

Public Draft

# **Initial Study and Mitigated Negative Declaration for the Bottimore Field III Project**

Prepared for

**California Regional Water Quality Control Board  
Central Valley Region**

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# 1 INTRODUCTION

This document presents the Initial Study checklist and Mitigated Negative Declaration (IS-MND) for the Bottimore Field III project. The project consists of a vineyard development on an approximately 223-acre site in Sacramento County, California.

Although establishment of a vineyard on the project site is consistent with the Sacramento County General Plan designations, zoning, and current land uses on the site and in the surrounding area, the land preparation needed to plant the vineyard will result in impacts to wetlands and other waters of the United States. A Department of the Army Permit under Section 404 of the Clean Water Act is required for the discharge of dredged or fill material into waters of the United States. The United States Army Corps of Engineers administers the Section 404 permit program. Also required is Water Quality Certification under Section 401 of the Clean Water Act, which in California is administered by the California Regional Water Quality Control Boards. The California Environmental Quality Act (CEQA) requires that state agencies evaluate potential environmental impacts when authorizing discretionary projects.

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) is the CEQA Lead Agency for this project, and has prepared this Initial Study to provide other agencies and the public with information about potential impacts and the measures needed to mitigate these impacts. This document has been prepared in compliance with the State CEQA Guidelines, California Administrative Code, Title 14, Division 6, Chapter 3.

This IS-MND begins with a background section that provides basic information on the project (location, agency contacts, context, surrounding uses) and a detailed project description. Next are the CEQA Declaration and the checklist, which lists 18 environmental factors to be evaluated for potential effects. Following the checklist, each checklist conclusion is discussed in detail. The last section of the IS-MND includes the mitigation monitoring program, which is the set of mitigation measures to which the project applicant has agreed to be bound. As the Lead Agency, the Central Valley Water Board has the responsibility to oversee and enforce the implementation of these measures.

## **2 BACKGROUND AND PROJECT DESCRIPTION**

### **2.1 BACKGROUND**

**2.1.1 Project Title:** Bottimore Field III Project

**2.1.2 Lead Agency Name and Address:**

California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, California 95670

**2.1.3 Contact Person and Phone Number:**

Genevieve Sparks, Environmental Scientist  
Email: [gsparks@waterboards.ca.gov](mailto:gsparks@waterboards.ca.gov)  
(916) 464-4745

**2.1.4 Project Location:** Sacramento County, California

**2.1.5 Project Sponsor's Name and Address:**

Sutter Home Winery  
Attn: Hal Huffsmith  
P.O. Box 248  
St. Helena, California 94574-0248

**2.1.6 General Plan Designation:** GA 20 and AG-RES

**2.1.7 Zoning:** Ag 80

**2.1.8 Description of Project:** Bottimore Field III Property Vineyard Planting

**2.1.9 Surrounding Land Uses and Setting:**

Surrounding land uses include cattle grazing, agricultural production, vineyard, and rural residential. The project site is currently used for cattle grazing.

**2.1.10 Other Public Agencies whose Approval is Required (e.g., permits, financing approval, or participation agreement):**

U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service

**2.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**

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

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input checked="" type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input checked="" type="checkbox"/>	Mandatory Findings of Significance

## 2.3 PROJECT DESCRIPTION (EXPANDED)

*The text below is an expanded response to the Initial Study checklist Item #8, Project Description*

The approximately 223-acre Bottimore Field III project site is located in Sections 17 and 20, Township 6 North, Range 7 East, MDB&M, Sacramento County, California. The parcel can be found on the Clay and Sloughhouse, California 7.5 Minute USGS Topographic Quadrangles. The current land use on the site is grazing/pastureland. Figure 1 is a vicinity map.

Sutter Home Winery (Applicant) proposes to develop a vineyard on the 223-acre Bottimore Field III site. The project would involve the standard approach to vineyard development in similar soils, which is to prepare the land to provide soil conditions for grape root expansion and exploration. Site preparation will require the use of tractors pulling a straight or beveled shank to a maximum depth of 5 or 6 feet, thus breaking up the soil and allowing deep-rooted perennial plants access to subterranean soil. This procedure will require 2 or 3 passes in various directions, followed by disking the soil to provide a fairly uniform surface to eventually stake and plant the vineyard.

Work would occur during the summer and fall and will not change the general contour of the land. The ground preparation activity may be accompanied by the installation of the drip irrigation main lines, addition of soil amendments and planting a winter cover crop for erosion control on sloping surfaces. Additional disking may be required after the initial work is completed. Because the entire site will be prepared for installation at one time, no “phasing” other than actual planting of the vines will be required. No off-site improvements are required for this project. The equipment associated with the initial ground preparation for vineyard development will be staged on-site. Access to the site will be off of Alta Mesa Road via a gate located across from an existing fire station.

The entire site will be planted with grapes, with the exception of a 40-foot buffer at the north, east, and south boundaries of the site, which will be used as equipment turnaround areas.

