fair	past failure	AS
1279	BO	Q. doug.	37	2	A	0%	NONE	fencing	NO		poor	past failure	AS
1295	BO	Q. doug.	26	5	A	0%	NONE	fencing	NO		excel.		AS
1296	BO	Q. doug.	21	5	A	0%	NONE	fencing	NO	II	excel.		AS
1158	BO	Q. doug.	37	3	A	0%	NONE	fencing	NO	II	fair	past failure	AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE; COMMON NAME IE. W.O.= WHITE OAK  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOT/PRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
 14 = NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 10

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1157	BO	Q. doug.	27	3	A	0%	NONE	fencing	NO	II	fair	failures, cavity	AS
1098	BO	Q. doug.	28	0	R	100%	GR	NONE	NO		dead	dead	AS
1097	BO	Q. doug.	37	2	R	100%	GR	NONE	NO		fair	cavity, nesting holes	AS
1100	BO	Q. doug.	16	3	A	0%	NONE	fencing	NO		fair	stressed	AS
1099	BO	Q. doug.	31	6	A	0%	NONE	fencing	NO	II	excel.		AS
1167	BO	Q. doug.	26	2	A	0%	NONE	fencing	NO		fair	cavity, past failures	AS
1168	BO	Q. doug.	30	3	A	0%	NONE	fencing	NO		good	cavity at base	AS
1169	BO	Q. doug.	20	4	A	0%	NONE	fencing	NO		good	stressed	AS
1177	BO	Q. doug.	22	4	A	0%	NONE	fencing	NO		good	mistletoe	AS
1171	BO	Q. doug.	28	2	A	0%	NONE	fencing	NO		fair	cavity, failures	AS
1172	BO	Q. doug.	25	3	A	0%	NONE	fencing	NO		fair	mistletoe, stressed	AS
1173	BO	Q. doug.	20	4	A	0%	NONE	fencing	NO		good		AS
1176	BO	Q. doug.	18	3	A	0%	NONE	fencing	NO		fair	stressed	AS
1175	BO	Q. doug.	28	4	A	0%	NONE	fencing	NO		fair	suppressed	AS
1174	BO	Q. doug.	21	3	A	0%	NONE	fencing	NO		good	nesting holes, cavity	AS
1213	BO	Q. doug.	18	6	A	0%	NONE	fencing	NO		good		AS
1226	BO	Q. doug.	33	5	A	0%	NONE	fencing	NO		excel.	mistletoe	AS
1224	BO	Q. doug.	34	5	A	0%	NONE	fencing	NO	II	excel.	excessive end weight	AS
1225	VO	Q. lobata	38	2	R	100%	GR	NONE	NO		fair	massive failure	AS
1214	VO	Q. lobata	27	4	A	0%	NONE	fencing	NO		good		AS

1 = TREE #: MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE. W.O.= WHITE OAK  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 45"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 13= NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 11

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1215	BO	Q. doug.	25	2	A	0%	NONE	fencing	NO		good	soon to fail, cavity	AS
1216	BO	Q. doug.	33	3	I	30%	GR	F,RP,M	YES		excel.	decay, nesting holes	AS
1286	BO	Q. doug.	40	5	A	0%	NONE	fencing	NO		excel.		AS
1289	VO	Q. lobata	24	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1288	VO	Q. lobata	27	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1287	VO	Q. lobata	21	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1290	VO	Q. lobata	21	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1201	BO	Q. doug.	44	2	R	100%	GR	NONE	NO		good	suppressed	AS
1206	BO	Q. doug.	15	1	A	0%	NONE	fencing	NO		fair	past failure, stressed	AS
1200	BO	Q. doug.	19	4	A	0%	NONE	fencing	NO		poor	past failures, cracks	AS
1205	BO	Q. doug.	31	4	I	5%	GR	F,RP,M	YES		good	leaning	AS
1204	BO	Q. doug.	26	2	R	100%	GR	NONE	NO		good	past failures	AS
1202	BO	Q. doug.	35	3	A	0%	NONE	fencing	NO		good	cavity, pst failures	AS
1203	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO		good	cavities, stressed	AS
1208	BO	Q. doug.	23	4	I	20%	GR	F,RP,M	YES		good	cavity	AS
1207	BO	Q. doug.	21	3	R	100%	GR	NONE	NO		good	past failures	AS
1194	BO	Q. doug.	28	4	I	15%	GR	F,RP,M	YES		fair	past failures, cavity, mist.	AS
1195	BO	Q. doug.	11	5	A	0%	NONE	fencing	NO		good	cavity	AS
1192	BO	Q. doug.	18	5	A	0%	NONE	fencing	NO		good		AS
1193	BO	Q. doug.	37	4	I	15%	GR	F,RP,M	YES		excel.	nesting holes	AS

1 = TREE #, MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE; COMMON NAME (E.W.O.= WHITE OAK)  
 3= SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
 7 = CRZ: PERCENT OF IMPACTED CRITICAL ROOT ZONE  
 8 = CONSTRUCTION IMPACT TYPE: GRADING, COMPACTION, TRENCHING  
 9 = MITIGATION REQUIREMENTS: FENCING, MONITORING, ROOTPRUNING,  
 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12= AESTHETIC VALUE  
 13 = FIELD NOTES  
 13= NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 12

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1196	BO	Q. doug.	19	5	A	0%	NONE	fencing	NO		good	mistletoe	AS
1197	BO	Q. doug.	7	3	A	0%	NONE	fencing	NO		fair	suppressed	AS
1198	BO	Q. doug.	10	5	A	0%	NONE	fencing	NO		good		AS
1210	BO	Q. doug.	22	2	A	0%	NONE	fencing	NO		poor	caonks, past failure	AS
1209	BO	Q. doug.	19	2	A	0%	NONE	fencing	NO		poor	stressed	AS
1211	BO	Q. doug.	30	2	A	0%	NONE	fencing	NO		fair	past failure, cavity, mist.	AS
1212	BO	Q. doug.	14	5	A	0%	NONE	fencing	NO		good		AS
1189	BO	Q. doug.	16	4	A	0%	NONE	fencing	NO		good	mistletoe, suppressed	AS
1190	BO	Q. doug.	22	5	A	0%	NONE	fencing	NO		good		AS
1191	BO	Q. doug.	22	4	A	0%	NONE	fencing	NO		fair	cavity	AS
1188	BO	Q. doug.	19	3	A	0%	NONE	fencing	NO		fair	cavity	AS
1179	BO	Q. doug.	28	2	A	0%	NONE	fencing	NO		good	cavity at crotch	AS
1178	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO		good	cavity, mistletoe	AS
1180	BO	Q. doug.	26	6	I	5%	GR	F,RP,M	YES	II	excel.	mistletoe	AS
1181	BO	Q. doug.	23	5	R	100%	GR	NONE	NO		excel.		AS
1183	BO	Q. doug.	19	5	A	0%	NONE	fencing	NO		excel.		AS
1184	BO	Q. doug.	5	3	A	0%	NONE	fencing	NO		poor	suppressed	AS
1185	BO	Q. doug.	18	4	A	0%	NONE	fencing	NO		good	suppressed	AS
1182	BO	Q. doug.	19	5	A	0%	NONE	fencing	NO		good		AS
1162	BO	Q. doug.	19	5	A	0%	NONE	fencing	NO		good		AS

1 = TREE # MOSTLY CLOCKWISE FROM DUE NORTH  
 2 = TREE TYPE: COMMON NAME IE. W.O. = WHITE OAK  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 46"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
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 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
 14 = NORTH SOUTH/ EAST WEST CANOPY SPREAD

TREE PROTECTION SPREAD SHEET GOLDEN HILL 13

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1186	BO	Q. doug.	18	2	R	100%	GR	NONE	NO		poor	AS	AS
1187	BO	Q. doug.	27	5	A	0%	NONE	fencing	NO	II	excel.	AS	AS
1170	BO	Q. doug.	22	5	A	0%	NONE	fencing	NO	II	excel.	AS	AS
1161	BO	Q. doug.	7	5	A	0%	NONE	fencing	NO		excel.	AS	AS
1160	BO	Q. doug.	22	3	I	10%	GR	F,RP,M	YES		fair	nesting holes, mistletoe	AS
1159	BO	Q. doug.	28	4	A	0%	NONE	fencing	NO		good	cavities	AS
1217	BO	Q. doug.	25	5	A	0%	NONE	fencing	NO	II	good	epicormic growth	AS
1156	BO	Q. doug.	23	6	I	5%	GR	F,RP,M	YES	II	excel.		AS
1154	BO	Q. doug.	27	3	A	0%	NONE	fencing	NO	II	good	nesting holes	AS
1153	BO	Q. doug.	32	3	A	0%	NONE	fencing	NO	II	good	cavity, past failures	AS
1218	BO	Q. doug.	22	0	R	100%	GR	NONE	NO		dead	failed this year	AS
1151	BO	Q. doug.	26	6	A	0%	NONE	fencing	NO	II	excel.		AS
1297	BO	Q. doug.	41	5	A	0%	NONE	fencing	NO	II	excel.	excessive end weight	AS
1109	BO	Q. doug.	26	5	A	0%	NONE	fencing	NO	II	excel.		AS
1108	BO	Q. doug.	25	5	A	0%	NONE	fencing	NO	II	excel.	mistletoe	AS
1101	BO	Q. doug.	35	5	A	0%	NONE	fencing	NO	II	excel.	mistletoe	AS
1150	BO	Q. doug.	23	4	A	0%	NONE	fencing	NO	II	good	mistletoe	AS
1095	BO	Q. doug.	18	3	A	0%	NONE	fencing	NO	II	poor	very stressed	AS
1152	BO	Q. doug.	31	3	A	0%	NONE	fencing	NO	II	fair	mistletoe, past failure	AS
1135	BO	Q. doug.	21	4	A	0%	NONE	fencing	NO	II	fair	mistletoe, stressed	AS

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TREE PROTECTION SPREAD SHEET GOLDEN HILL 14

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1155	BO	Q. doug.	21	4	A	0%	NONE	fencing	NO	II	fair	deadwood	AS
1329	BO	Q. doug.	32	2	R	100%	GR	NONE	NO		poor	major limb loss, cavity	AS
1328	BO	Q. doug.	36	1	R	100%	GR	NONE	NO		poor	major limb loss, cavity	AS
1320	BO	Q. doug.	46	3	A	0%	NONE	fencing	NO		fair	short tree	AS
1319	BO	Q. doug.	36	2	A	0%	NONE	fencing	NO		poor	major limb loss, cavity	AS
1318	BO	Q. doug.	32	1	A	0%	NONE	fencing	NO	II	poor	major limb loss, cavity	AS
1327	BO	Q. doug.	45	1	R	100%	GR	NONE	NO		poor	cavities, previous failures	AS
1321	BO	Q. doug.	15	4	A	0%	NONE	fencing	NO		fair	small tree, good structure	AS
1093	BO	Q. doug.	30	4	A	0%	NONE	fencing	NO		fair	limb loss, stressed	AS
1092	BO	Q. doug.	30	4	A	0%	NONE	fencing	NO	II	good	good structure	AS
1134	BO	Q. doug.	23	4	A	0%	NONE	fencing	NO	II	good	good structure	AS
1144	BO	Q. doug.	26	5	A	0%	NONE	fencing	NO		excel.	good structure	AS
1145	BO	Q. doug.	18	4	A	0%	NONE	fencing	NO		fair	twig dieback	AS
1143	BO	Q. doug.	12	3	A	0%	NONE	fencing	NO		fair	barbed wire @ base	AS
1136	BO	Q. doug.	23	5	A	0%	NONE	fencing	NO	II	excel.	good canopy	AS
1137	BO	Q. doug.	18	4	I	5%	GR	F,RP,M	YES	II	good	mistletoe	AS

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 2 = TREE TYPE: COMMON NAME IE: W.O = WHITE OAK  
 3 = SCIENTIFIC NAME  
 4 = TRUNK DIAMETER @ 4'6"  
 5 = TREE CONDITION: 1 = POOR, 10 = EXCELLENT  
 6 = CONSTRUCTION STATUS: AVOIDED, IMPACTED, REMOVAL  
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 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PRESCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
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TREE PROTECTION SPREAD SHEET GOLDEN HILL 15

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1138	BO	Q. doug.	25	3	I	5%	GR	F,RP,M	YES	II	fair	nesting holes, past failures	AS
1139	BO	Q. doug.	18	3	I	5%	GR	F,RP,M	YES	II	fair	mistletoe, suppressed	AS
1140	BO	Q. doug.	30	3	I	5%	GR	F,RP,M	YES	II	good	major past failure	AS
1141	BO	Q. doug.	22	3	A	0%	NONE	fencing	NO		fair	suppressed, wire@base	AS
1142	BO	Q. doug.	12	3	A	0%	NONE	fencing	NO		good	wire @base	AS
1153	BO	Q. doug.	22	5	A	0%	NONE	fencing	NO	II	excel.	good structure	AS
1333	VO	Q. lobata	37	4	A	0%	NONE	fencing	NO		good	v crotch	AS
1334	VO	Q. lobata	15	4	A	0%	NONE	fencing	NO		fair	very suppressed	AS
1335	VO	Q. lobata	10	3	A	0%	NONE	fencing	NO		fair	very suppressed	AS
1336	VO	Q. lobata	18	5	A	0%	NONE	fencing	NO		good	good structure	AS
1337	VO	Q. lobata	24	4	A	0%	NONE	fencing	NO		good	deadwood	AS
1338	VO	Q. lobata	9	4	A	0%	NONE	fencing	NO		fair	suppressed	AS
1339	VO	Q. lobata	19	4	A	0%	NONE	fencing	NO		good	deadwood	AS
1340	VO	Q. lobata	27	4	A	0%	NONE	fencing	NO		good	deadwood, some failures	AS
1341	VO	Q. lobata	12	3	A	0%	NONE	fencing	NO		fair	very suppressed	AS
1342	VO	Q. lobata	21	4	A	0%	NONE	fencing	NO		good	good structure	AS
1343	VO	Q. lobata	19	3	A	0%	NONE	fencing	NO		fair	stressed	AS
1344	VO	Q. lobata	13	3	A	0%	NONE	fencing	NO		fair	stressed	AS
1345	VO	Q. lobata	59	3	A	0%	NONE	fencing	NO		fair	past failures	AS
1346	VO	Q. lobata	22	5	A	0%	NONE	fencing	NO		good	deadwood	AS

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 11 = PERSCRIBED PRUNING: CLASS 1-4  
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 13 = FIELD NOTES  
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12/23/2008





TREE PROTECTION SPREADSHEET  
GOLDEN HILL 17

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1353	BO	Q. doug.	28	6	I	10%	GR	F,RP,M	YES		good	good structure	AS
1354	VO	Q. lobata	31	5	A	0%	NONE	fencing	NO		good	some suppression	AS
1355	BO	Q. doug.	22	4	A	0%	NONE	fencing	NO		good		AS
1356	VO	Q. lobata	18	4	A	0%	NONE	fencing	NO		good	minor suppression	AS
1357	BO	Q. doug.	20	3	A	0%	NONE	fencing	NO		good	suppressed	AS
1358	BO	Q. doug.	25	4	A	0%	NONE	fencing	NO		good		AS
1359	BO	Q. doug.	19	4	A	0%	NONE	fencing	NO		good		AS
1360	VO	Q. lobata	31	1	A	0%	NONE	fencing	NO		poor	failures	AS
1361	BO	Q. doug.	20	1	A	0%	NONE	fencing	NO		fair	very suppressed	AS
1362	VO	Q. lobata	42	1	A	0%	NONE	fencing	NO		fair	failures	AS
1363	BO	Q. doug.	9	1	A	0%	NONE	fencing	NO		fair	very suppressed	AS
1364	VO	Q. lobata	58	4	A	0%	NONE	fencing	NO		good	major deadwood	AS
1365	VO	Q. lobata	12	1	A	0%	NONE	fencing	NO		poor	suppressed	AS
1366	VO	Q. lobata	34	3	A	0%	NONE	fencing	NO		fair	suppressed and lean	AS
1367	BO	Q. doug.	13	3	A	0%	NONE	fencing	NO		fair	suppressed	AS
1368	BO	Q. doug.	27	5	I	5%	GR	F,RP,M	YES	II	good	good structure	AS
1369	BO	Q. doug.	23	3	I	5%	GR	F,RP,M	YES	II	fair	poor shoot growth	AS
1370	BO	Q. doug.	37	3	A	0%	NONE	fencing	NO	II	good	limb loss	AS
1371	BO	Q. doug.	21	3	A	0%	NONE	fencing	NO		fair		AS
1372	BO	Q. doug.	8	2	A	0%	NONE	fencing	NO		poor	suppressed	AS

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 10 = ARBORIST MONITORING REQUIRED: YES/NO  
 11 = PERSCRIBED PRUNING: CLASS 1-4  
 12 = AESTHETIC VALUE  
 13 = FIELD NOTES  
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12/23/2008

TREE PROTECTION SPREADSHEET GOLDEN HILL 18

1	2	3	4	5	6	7	8	9	10	11	12	13	14
TREE #	TREE SPECIES	SCIENTIFIC NAME	TRUNK DBH	TREE CONDITION	CONST STATUS	CRZ % IMPACT	CONST IMPACT	MITIGATION PROPOSAL	MONT REQUIRED	PRUNING CLASS	AESTH. VALUE	FIELD NOTES	NS EW
1373	BO	Q. doug.	40	4	A	0%	NONE	fencing	NO	II	poor	limb loss, cankers	AS
1374	BO	Q. doug.	25	3	A	0%	NONE	fencing	NO	II	poor	suppressed, stressed	AS
1375	VO	Q. lobata	34	3	A	0%	NONE	fencing	NO	II	poor	cankers, nesting holes	AS
1376	BO	Q. doug.	16	4	A	0%	NONE	fencing	NO		good		AS
1377	BO	Q. doug.	8	3	A	0%	NONE	fencing	NO		poor	very suppressed	AS
1378	BO	Q. doug.	22	4	A	0%	NONE	fencing	NO		good	40 degree lean	AS
1379	BO	Q. doug.	16	3	A	0%	NONE	fencing	NO		good	suppressed	AS
1380	BO	Q. doug.	40	2	A	0%	NONE	fencing	NO		poor	massive limb loss	AS
1381	BO	Q. doug.	33	3	A	0%	NONE	fencing	NO		good	past failures	AS
1382	BO	Q. doug.	30	3	A	0%	NONE	fencing	NO		good	past failures	AS
1383	BO	Q. doug.	28	5	A	0%	NONE	fencing	NO		good	good structure	AS
1220	BO	Q. doug.	33	4	A	0%	NONE	fencing	NO		good	treehouse in tree	AS