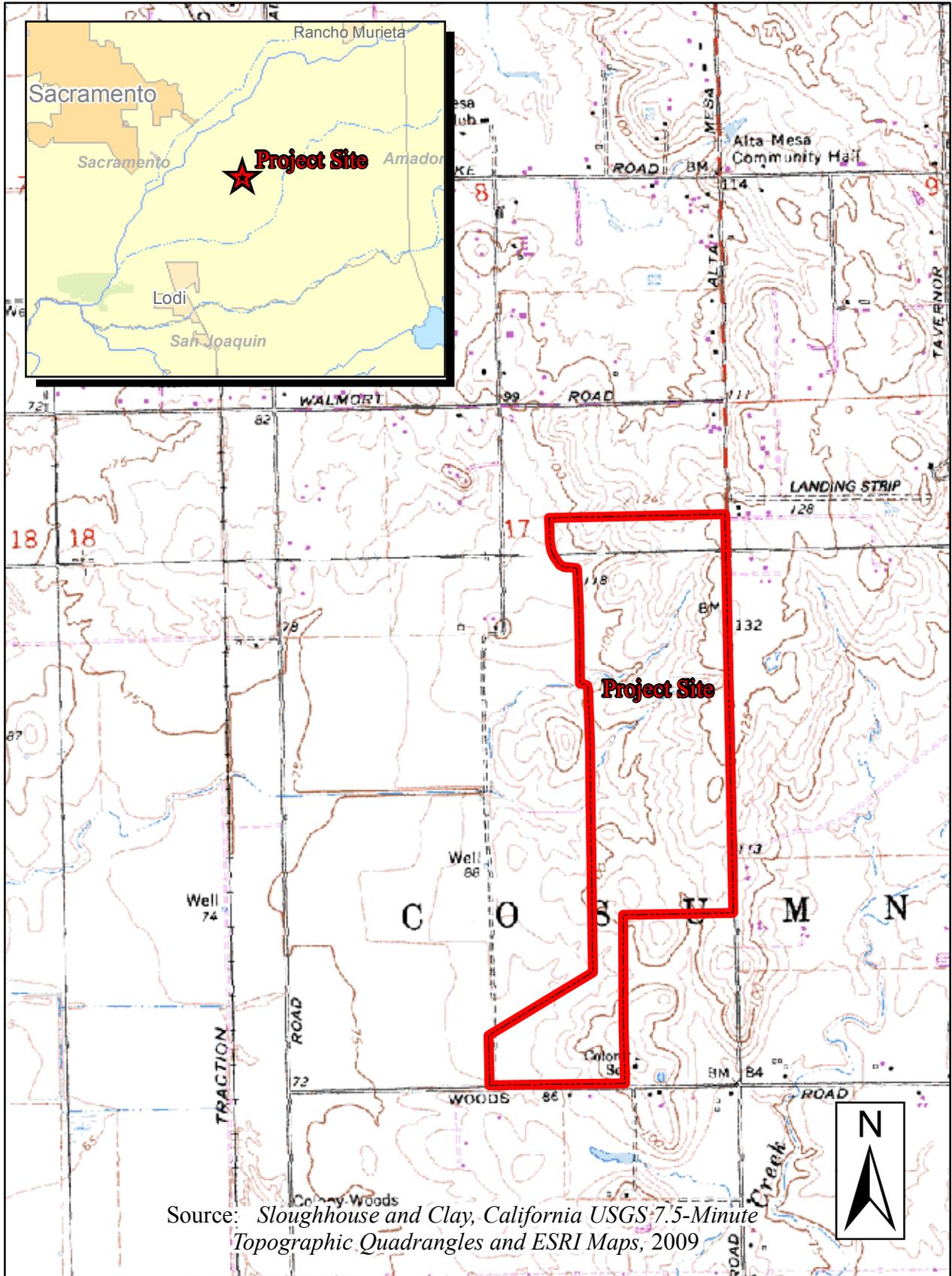


Figure 1  
 Vicinity Map

### 3 DETERMINATION

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Name, Title

California Regional Water Quality Control Board  
Central Valley Region

## 4 ENVIRONMENTAL CHECKLIST

4.1. Aesthetics: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Affected Environment

The proposed project is located in a predominantly agricultural area of southeastern Sacramento County. There is rural residential development immediately south and east of the project site and a fire station located across Alta Mesa Road from the project's eastern boundary. The rural residential community of Wilton is located north of the project site. The majority of the lands between the project site and Highway 99, which is approximately 6.5 miles to the west, are in agricultural production. There are existing vineyards less than one mile to the west of the project site, and the property immediately to the west of the project site is currently being converted to vineyard.

## **Discussion**

- a. Have a substantial adverse effect on a scenic vista?*

### **No Impact**

The area surrounding the project site is predominantly flat, with no distinguishing or scenic features.

- b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?*

### **No Impact**

There are no scenic highways in the vicinity of the project site (CA Department of Transportation 2011). The closest scenic highway is Route 160, located along the western border of Sacramento County, and not visible from the project site.

- c. Substantially degrade the existing visual character or quality of the site and its surroundings?*

### **No Impact**

Since the project proposes an agricultural use, it would be in character with the existing rural character of the site and its agricultural surroundings.

- d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

### **Less Than Significant Impact**

The project will not utilize lights at any time during the day. During the annual harvest of the grapes, lights will be utilized on the site during nighttime harvest activities. Nighttime harvest typically is done between 10 pm and 9 am and for this site would last approximately two weeks. The lighting should not affect views in the area or cause significant glare to any nearby building occupants or passing motorists.