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 10 = ARBORIST MONITORING REQUIRED: YES/NO  
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# PARKER & ASSOCIATES

PO Box 462

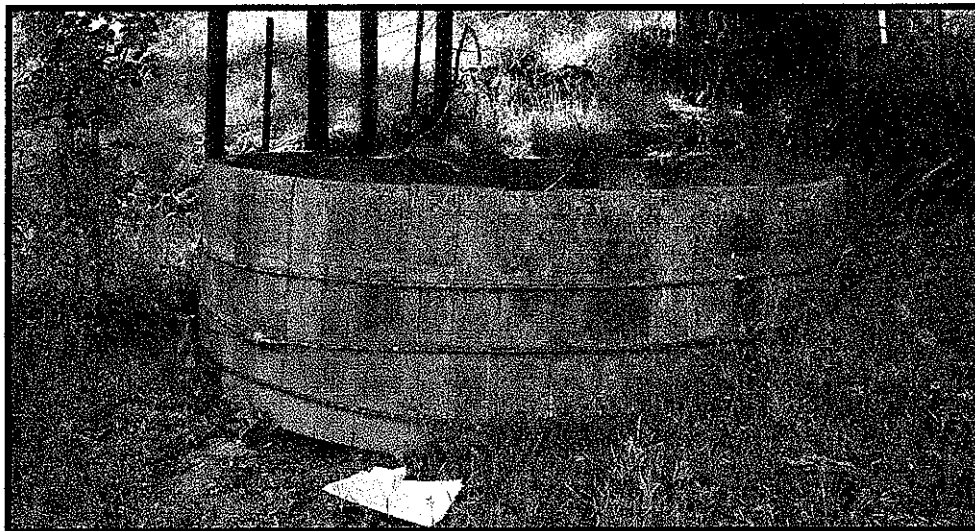
Cayucos, CA 93430

Phone: (805) 772-0117

Fax: (805) 772-8178

Email: [crm@tcsn.net](mailto:crm@tcsn.net)

**CULTURAL RESOURCE INVESTIGATION  
OF 160 ACRES IN PASO ROBLES  
NORTH END OF GOLDEN HILL ROAD  
APN'S 025-431-037, 038, 039**



Prepared at the request of:  
Dave McCurdy  
PO Box 2552  
Paso Robles, CA 93447

Prepared by:  
John Parker, Ph.D., RPA

USGS Quads:  
Paso Robles 7.5'

May 14, 2006

**Exhibit G**  
Cultural Resource Study  
GPA 09-001, RZ 09-001, PD 08-001,  
CUP 08-001, & PRAL 07-0293  
(PR Motorcoach Resort)

**FIELD AND RESEARCH ARCHAEOLOGICAL STUDIES**

## **SUMMARY**

On April 20<sup>th</sup>, Dave McCurdy requested that the author conduct a cultural resource investigation of a three parcels totaling 160 acres located at the north end of Golden Hill Road, Paso Robles. The purpose of the investigation was to locate, describe, and evaluate any archaeological or historical resources that may be present. In addition, the author was to assess the impact that might occur as a result of the subdivision and ultimate development of the parcels. This report describes both the field inventory and background records search dealing with the above referenced project.

The fieldwork took place April 30<sup>th</sup> through May 3<sup>rd</sup>, 2006. The background records check indicated a low to medium probability that historic and prehistoric cultural resources may exist on the parcel. The surface field inspection of the parcel did not turn up any evidence of significant historic or prehistoric cultural resources; however, dense grass prevented a complete inspection of the mineral soil. It is possible that unobserved or buried cultural resources exist within the project area. Therefore, it is recommended that the project be approved as planned with a provision that initial grubbing and grading be monitored by a qualified archaeologist.

## **INTRODUCTION AND BACKGROUND**

The fieldwork carried out as part of this study was conducted by John and Cheyanne Parker. Dr. Parker holds a Ph.D. in Archaeology, and is a Registered Professional Archaeologist. Cheyanne Parker has 7 years of experience as an archaeological field and lab technician.

As the proposed undertaking will require a local discretionary permit, the California Environmental Quality Act (CEQA) applies to the project. This cultural resource evaluation was designed to comply with the requirements set forth in CEQA (sec. 21083.2). This report follows the outline for identification of cultural resources as presented in the "Archaeological Resource Management Reports (ARMR): Recommended Contents and Format" (State of California 1990).

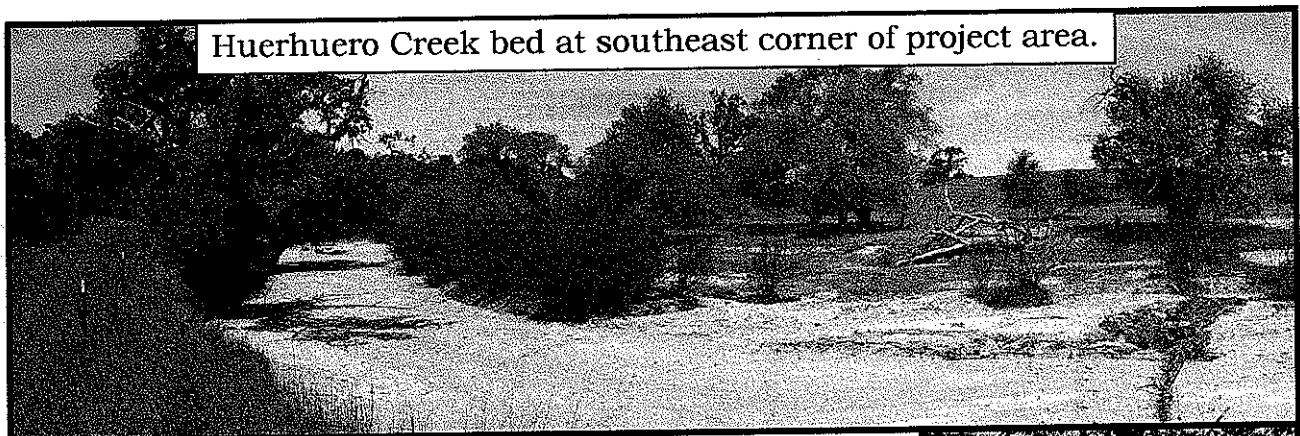
The area inspected covered ~160 acres of gently rolling terrain west of and adjacent to Huerhuero Creek. The property is depicted on the Paso Robles 7.5' USGS topographic map as existing in sections 14 and 23, T26S, R12E (see attached map for area inspected). The project area was bordered on the west by the northern-most extension of Golden Hill Road and on the north and east by Huerhuero Creek (although the project area included and extended beyond the creek in some areas).

The proposed project has not yet been completely defined so specific impacts cannot be addressed.

## **NATURAL SETTING**

The rolling terraces along the Salinas River and Huerhuero Creek flood plains are made up of light to medium brown sandy soils with rounded gravels. Most of the sand appears to represent decomposed granite. The gravels include granite along with natural Monterey and Franciscan chert, basalt, quartzite, and other rocks. These soils most likely represent ancient streambed and overbank deposits from the Salinas and other rivers. The soils supported an oak grassland environment that has been significantly altered by more than 200 years of cattle grazing and farming.

The dry bed of Huerhuero Creek was made up of granite sands.



At the time of the field inspection, the project area was open and undeveloped, but covered with dense grasses and scattered oaks, some of which appeared to be 200 or more years old.



Wildlife observed in the field

included a mated pair of golden eagles, a nesting pair of redbill hawks with fledglings, a young mountain lion, deer, ground squirrel and a host of birds including acorn woodpecker, flicker, western bluebird, tree swallows, etc. Unseen animals identified by tracks included coyote, bobcat, fox, and raccoon.

## **PREHISTORIC CULTURAL SETTING**

Archaeological research has indicated that the Salinas River Valley has been home to prehistoric people for at least 9,000 years (Mikkelsen et al. 2000, Parker 2004). Studies of prehistoric sites have demonstrated continuous cultural use of the area until the time of European contact. The changing culture and technology of these people allowed them to successfully adapt to changes in their environment brought about by the end of the ice age and population growth (Parker 1996).

Ethnographic and historical research has indicated that the project area was most likely within the Southern Salinan or Migueleño Salinan territory, but very close to the boundary between the Salinan and Obispeño Chumash at the time of European contact (Gibson 1983). The various Salinan languages belong to the Hokan language family, which is considered the oldest language family in California and possibly in the New World (Shipley 1978). It is likely that Hokan speaking people have inhabited California for at least 12,000 to 14,000 years (Parker 1994).

The earliest European contact with Native Americans in the area came in the form of ocean expeditions along the California Coast. Pedro de Unamuno (1587) stopped along the coast and traveled inland as far as present-day San Luis Obispo. He apparently had a battle with native people in the Morro Bay vicinity. Sebastian Rodriguez Cermeño landed in 1595 followed by Sebastian Vizcaino in 1602-03 (Gibson 1983:39).