<b>4.2. Agriculture and Forest Resources:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **Affected Environment**

The project site is zoned for general agricultural and agricultural-residential uses. The property was placed in the Sacramento County (California Land Conservation Contract No. 72-AP-080) Williamson Act program by Helen and E. O. Bottimore on 2/4/1972.

### **Discussion**

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping**

**and Monitoring Program of the California Resources Agency, to non-agricultural use?**

**No Impact**

The project will continue the agricultural uses of the property.

**b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?**

**No Impact**

The proposed vineyard development is consistent with the agricultural zoning of the property. The property will remain under Williamson Act contract.

**c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

**No Impact**

The project site is not zoned as forest land, nor will the project require the rezoning of any forest land.

**d. Result in the loss of forest land or conversion of forest land to non-forest use?**

**No Impact**

The land is currently used for cattle grazing. There is no forest land associated with the project site.

**e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?**

**No Impact**

Agricultural uses will continue on the project site. The project will not cause the conversion of land uses on the adjoining properties.

<b>4.3. Air Quality:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **Affected Environment**

The proposed project site is located in Sacramento County, which lies in the Sacramento Valley Air Basin (SVAB) and is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD), one of 35 local air districts in the State.

Air quality within Sacramento County is regulated by such agencies as the U.S. Environmental Protection Agency (EPA), and California Air Resources Board (ARB) at the federal and State levels, respectively, and locally by the SMAQMD. SMAQMD seeks to improve air quality conditions through comprehensive planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the SMAQMD includes the development of programs for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. SMAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and

regulations required by the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA).

Sacramento County is designated as a nonattainment area for National and California Ambient Air Quality Standards for ozone, respirable particulate matter (PM<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>) (ARB 2012).

The proposed project involves conversion of an undeveloped parcel into agricultural uses (i.e., vineyard). Historically, agricultural operations were not required to obtain air quality permits for combustible equipment or animal handling activities. Senate Bill 700, passed in 2003, eliminated the exemption for agricultural operations. If the project were using diesel engines for pumping of irrigation water, air quality permits would be required. However, electricity is available at the project site and would be used to power the well pumps. No air quality permits would be required for the project.

The project would involve the use of motorized equipment during construction (e.g., site preparation, planting) and operation (e.g., harvesting, truck hauling). Each phase is described separately below:

- Site preparation would involve deep ripping of the soil using a D11 Cat with Tier 4 diesel engine. The Tier 4 engine would provide up to a 90% reduction in emissions of diesel particulate matter and 50% reduction in emissions of oxides of nitrogen (NO<sub>x</sub>) as compared to a Tier 3 engine. Site preparation would take approximately two weeks of 16-hour days, for a total of 224 hours.
- Planting of the vines would require the use of Ford pickup trucks and tractors with John Deere Tier 2 engines. Planting would take place in 2013 after all site preparation activities have been completed and will 20 to 25 days, depending on weather.
- Harvesting activities would utilize over-the-row harvesters equipped with John Deere Tier 3 engines. John Deere Tier 3 engines comply with non-road emissions regulations for EPA and ARB. The Tier 3 engine would provide up to a 40% reduction in NO<sub>x</sub> as compared to a Tier 2 engine. Harvest for the proposed project site is estimated to take two weeks per year in the fall for a total of 120 hours per year. First harvest would be expected to occur in 2016.
- Trucking of the harvested grapes will utilize diesel-fueled semi trucks. The trucks will comply with California diesel regulations. Each truck can carry 24 tons of grapes. The estimated harvest for the proposed project site would be 1,500 to 2,000 tons per season. This would equate to 84 truck loads per year that would drive the 25 miles one-way to the winery.

SMAQMD has established air quality thresholds of significance to assist lead agencies in evaluating projects for potential air quality impacts. These thresholds are summarized below (SMAQMD 2009).

- Construction Phase: 85 pounds/day (lb/day) for NO<sub>x</sub>;
- Operational Phase: 65 lb/day for NO<sub>x</sub> and Reactive Organic Gases (ROG); or
- Both Phases: Violation of a State ambient air quality standard for PM<sub>10</sub>, PM<sub>2.5</sub>, or carbon monoxide (CO).

## **Discussion**

### **a. Conflict with or obstruct implementation of the applicable air quality plan?**

#### **Less than Significant**

The emission inventories used to develop a region's air quality attainment plans are based primarily on projected population growth and vehicle miles traveled (VMT) for the region, which are based, in part, on the planned growth identified in regional and local plans. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or local plans could result in increases in VMT above that planned in the attainment plan, further resulting in increases in mobile source emissions that could conflict with a region's air quality planning efforts. Increases in VMT beyond that projected in area plans generally would be considered to have a significant adverse incremental effect on the region's ability to attain or maintain state and federal ambient air quality standards.

The proposed project is consistent with the land use designation (i.e., agricultural) in the County's General Plan, on which air quality attainment planning efforts are based. In addition, the proposed project would require two full-time employees and up to 20 seasonal/part-time workers for up to 60 days during the year. Construction activities would require a maximum of 40 construction workers for a relatively short period of time (i.e., less than one year). This is not the type of project that would lead to regional population growth beyond what is planned. Consequently, project implementation would not conflict with or obstruct implementation of SMAQMD's Air Quality Attainment Plan.

Thus, implementation of the proposed project would not conflict with or obstruct implementation of any air quality planning efforts. As a result, this impact would be **less than significant**.

### **b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

#### **Less Than Significant with Mitigation**

The proposed project would result in emissions of criteria air pollutants and precursors, including ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with construction (short-term) and operation (long-term). Emissions of criteria air pollutants and precursors associated with the project were calculated using applicable portions of the California Emissions Estimator Model (CalEEMod), as recommended by SMAQMD. CalEEMod allows for the input of project-specific information to estimate emissions generated by the use of onsite heavy equipment (e.g., tractors, graders) from fugitive dust and exhaust emissions, worker commute trips, and haul truck trips. Input parameters were based on project-specific information, default model settings, and reasonably conservative assumptions. Emissions from construction and operation are described separately below.

### ***Short-Term Construction-Generated Emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>.***

Construction emissions are described as “short-term” or temporary in duration and may represent a significant impact on air quality, especially in the case of PM<sub>10</sub>. Construction-related activities would result in project-generated emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> (a subset of PM<sub>10</sub>) from site preparation (e.g., clearing, soil disking, soil ripping), use of off-road equipment, material delivery, worker commute exhaust emissions, and vehicle travel. Fugitive dust emissions are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and VMT on- and off-site. Ozone precursor emissions of ROG and NO<sub>x</sub> are associated primarily with construction equipment exhaust.

The proposed project would involve the conversion of 223 acres of what is currently cattle grazing land to a vineyard for wine production. Site preparation would take place for approximately two weeks in the fall of 2012 and the site would be disked again in the spring of 2013 for approximately one week. Planting would occur in 2013 as soon as site preparation activities are complete. Please see Appendix A for model input and output parameters, detailed assumptions, and daily construction emissions estimates. Construction emissions are summarized in Table 1, below.

<b>TABLE 1 Summary of Project-Generated Construction-Related Criteria Air Pollutant Emissions</b>								
	ROG <sup>1</sup>	NO <sub>x</sub> <sup>1</sup>	PM <sub>10</sub> <sup>1</sup>			PM <sub>2.5</sub> <sup>1</sup>		
			Fugitive	Exhaust	Total	fugitive	exhaust	Total
	lb/day							
<b>2012</b>								
Site Preparation	0.3	5.3	16.9	<0.1	16.9	<0.1	<0.1	<0.1
<b>Maximum (2012)<sup>2</sup></b>	<b>0.3</b>	<b>5.3</b>	<b>16.9</b>	<b>&lt;0.1</b>	<b>16.9</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
<b>2013</b>								
Site Preparation	0.3	5.3	26.3	<0.1	26.3	<0.1	<0.1	<0.1
Planting	8.6	50.0	8.0	2.0	10.0	<0.1	2.0	2.0
<b>Maximum (2013)<sup>2</sup></b>	<b>8.6<sup>2</sup></b>	<b>50.0<sup>2</sup></b>	<b>26.3<sup>2</sup></b>	<b>2.0<sup>2</sup></b>	<b>26.3<sup>2</sup></b>	<b>&lt;0.1<sup>2</sup></b>	<b>2.0<sup>2</sup></b>	<b>2.0<sup>2</sup></b>
Notes: ROG=reactive organic gases; NO <sub>x</sub> =oxides of nitrogen; PM <sub>10</sub> =respirable particulate matter with an aerodynamic resistance diameter of 10 microns or less; PM <sub>2.5</sub> =fine particulate matter with an aerodynamic resistance diameter of 2.5 microns or less; lb/day=pounds per day. Refer to discussion below and attachment for all detailed modeling input and output. The sum of the values presented may not match totals exactly due to rounding. <sup>1</sup> Exhaust emissions of ROG, NO <sub>x</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> represent mitigated values from the use of Tier 2 and Tier 4 diesel engines. <sup>2</sup> Values in this row represent worst-case daily emissions for ROG, NO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> . Source: Modeling conducted by Ascent Environmental, Inc., 2012								

Based on the modeling conducted, construction of the proposed project would result in maximum daily emissions of approximately 9 lb/day of ROG, 50 lb/day of NO<sub>x</sub>, 26 lb/day of PM<sub>10</sub> and 2 lb/day of PM<sub>2.5</sub> in 2013.

SMAQMD has not established a threshold of significance for construction-generated ROG emissions because those attributable to construction equipment exhaust are generally low and those from the application of architectural coatings are regulated by Rule 442. The proposed project would not include any structures and therefore no ROG emissions from the application of architectural coatings would occur. Daily unmitigated emissions of the ozone precursor NO<sub>x</sub> would not exceed SMAQMD's significance threshold of 85 lb/day. As described above, construction equipment would be equipped with Tier 4 diesel engines, which provide up to a 90% reduction in exhaust emissions of PM<sub>10</sub> and 50% reduction in NO<sub>x</sub> as compared to a Tier 3 engine. As shown in Table 1 above, exhaust emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would be minimal (i.e., less than 5 lb/day). However, vehicle travel associated with transport of grapes on paved and unpaved roads would result in fugitive PM emissions. Because Sacramento County is a non-attainment area for the State and Federal PM<sub>10</sub> and PM<sub>2.5</sub> ambient air quality standards, the project could contribute to an existing or projected air quality violation. The following mitigation measures, to which the Applicant has agreed to be bound, would reduce this impact to less-than-significant levels:

### **Mitigation Measure AIR-1:**

The Applicant shall implement the following air quality control measures during all construction (e.g., site preparation and planting) activities:

- Apply water or a stabilizing agent when necessary to exposed surfaces in sufficient quantity to prevent generation of dust plumes.
- Discontinue construction activities that generate substantial (i.e., visible) dust associated with unpaved surfaces that affect off-site sensitive receptors during windy conditions.
- Ensure that all construction and grading equipment is properly maintained.
- Ensure that construction personnel turn off equipment when equipment is not in use.
- Ensure that all vehicles and compressors utilize exhaust mufflers and engine enclosure covers (as designed by the manufacturer) at all times.
- When feasible, use electric construction power for construction operations, in lieu of diesel-powered generators to provide adequate power for man/material hoisting, crane, and general construction operations.
- Suspend heavy-equipment operations during first-stage and second-stage smog alerts.

### **Significance after Mitigation**

Implementation of the above mitigation measure would result in an approximate 75% reduction in  $PM_{10}$  and  $PM_{2.5}$  (SMAQMD 2009). Therefore, implementation of the above mitigation measure would reduce emissions of  $PM_{10}$  and  $PM_{2.5}$  to a less-than-significant level. This impact is considered **less than significant with mitigation incorporated**.

### ***Long-Term Project-Generated Operational (Regional) Emissions of ROG, $NO_x$ , $PM_{10}$ and $PM_{2.5}$ .***

The proposed project would not include any new area or stationary sources of air pollutant emissions. Operation of the proposed project would result in emissions of ROG,  $NO_x$ ,  $PM_{10}$ , and  $PM_{2.5}$  from onsite equipment used during harvesting activities and mobile sources associated with offsite hauling of harvested material and worker commute trips. Harvesting would begin in 2016 and would require the use of grape harvesters and tractors for a total of 120 hours per year. Harvesting is expected to require 84 truck haul trips per year, two full-time workers, and a maximum of 20 workers for up to 60 days of the year. The estimated emissions associated with operation of the proposed project are summarized in Table 2 and described in more detail in Appendix A.

**TABLE 2      Summary of Project-Generated Operational-Related  
Criteria Air Pollutant Emissions**

	ROG	NO <sub>x</sub> <sup>1</sup>	PM <sub>10</sub>			PM <sub>2.5</sub>		
			Fugitive	Exhaust	Total	Fugitive	Exhaust	Total
			lb/day					
<b>2016</b>								
Onsite Activities (e.g., harvesting)	0.7	4.8	7.9	0.3	8.1	<0.1	0.3	0.3
Mobile (harvest hauling, worker commute trips)	0.5	4.8	5.1	0.2	5.3	<0.1	0.2	0.2
<b>Maximum (2016)<sup>2</sup></b>	<b>1.2<sup>3</sup></b>	<b>9.6<sup>3</sup></b>	<b>13<sup>3</sup></b>	<b>0.5<sup>3</sup></b>	<b>13.4<sup>3</sup></b>	<b>&lt;0.1<sup>3</sup></b>	<b>0.5<sup>3</sup></b>	<b>0.5<sup>3</sup></b>
Notes: ROG=reactive organic gases; NO <sub>x</sub> =oxides of nitrogen; PM <sub>10</sub> =respirable particulate matter with an aerodynamic resistance diameter of 10 microns or less; PM <sub>2.5</sub> =fine particulate matter with an aerodynamic resistance diameter of 2.5 microns or less; lb/day=pounds per day. Refer to discussion below and attachment for all detailed modeling input and output. The sum of the values presented may not match totals exactly due to rounding. <sup>1</sup> Exhaust emissions of NO <sub>x</sub> , represent mitigated values from the use of Tier 3 diesel engines. <sup>2</sup> Values in this row represent maximum daily emissions for ROG, NO <sub>x</sub> , PM <sub>10</sub> , and PM <sub>2.5</sub> . <sup>3</sup> Assumes harvesting and worker commute would occur simultaneously with planting activities. Source: Modeling conducted by Ascent Environmental, Inc., 2012								

Implementation of the proposed project would not result in long-term operational emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> that exceed SMAQMD’s thresholds of significance (65 lb/day for ROG and NO<sub>x</sub>) or substantially contribute to concentrations that exceed the NAAQS or CAAQS. Additionally, as described above in the setting, harvesters used during the operational phase would be equipped with Tier 3 engines, which comply with non-road emissions regulations and provide up to a 40% reduction in NO<sub>x</sub> as compared to a Tier 2 engine. For these reasons, operation of the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This impact is considered less than significant.

**Local CO**

CO concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals.

The proposed project would result in very few additional vehicle trips on local roadways. Implementation of the proposed project would not trigger any of SMAQMD’s screening criteria for local CO impacts, identified in its CEQA Guide to Air Quality Assessment (SMAQMD 2009: pg 4-14). Specifically, no affected intersections would experience more than 31,600 vehicles per hour. Thus, implementation of the proposed project would not result in or contribute to local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively. This impact would be **less than significant**.