The first serious encounters between Europeans and the Native population occurred with the two land-based expeditions of Gaspar de Portolá in 1769 and 1770. The first contact with the Southern Salinan people occurred during these expeditions.

The establishment of Missions San Antonio and San Miguel signaled the end of traditional Native American village life in the area.

Very little is known about the Migueleño Salinan culture in San Luis Obispo County. This is mostly due to their demise by diseases brought by the Spanish and their later incarceration as slave labor in the missions (Heizer et. al. 1971). As an example of this treatment, the padre from Mission San Miguel traveled with a soldier to the Salinan village of Cholam and asked the chief to give him some children to baptize. The chief refused so the Commandant at the Mission sent 14 soldiers to Cholam to take the chief, his son and two other chieftains prisoner. In order to obtain freedom, the chief agreed to bring natives from his village to the mission (Rivers 2000:17).

Although the missionaries did record some basic information as part of the baptismal process, these newly colonizing Europeans were not concerned

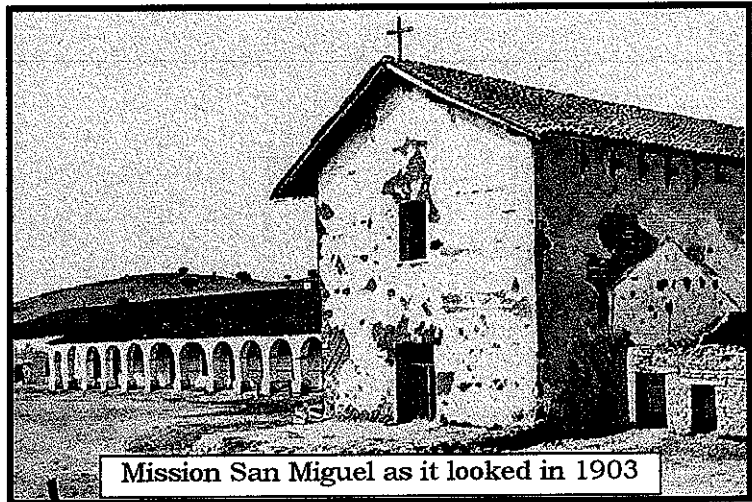
with recording the traditional culture of the native peoples. By the time Anthropologists took an interest in their lifestyle, there were no people left who could remember the traditional lifeways.

## HISTORIC CULTURAL SETTING

### ***The Mission Period (1797-1834)***

The project area is within the property that was once under the ownership of Mission San Miguel.

Mission San Miguel was founded in 1797 by Father Francisco de Lasuen who took over as *Presidente* of the Missions from Father Junipero Serra. San Miguel was the 16<sup>th</sup> of the 21 missions established in California by the Spanish Government (Ohles 1997).



Mission San Miguel as it looked in 1903

In 1806, 27 huts were constructed for the Indians. Construction continued at the Mission and at the height of activity (1814), the mission had a native population of 1,076. By 1832, the population had dropped to 658 and construction at Mission San Miguel ended. San Miguel's property extended 18 miles north of the main church, 21 miles south of the church, 66 miles inland to the east, and 35 miles westward to the Pacific coast.

In addition to the small vineyard, Mission San Miguel had crops of barley, wheat, and cotton. An 1827 list of livestock included 2,130 cattle, 120 oxen, 7,904 sheep, and 62 pigs.

There is some mention that Mission Indians used the land east of the Salinas River to raise their own crops. This was also an area where Mission sheep herds were kept (Ohles 1997:104).

The Spanish government had hoped that each of the missions would secularize 10 years after establishment. The mission lands and town lots would then be parceled out to the Christianized Indians with the newly created towns governed by native officials trained for that purpose. The



Perfecta Encinales, last Salinan mission Indian. Photo taken 1906 when she was 115 years old.

missionaries were then to move on to another location expanding the frontier.

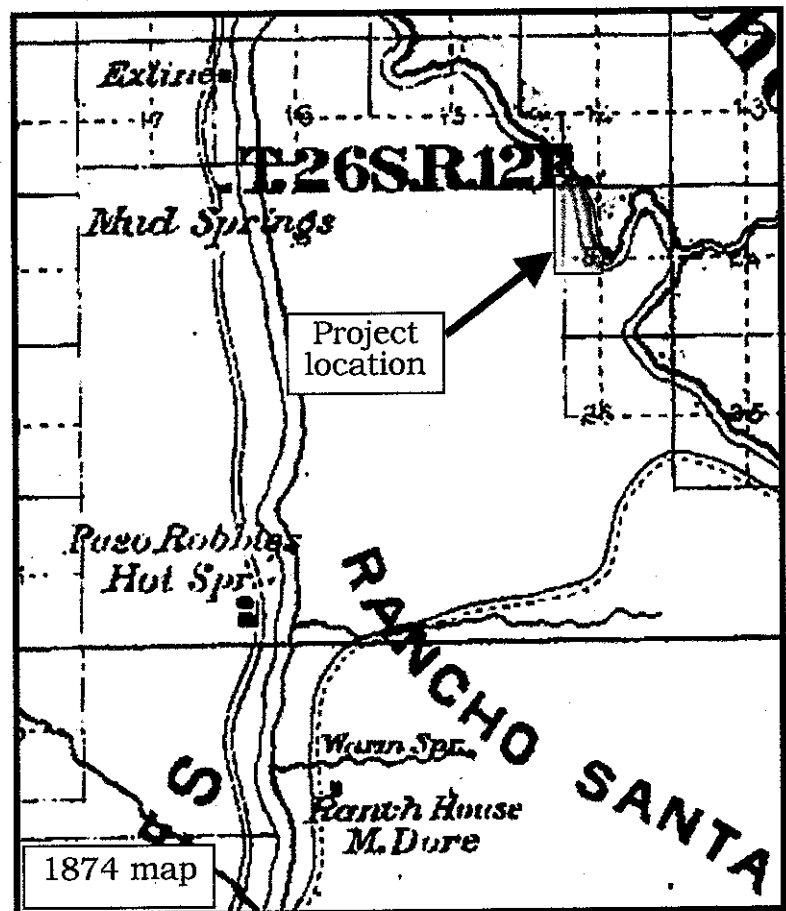
In reality, the secularization decree of 1834 did provide for the distribution of a portion of each mission's land and goods to the Christianized natives. All of San Miguel's natives asked to keep land within the western part of the mission's holdings. However, by 1845, all of San Miguel's lands had been granted to Mexican citizens except for the Estrella Rancho. This rancho was granted to the "people of San Miguel" in 1844. Unfortunately their claim was rejected by the U.S. courts (Ohles 1997, Rivers 2000).

### ***The Rancho Period (1834-1850)***

The project area is situated immediately adjacent to the northeast boundary of the Santa Ysabel Land Grant. Santa Ysabel was granted to Francisco Arce in 1844.

Arce was born in Baja California in 1819 and moved to Monterey in 1833. He served as Lieutenant under Mariano Vallejo and Secretary to Jose Castro. The Mexican Governor of California (Pio Pico) wanted to move the capitol of California from Monterey. He planned to bring a force to Monterey to initiate the move. Jose Castro and others refused to move the capitol and enlisted the support of Vallejo. Vallejo agreed to provide 200 horses for the militia at Monterey. Arce was called up to drive the horses from Vallejo's Sonoma Rancho to Monterey. On June 10, 1846, members of the Bear Flag Revolt overtook Arce, confiscated the horses, and took Arce and eventually Vallejo into custody. This was the first action of the revolt that eventually took over Mexican owned California.

In 1853, Francisco Arce sold 1/8 of Rancho Santa Ysabel to Jeremiah Clark for \$3. In 1855, Arce sold the rancho to Manuel Castro for \$4,000. In 1857, a U.S. District Court





finally conferred the Rancho to Francisco Arce. In 1859, he sold the rancho again to Teodoro Gonzalez for \$3,000. In 1874, Arce sold the rancho again to Maurice Dore for \$5 in gold (Ohles 1997:109).

The Dore family ran 30,000 sheep on the rancho. Their house is depicted on the 1874 map above.

## **RESEARCH DESIGN AND FIELD METHODS**

This project was conducted to provide an inventory of any historic or prehistoric cultural resources that may exist within the project area. In this geographic region the majority of prehistoric and historic cultural resources can be visually discovered and identified based on surface materials.

Prehistoric sites and features are evidenced by the presence of chipped and ground stone tools, bone and shell dietary refuse, rock alignments, pictographs, petroglyphs, and other alterations to the natural environment. Due to the dynamic geological and hydrological history of California, it is impossible to predict the location of prehistoric sites based on proximity to natural water sources, resource areas, or geologic features. Therefore all ground surface locations must be inspected.

Historic sites and features are evidenced by the presence of metal, glass, ceramics, bone, shell, structural remains, or altered landscapes such as ditches, roadbeds, etc.

(CHRIS) Prior to the field inspection, the author conducted a record search at the Regional California Historical Resources Information Center (Dept. of Anthropology, U.C. Santa Barbara). This record review turned up no evidence of any previously recorded historic or prehistoric sites within 1 mile of the project area.