- c. **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

**Less than Significant with Mitigation**

A project's individual emissions, when combined with past, present, and future projects, contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's cumulative impact on air quality would be considered significant (SMAQMD 2009:p. 8-1).

In developing thresholds of significance for air pollutants, the SMAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. In other words, SMAQMD's thresholds identified above in item "b" are cumulative impact thresholds.

As presented in "b", unmitigated project-generated construction emissions of PM<sub>10</sub> and PM<sub>2.5</sub> associated with fugitive dust may contribute to nonattainment conditions for PM<sub>10</sub> and PM<sub>2.5</sub>. Dust Control Mitigation Measures identified in "b" would reduce the project's contribution to this cumulative impact to a less-than-significant level. This impact would be **less than significant with mitigation incorporated**.

- d. **Expose sensitive receptors to substantial pollutant concentrations?**

**Less Than Significant**

Exposure of sensitive receptors to substantial pollutant concentrations of criteria air pollutants were addressed above in items "a", "b", and "c". This section is focused on exposure of sensitive receptors to emissions of toxic air contaminants (TACs) (i.e., diesel particulate matter; asbestos).

***Short-Term Construction Emissions***

The project would result in short-term diesel exhaust emissions from on-site construction equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by the ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003: Appendix K-1), so is the focus of this discussion. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are

higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project (OEHHA 2001: p.7).

The primary source of diesel PM from construction activities would be primarily due to heavy equipment used during site preparation (e.g., soil ripping, soil disking) of the proposed vineyard. Sensitive receptors surrounding the project site include a residential neighborhood. Based on the emission modeling shown above under section “b”, the highest level of diesel PM associated with exhaust that would occur on the worst construction day would be 2 lb/day. Additionally, as described above in the setting, construction equipment would be equipped with Tier 2 and Tier 4 engines which reduce emissions of diesel particulate matter. Construction activities are estimated to last approximately two weeks in 2012 and two weeks in 2013. Due to the relatively short period of construction time, the minimal amount of estimated diesel PM emissions, and cleaner burning engines that would be used, and in combination with the dispersive properties of diesel PM (Zhu et al. 2002: p. 4323-4335), short-term construction activities would not result in the exposure of sensitive receptors to levels that would result in a health hazard or exceed applicable standards. This impact would be less than significant.

Asbestos is listed as a TAC by the ARB (ARB 2010).

The proposed project would not include any demolition activities or the removal of any materials that could potentially contain asbestos, and is not located in an area of the state likely to contain naturally occurring asbestos in soil (Churchill and Hill 2000). Therefore it is not anticipated that emissions of asbestos would occur associated with project construction. This impact would be **less than significant**.

### ***Long-Term Operational Emissions***

The project would not involve installation of any stationary sources of TAC, and mobile sources of diesel PM (e.g., harvesters) would be equipped with Tier 3 diesel engines which would substantially reduce emissions of diesel PM compared with Tier 2 engines. Taken in combination with the dispersive properties of diesel PM, it is not anticipated that TACs associated with operation of proposed project would expose sensitive receptors to substantial or unhealthy pollutant concentrations. This impact is **less than significant**.

#### **e. Create objectionable odors affecting a substantial number of people?**

##### **Less Than Significant**

The proposed project is agricultural in nature, which can occasionally result in odor sources. However, the project proposes a vineyard land use, which is typically considered less-odor-intensive than other agricultural activities that involve raising of livestock.

According to SMAQMD, the proposed land use type is not considered a major source of odors (SMAQMD 2009: p. 7-2). In addition, the project is consistent with current agricultural zoning and would not result in the exposure of a substantial number of people to objectionable odors. This impact is less than significant.

<b>4.4. Biological Resources:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Affected Environment

Section 404 of the Clean Water Act requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (Corps) for activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. Where a project may affect federally-listed species, the Corps must consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS). Incidental “take” of federally-listed species is authorized through the issuance of a Biological Opinion (B.O.).

### *General Site Conditions*

The project site consists of gently rolling topography containing annual grassland which is characterized by wild oat (*Avena sp.*), medusahead grass (*Taeniatherum caput-medusae*), ryegrass (*Lolium multiflorum*), and Mediterranean barley (*Hordeum murinum*). Other common species include hairy hawkbit (*Leontodon tarazacoides*), yellow star-thistle (*Centaurea solstitialis*), and filaree (*Erodium botrys*). The property was historically dry-farmed for wheat and is currently being used for cattle grazing.

### *Wetlands and Other Waters of the United States*

The Corps concurred with a preliminary jurisdictional determination on July 18, 2011. The project site contains 1.331 acres of seasonal wetlands, 1.949 acres of seasonal wetland swales, and 0.045 acre of drainage ditches, for a total of 3.326 acres of waters of the U.S. These features are shown on Figure 2 are described below.

**Seasonal Wetlands:** The seasonal wetlands on the site generally occur in depression areas that sustain either long-term ponding or saturated conditions during the winter and early spring. Plant species documented within the seasonal wetland habitats include morning glory (*Convolvulus arvensis*), tall flatsedge (*Cyperus eragrostis*), ryegrass, curly dock (*Rumex crispus*), broad-leaf plantain (*Plantago major*), speedwell (*Veronica sp.*), dallis grass (*Paspalum dilatatum*), annual hairgrass (*Deschampsia danthonioides*), hyssop loosestrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), canary grass (*Phalaris sp.*), sticky tarweed (*Holocarpha virgata*), little quaking grass (*Briza minor*), and mannagrass (*Glyceria occidentalis*).

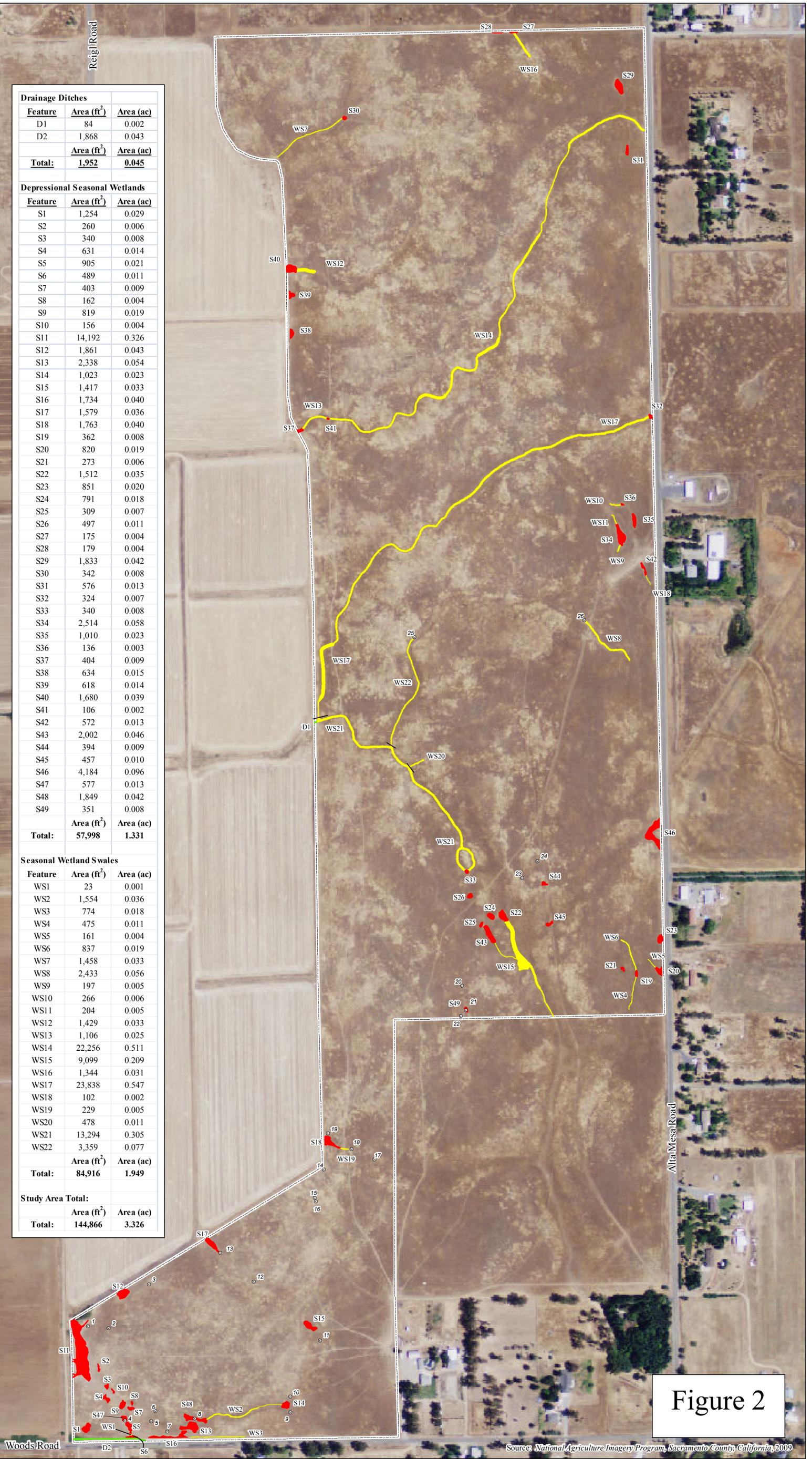
**Seasonal Wetland Swales:** The seasonal wetland swales on the project site are ephemerally wet areas that carry runoff to larger drainages and creeks. They sustain soil saturation to the surface for a long duration following periods of heavy precipitation in the winter and early spring before drying up in the late spring. However, the swales do not sustain ponding conditions as a rule.