The fieldwork consisted of an intensive surface examination of all portions of the project area. This inspection was conducted by walking transects across the property at 5 to 10 meter intervals. All areas were examined for evidence of both historic and prehistoric cultural activity.

Thick grass covered 90% of the project area, effectively preventing a complete inspection of the mineral soil. Throughout the area, rodent dirt mounds were examined, as were all erosion banks along small drainages as well as Huerhuero Creek.

It is likely that isolated artifacts and small prehistoric campsites would have been missed due to the dense grass cover; however, large prehistoric sites would have been observed and recorded.

## REPORT OF FINDINGS

No prehistoric materials were observed. No chipped or ground stone or dietary refuse such as shell or bone were observed.

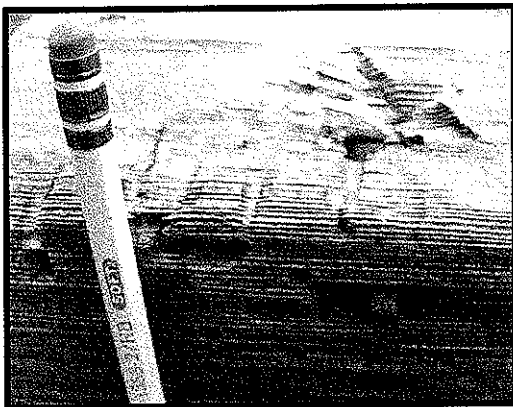
### *Artifacts*

Historic materials encountered consisted of isolated artifacts and features representing general ranching activity during the past 50 to 100 years. These included an Atlas E-Z Seal jar discovered in the Huerhuero Creek sands at the north end of the project area. This jar was likely transported downstream during winter runoff from a historic trash deposit somewhere upstream of the project area. The Atlas jar was manufactured by the Hazel-Atlas Glass Co. The "E-Z SEAL" logo was in use from 1896 to 1964 (Toulouse 1971:241).

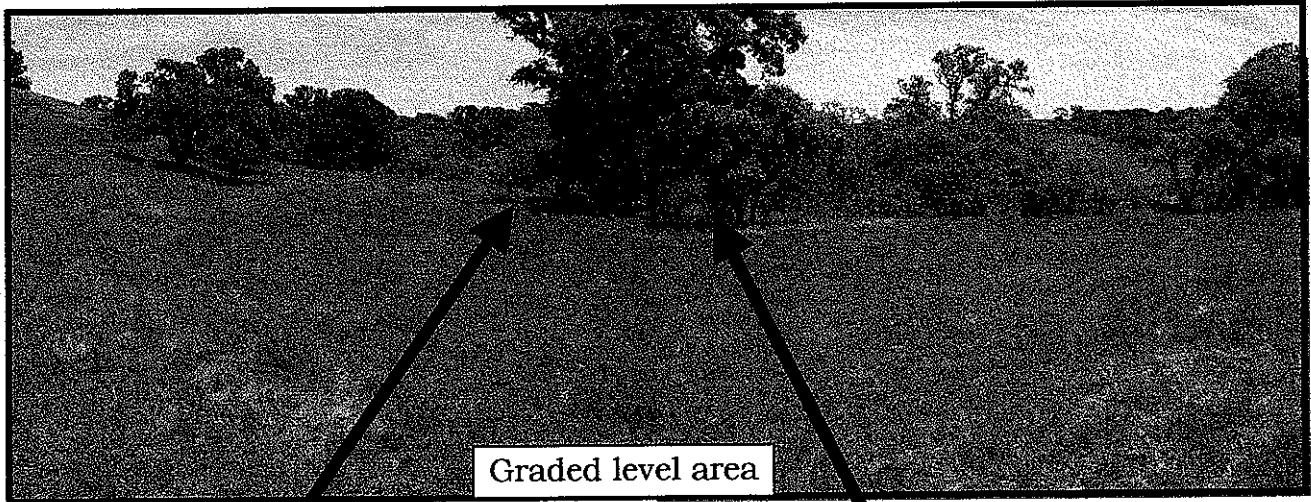


### *Features*

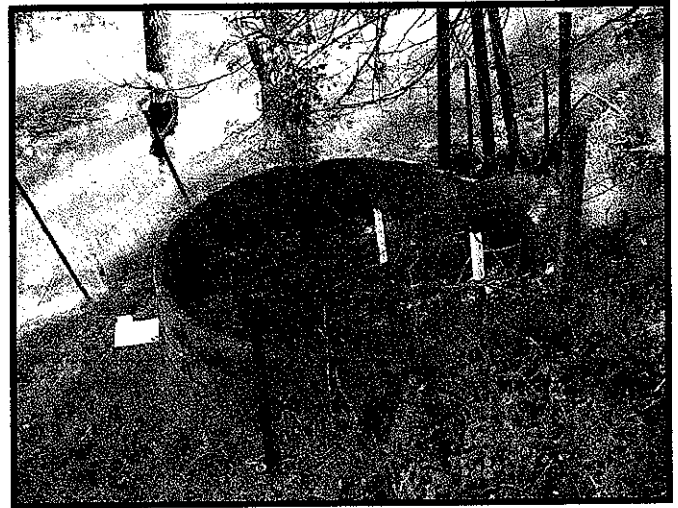
Historic features encountered were all located in the southern ½ of the project area. These included a blown out earthen dam with welded and riveted iron pipe that both supplied water to the reservoir and acted as a spillway. Near the southern end of the dam were several pieces of milled lumber, some of which contained square nails.



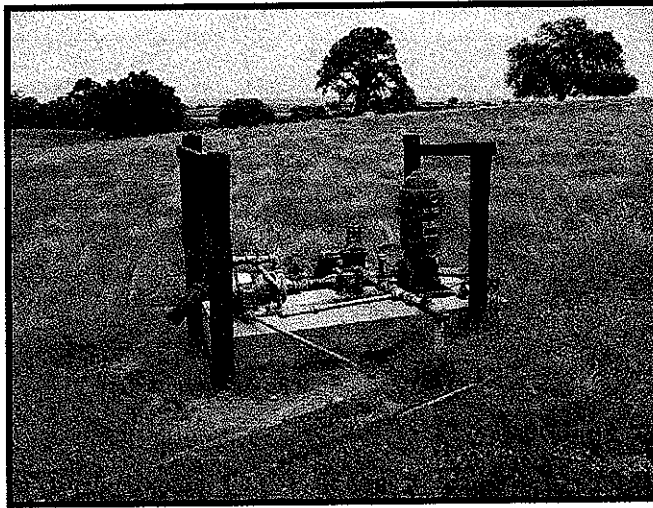
A graded flat area on a natural bench overlooking Huerhuero Creek was discovered. Within the leveled area were a concrete slab, what appeared to be the end of a concrete footing and various small pieces of milled wood and metal. The slab was ~12 x 5 feet in size and oriented north-south. It was situated at UTM coordinate 712490E/3948106N. The footing was also oriented north-south and was located at UTM 712483E/3948123N. It is likely that the footing once supported a small barn.



Down slope (east) from the southern-most end of the level bench was a redwood watering trough. The trough was ~10 feet in diameter, ~3.5 feet deep, and situated just above the bed of Huerhuero Creek (at UTM 712502E/3947991N).



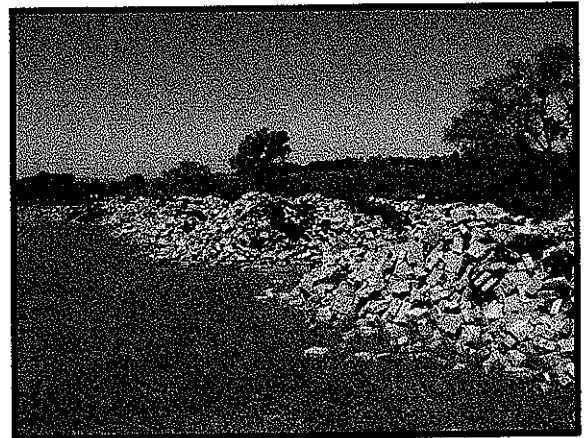
More recent features included a circular concrete footing for a water tank located on a hill within the southern portion of the project area. Just north of this was a wellhead with pump and power supply. The southwestern corner of the project area had evidence of recent farming (most likely grain production).



A large elongated pile of concrete squares was discovered in the north-central portion of the project area. This appeared to be recently dumped.

At the time of the field inspection, the project area was used for cattle grazing and several pregnant cows and young calves were observed.

See the accompanying map for specific



locations of the above listed features.

## **CONCLUSIONS AND INTERPRETATION**

Although no physical remains of prehistoric archaeological resources were discovered during the field inspection, the historical research suggests that such resources may exist within the project area.

The 1874 map on page 5 shows the project area in relation to known historic features. The project area is well away from any mapped historic features of that period, however, historical documentation suggests that this general area was used for sheep herding by both the Mission and later Mexican Rancho and early California periods. Sheep herding camps were generally small and only inhabited for a few months of the year. This use left few permanent structural remains. It is likely that the leveled area with concrete features in the southern portion of the project area represent the remains of such a camp. Materials observed suggest that it would have been in use since the 1930's.

The rest of the features (reservoir/stock pond, well, watering trough, etc.) appear to be related to recent past and contemporary ranching use of the property.

All isolated artifacts and features are typical of recent historic ranching activities. Although they all represent general ranching activities within the project area, none of these features can be considered historically significant based on style, use, or age of manufacture. None of these features was found to meet the criteria for significance as outlined by the Calif. Pub. Res. Code (5024.1, Title 14 CCR, Sect. 4852)

The documentation and mapping of these features within this report serves to mitigate any impacts that might occur to them as a result of project construction and use. Should the owner wish to preserve any of the features as a present-day reminder or example of historical uses, the well and watering trough would provide the most obvious and interesting features.

## **RECOMMENDATIONS**

It is recommended that the proposed project be approved as planned with the stipulation that a qualified historic archaeologist be retained to monitor initial grubbing and grading. This monitoring should be conducted as a precaution to insure that prehistoric or historic artifacts or features that may have been obscured by the dense grass cover are not accidentally disturbed or destroyed.

In the event that prehistoric or historic materials or features are encountered, work should be redirected away from the immediate vicinity of the find until the archaeologist can determine the significance of the resource. In the case of a single isolated historic artifact, the find can be mapped, collected, and construction work proceed normally. If a historic feature is discovered and found to meet the criteria for significance as outlined by the Calif. Pub. Res. Code (5024.1, Title 14 CCR, Sect. 4852), then the monitoring archaeologist will make recommendations for the treatment of the resource. Once the project applicant and county have agreed on the proper treatment of the resource, then work within that area can proceed.

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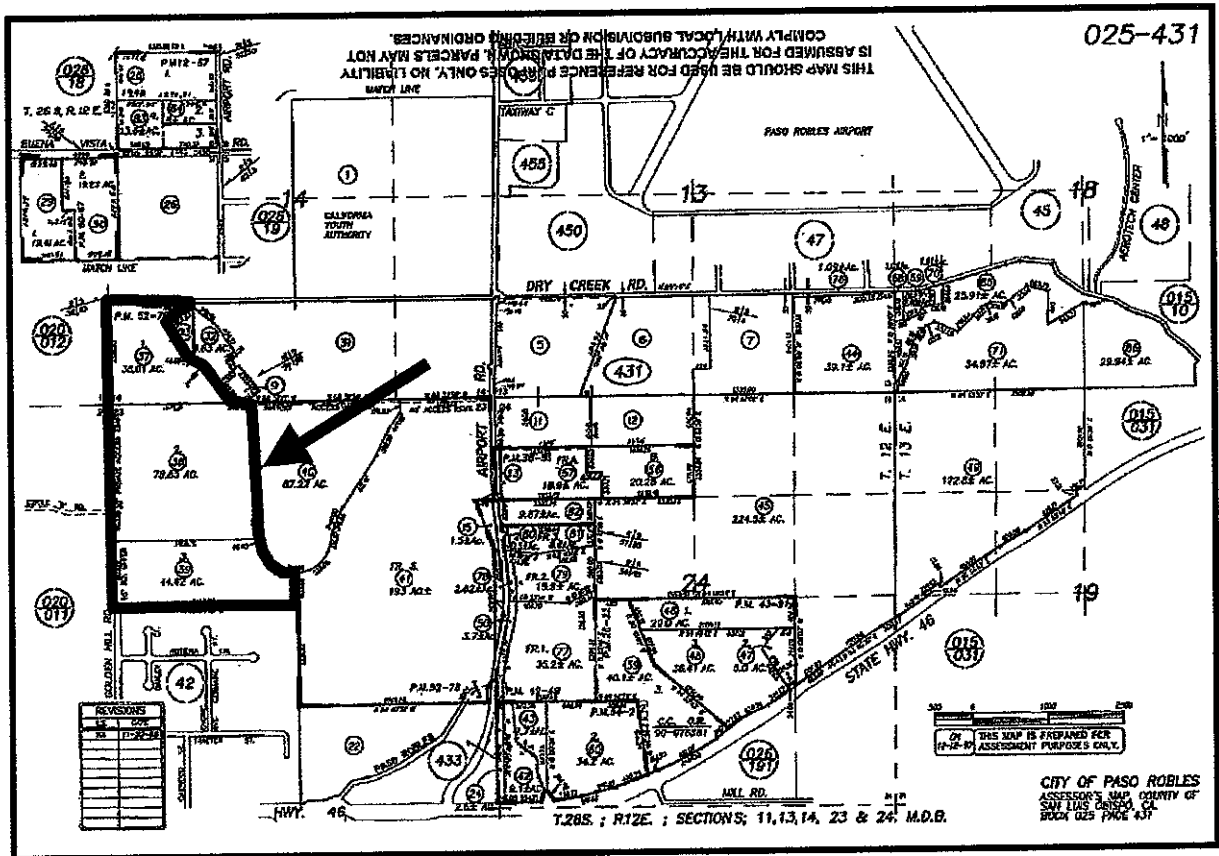
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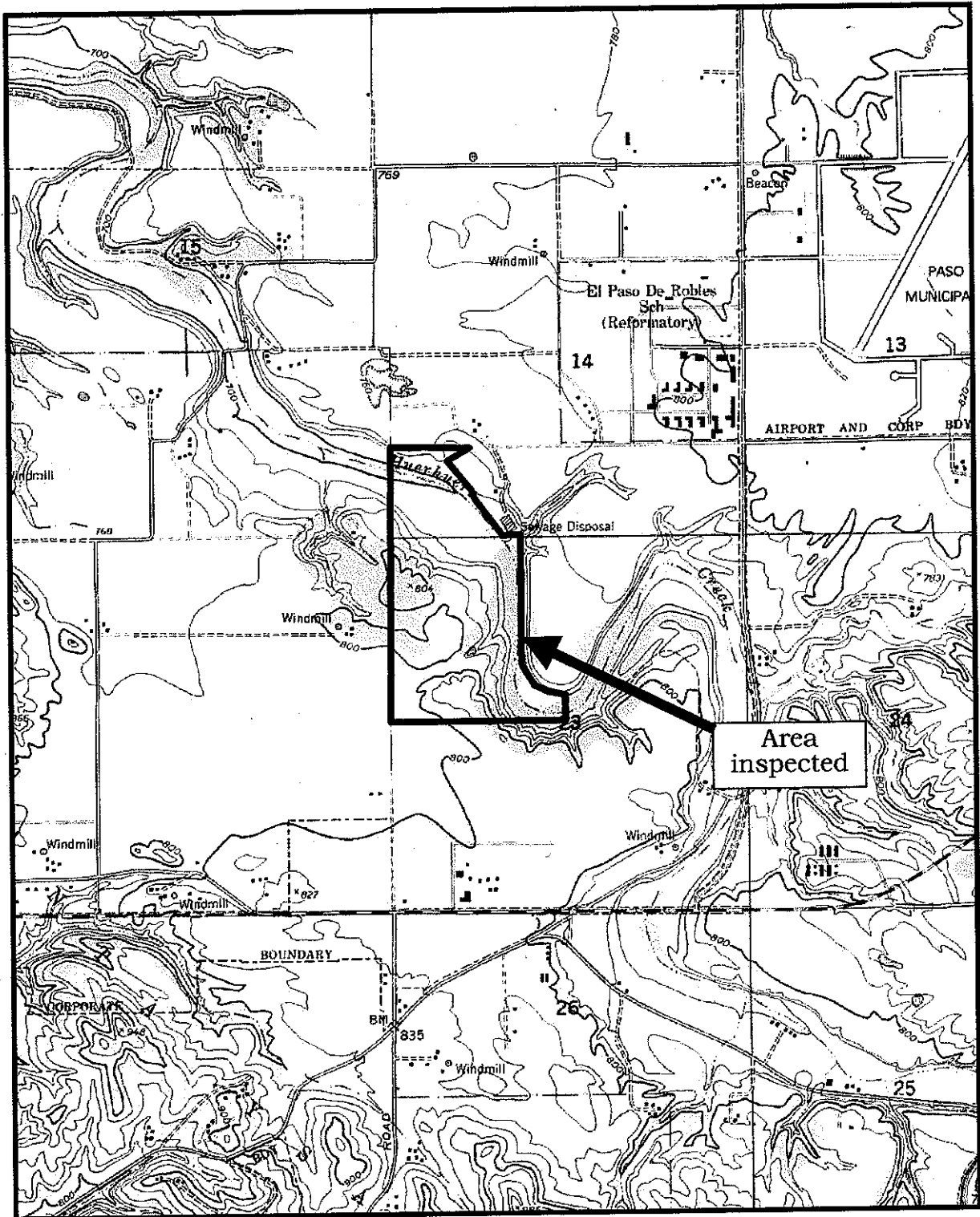
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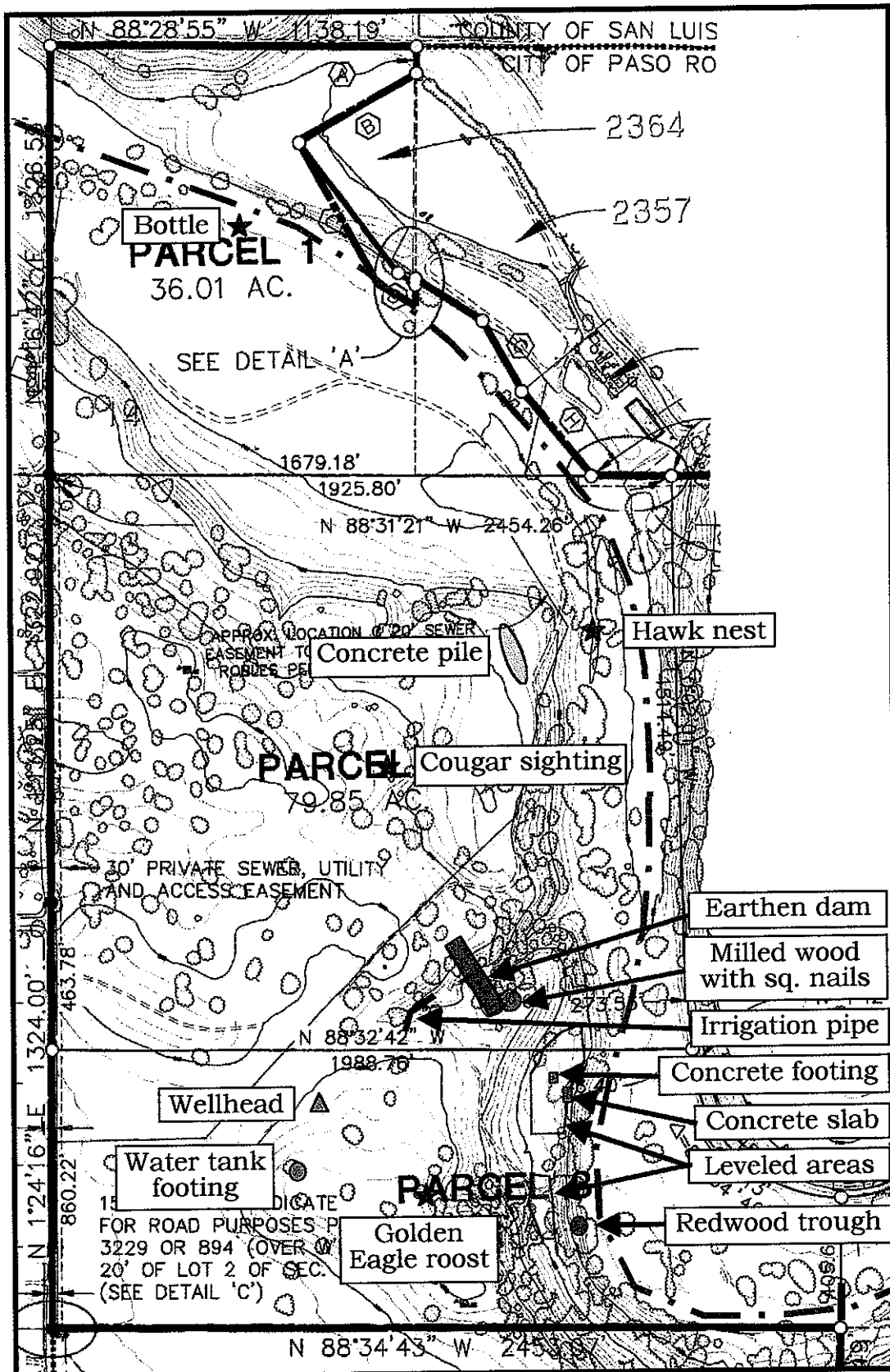


**GENERAL PROJECT LOCATION  
PASO ROBLES USGS QUAD SCALE 1:24,000**

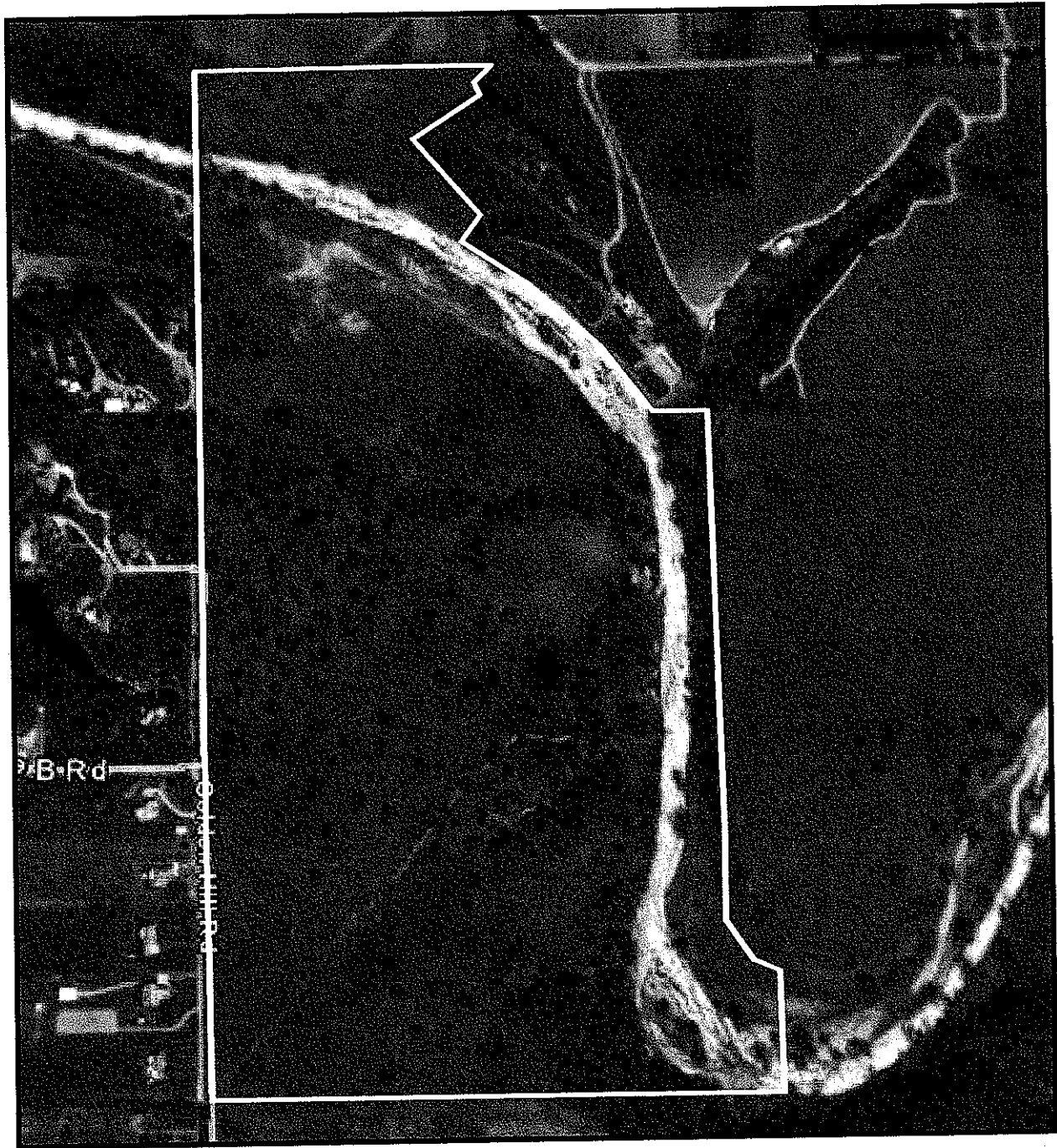




# LOCATIONS OF CULTURAL FEATURES



**AERIAL OF PROJECT AREA**



NORTH COAST ENGINEERING, INC.  
725 CRESTON ROAD SUITE B  
PASO ROBLES, CALIFORNIA 93446

(805) 239-3127

JOB 06/19 MOTOR COACH RESORT  
SHEET NO. 1 OF 1  
CALCULATED BY RLW DATE 1/22/09  
CHECKED BY SKY DATE 1/22/09

SCALE

WATER USAGE COMPARISON  
MOTOR COACH RESORT VS. VINEYARD

MOTOR COACH RESORT

1. USE EXISTING WATER USE AT WINE COUNTRY RV 2008

TOTAL YEAR = 5,543,428 GAL

TOTAL SPACES = 166

USE PER SPACE ANNUALLY =  $5,543,428 / 166 = 33,394$  GAL/YEAR

2. ESTIMATE PASO ROBLES MOTOR COACH RESORT WATER USE.

TOTAL SPACES = 332

TOTAL EST WATER USE =  $332 \times 33,394 \text{ GAL} = 11,096,308$  GAL/YEAR

MOTOR COACH

VINEYARDS

1. VINEYARD WATER USE = 22-24 INCHES PER ACRE

→ USE 22"

1 ACRE OF VINEYARD  $22" / 12" = 1.833 \text{ AF PER ACRE PER YEAR}$

$1.833 \text{ AF} = 1.833 \times 325,851 = 597,383$  GAL/AC

PROPERTY AREA = 160 AC

ASSUME 80 ACRES PLANTED IN VINEYARD

$80 \text{ AC} \times 597,383 \text{ GAL} = 47,790,640$  GAL/YEAR

VINEYARD

VINEYARD WOULD USE 4 TIMES THE AMOUNT OF WATER AS THE MOTOR COACH RESORT

Exhibit H

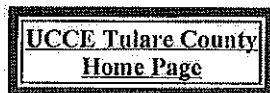
Water Usage Analysis  
GPA 09-001, RZ 09-001, PD 08-001,  
CUP 08-001, & PRAL 07-0293  
(PR Motorcoach Resort)



Tulare County

*Disclaimer: This article is geared towards a Tulare County audience and may not be applicable to other geographical areas.*

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For more information contact: Bill Peacock, Farm Advisor, [wipeacock@ucdavis.edu](mailto:wipeacock@ucdavis.edu)

Publ. # IG1-95

## Water Management for Grapevines

*Bill Peacock\**

The water requirement (evapotranspiration) of a mature vineyard varies from 22 to 28 inches, depending on the size of the leaf canopy. In addition to evapotranspiration, 6 to 8 inches of water may be needed some years for beneficial purposes such as leaching salts and providing frost protection. Also, the efficiency of the irrigation system must be taken into account when figuring the amount of irrigation required for the season. The efficiency of most irrigation systems is 70% to 80%. Winter rainfall provides three to six inches towards the water requirement depending on effective rainfall and the ability of the soil to store water. The bottom line is that vineyards in the San Joaquin Valley are irrigated with 24 to 36 inches of water.

The trellis type and vine vigor affect the size of the leaf canopy and, subsequently, seasonal evapotranspiration. A typical raisin vineyard with a vertical two wire trellis and a seven foot stake will develop a full canopy by early June that will shade about 50- to 60% of the vineyard floor during midday, and seasonal evapotranspiration is about 22 inches. A table grape vineyard with a 42 inch crossarm and a seven foot stake will develop a full canopy by mid-June that will shade 75% or more of the vineyard floor during midday, and the seasonal evapotranspiration is about 28 inches.

Water use by grapevines begins with budbreak in early April. It gradually increases as the canopy develops and temperatures climb. The canopy is fully developed by early to mid-June, and peak water use occurs in June, July, and August. The effect of irrigation on vine growth and fruit development is best discussed by dividing the season into four stages.

**Stage I** covers the period from bud break to bloom (April 1 to May 10). The water requirement during this stage is low with only 2 1/2 inches evapotranspired during the 40-day period. Soil-moisture stored from winter rains is usually adequate to meet evapotranspiration requirements during this stage. Even with no spring irrigation, grapevines rarely exhibit symptoms of water stress during stage I. The exceptions are vineyards on very sandy or shallow soils with limited soil-water storage, or vineyards with covercrops. Irrigations that occur during stage I are primarily for frost protection. The danger of frost is high until mid-April after which the probability of frost diminishes rapidly.

**Stage II** covers the period from bloom to veraison. Veraison is the point when fruit begins to soften or break color, and veraison is in late June or early July for most varieties. Grapevines use 7 to 9 inches of water during this stage (May 10 to July 1). Proper water management is critical during stage II. Rapid cell division is occurring in fruit and water stress can reduce berry size and yields. Many table grape varieties (Thompson Seedless, Flame Seedless, Perlette, Ribier) are girdled at berry set, approximately two weeks after full bloom. Three to four weeks are required for the girdle to heal, and the vines are very susceptible to water stress while the girdle is open. The fruit of Thompson Seedless, Calmeria, Red Globe, and Fantasy Seedless and other varieties are susceptible to sunburn during stage II and water stress should be avoided.

**Stage III**, the ripening phase, covers the period from veraison to harvest. Veraison occurs from late June to early July, but harvest varies from July to November depending on variety. Thompson Seedless, when harvested in early September, evapotranspires 8 to 10 inches during the 60 days it is in stage III. Table grape varieties should be irrigated sufficiently to avoid stress and maximize berry size. Mild water stress may be beneficial for table varieties prone to berry cracking and bunch rot. Raisin growers generally quit irrigating two to five weeks prior to harvest, depending on how sandy the soil, to allow time for terrace preparation. Drip irrigated raisin vineyards may be irrigated closer to harvest. Irrigations are cut back to impose moderate stress to wine grape vineyards prone to bunch rot during stage III. Excessive irrigation during stage III can delay fruit maturity, encourage bunch rot and berry cracking, and delay or reduce wood maturity. Excessive water stress during stage III can reduce berry size, color, maturity, and yield.

**Stage IV** is the postharvest period that concludes with dormancy in early November. The length of stage IV depends on harvest date. Stage IV is about a 60-day period for Thompson Seedless harvested early September, and the water use is 4 to 7 inches. During stage IV irrigations should be applied in amounts to maintain the canopy but not encourage growth. Vines of vigorous varieties will continue to grow or start new growth after harvest and fail to ripen wood if supplied with readily available water. Mild to moderate water stress is beneficial by stopping shoot growth and promoting wood maturity; however, vines should not be allowed to defoliate. In late October or early November, when temperatures are too low for shoot growth, a heavy irrigation is recommended to replenish some of the soil-water reservoir and satisfy the leaching requirement. Vines entering dormancy with a dry root zone tend to have poorer budbreak the following spring.

Table 1 shows the water requirement for a Thompson Seedless table and raisin vineyard during the four stages of vine and fruit development described above. Tables 2 and 3 give seasonal water requirements on a daily basis for a small canopy and large canopy vineyard, respectively.

Symptoms of water stress in vineyards are usually not possible in the San Joaquin Valley until mid-May or early June. The first signs of water stress is a decrease in the angle formed by the axis of the leaf petiole and the plane of the leaf blade. As water stress increase, shoot growth slows and internode growth is inhibited. As water stress becomes more acute the shoot tips and shoot tendrils die. Finally, in extreme water stress leaf abscission occurs, originating with the most mature leaves and progressing towards the shoot tip. Extreme water stress is usually not seen in the San Joaquin Valley until late June or early July. Severe water stress can result in delayed and poor budbreak the following spring, and flower clusters are smaller and reduced in number.

\*Bill Peacock is a University of California Cooperative Extension Farm Advisor in Tulare County

**Table 1. Raisin and Table Grape Vineyard Evapotranspiration During Four Distinct Irrigation States**

		Vineyard Water Use During Irrigation
--	--	--------------------------------------

Irrigation Stage			Days in Irrigation Stage <sup>5</sup>	Stage (inches/acre)	
				Small Canopy	Large Canopy
I <sup>1</sup>	Budbreak to Bloom	(April 1) (May 10)	40	2½	2½
II <sup>2</sup>	Bloom to Veraison	(May 10) (July 1)	51	7	9
III <sup>3</sup>	Veraison to Harvest	(July 1) (Sept 1)	62	8	10
IV <sup>4</sup>	Harvest to Leaf Fall	(Sept 1) (Nov 1)	61	4½	6½
<b>Total Vineyard water use for season</b>				<b>22</b>	<b>28</b>

<sup>1</sup>Water requirement during stage I is supplied primarily by soil-moisture stored from winter rains (except for vineyards on very sandy or shallow soils). It is difficult to stress vines during this stage. Withholding irrigations may help improve berry set.

<sup>2</sup>Don't stress vines during stage II: rapid cell division and berry growth is occurring, girdled vines can't tolerate stress, and fruit is very susceptible to sunburn during stage II.

<sup>3</sup>Deficit irrigation during irrigation stage III (75% of evapotranspiration) will have minimal or no effect on yield. Mild to moderate stress may help reduce rot with tight bunched varieties, or reduce berry cracking in susceptible varieties.

<sup>4</sup>Apply enough water to maintain canopy during irrigation stage IV. Avoid excessive growth or premature defoliation.

<sup>5</sup>Based on Thompson Seedless.

**Table 2. Drip Irrigation Schedules for Vineyards in the San Joaquin Valley**

Gallons Per Acre Per Day for Small Canopy Vineyard <sup>1</sup>  
(Divide values by number of vines per acre to determine gallons/vine/day)

Gal/Acre/Day		Gal/Acre/Day	
<b>April 1-7</b>	200	<b>July 1-7</b>	3900
8-14	500	8-14	3900
15-21	1000	15-21	3800
22-30	1500	22-30	3800
<b>May 1-7</b>	2200	<b>Aug 1-7</b>	3600
8-14	2600	8-14	3500
15-21	3000	15-21	3400
22-31	3300	22-31	3200
<b>June 1-7</b>	3500	<b>September 1-7</b>	3000
8-14	3600	8-14	2700
15-21	3700	15-21	2500
22-30	3700	22-30	2400

<sup>1</sup>Vineyard canopy covers 50% to 60% of the land surface during summer months.

**Table 3**

Gallons Per Acre Per Day for Large Canopy Vineyard <sup>1</sup>  
 (Divide values by number of vines per acre to determine gallons/vine/day)

	<b>Gal/Acre/Day</b>		<b>Gal/Acre/Day</b>
<b>April</b> 1-7	200	<b>July</b> 1-7	5600
8-14	500	8-14	5600
15-21	1000	15-21	5500
22-30	1500	22-30	5500
<b>May</b> 1-7	2200	<b>Aug</b> 1-7	5200
8-14	2600	8-14	5100
15-21	3000	15-21	5000
22-31	3300	22-31	4600
<b>June</b> 1-7	3500	<b>September</b> 1-7	4300
8-14	4300	8-14	4100
15-21	4700	15-21	3700
22-30	5200	22-30	3300

<sup>1</sup>Vineyard canopy covers 75% or more of the land surface during summer months.

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