Drainage Ditches		
Feature	Area (ft <sup>2</sup> )	Area (ac)
D1	84	0.002
D2	1,868	0.043
<b>Total:</b>	<b>1,952</b>	<b>0.045</b>

Depressional Seasonal Wetlands		
Feature	Area (ft <sup>2</sup> )	Area (ac)
S1	1,254	0.029
S2	260	0.006
S3	340	0.008
S4	631	0.014
S5	905	0.021
S6	489	0.011
S7	403	0.009
S8	162	0.004
S9	819	0.019
S10	156	0.004
S11	14,192	0.326
S12	1,861	0.043
S13	2,338	0.054
S14	1,023	0.023
S15	1,417	0.033
S16	1,734	0.040
S17	1,579	0.036
S18	1,763	0.040
S19	362	0.008
S20	820	0.019
S21	273	0.006
S22	1,512	0.035
S23	851	0.020
S24	791	0.018
S25	309	0.007
S26	497	0.011
S27	175	0.004
S28	179	0.004
S29	1,833	0.042
S30	342	0.008
S31	576	0.013
S32	324	0.007
S33	340	0.008
S34	2,514	0.058
S35	1,010	0.023
S36	136	0.003
S37	404	0.009
S38	634	0.015
S39	618	0.014
S40	1,680	0.039
S41	106	0.002
S42	572	0.013
S43	2,002	0.046
S44	394	0.009
S45	457	0.010
S46	4,184	0.096
S47	577	0.013
S48	1,849	0.042
S49	351	0.008
<b>Total:</b>	<b>57,998</b>	<b>1.331</b>

Seasonal Wetland Swales		
Feature	Area (ft <sup>2</sup> )	Area (ac)
WS1	23	0.001
WS2	1,554	0.036
WS3	774	0.018
WS4	475	0.011
WS5	161	0.004
WS6	837	0.019
WS7	1,458	0.033
WS8	2,433	0.056
WS9	197	0.005
WS10	266	0.006
WS11	204	0.005
WS12	1,429	0.033
WS13	1,106	0.025
WS14	22,256	0.511
WS15	9,099	0.209
WS16	1,344	0.031
WS17	23,838	0.547
WS18	102	0.002
WS19	229	0.005
WS20	478	0.011
WS21	13,294	0.305
WS22	3,359	0.077
<b>Total:</b>	<b>84,916</b>	<b>1.949</b>

Study Area Total:		
Feature	Area (ft <sup>2</sup> )	Area (ac)
<b>Total:</b>	<b>144,866</b>	<b>3.326</b>

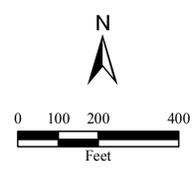


**Figure 2**

Source: National Agriculture Imagery Program, Sacramento County, California, 2009

**Bottimore Property  
Field III**  
Revised Wetland Delineation  
Sacramento County, California

- Drainage Ditch
- Depressional Seasonal Wetland
- Seasonal Wetland Swale
- Data Point
- Study Area Boundary (+/- 222 acres)



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Prepared Date: May 2011

Revised: June 24, 2011

Aerial Photo: July 3, 2009

The seasonal wetland swales support a seasonal wetland plant community including hairy hawkbit, Mediterranean barley, ryegrass, hyssop loosestrife, and toad rush. The adjacent uplands is marked by a distinct rise in landscape position lacking indicators of wetland hydrology and/or hydric soils, and the emergence of an upland plant community dominated by annual grasses.

**Drainage Ditch:** A drainage ditch was mapped at the southwest portion of the project site, adjacent to Woods Road. The ditch is a manmade feature which in the past drained irrigation water from the adjoining agricultural field.

#### *Proposed Impacts to Waters of the U.S.*

The project proposes to fill 3.326 acres of waters of the United States, including 1.331 acres of seasonal wetlands, 1.949 acres of seasonal wetland swale, and 0.045 acre of drainage ditch. The wetlands will be filled as part of site preparation for vineyard planting.

#### *Special Status Species*

The wetlands on the project site are potential habitat for the federally-listed vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardii*). The northern  $\frac{3}{4}$  of the project site is located within vernal pool fairy shrimp Critical Habitat Unit 14A and vernal pool tadpole shrimp Critical Habitat Unit 9B.

Limited sampling of the wetlands on the site did not detect the vernal pool fairy shrimp or vernal pool tadpole shrimp. The USFWS reviewed the available technical information and conducted numerous site visits to the property, and determined that only a few of the wetland features on the site, totaling 0.411 acre, provide suitable habitat for the vernal pool fairy shrimp. The USFWS determined that the wetlands on the site did not constitute suitable habitat for the vernal pool tadpole shrimp.

Per guidelines issued by the USFWS, ground-disturbing activities within 250 feet of potential habitat for the listed vernal pool invertebrate species are considered to have an indirect impact on the species as well. Approximately 0.03 acre of wetland within 250 feet of the project boundaries has been determined to be potential habitat for the vernal pool fairy shrimp and may be indirectly impacted by project activities.

Other federally-listed species potentially occurring on the project site include the threatened slender Orcutt grass (*Orcuttia tenuis*), the endangered Sacramento Orcutt grass (*Orcuttia viscida*), and the threatened Central California distinct population segment of the Central California tiger salamander (*Ambystoma californiense*)(CTS). A portion of the project site is within Critical Habitat Unit 3 for the Sacramento Orcutt grass.

On May 11, 2012, the USFWS issued a B.O. to the Corps which determined that the project is likely to adversely affect the vernal pool fairy shrimp. The USFWS determined that the project is not likely to adversely affect the vernal pool tadpole shrimp and CTS based on the lack of suitable habitat on the project site. The USFWS also determined that the project was not likely to adversely affect the slender Orcutt grass and Sacramento Orcutt grass due to negative results from rare plant surveys conducted on the project site. The B.O. is included in Appendix B.

The project site is also considered foraging habitat for the Swainson's hawk (*Buteo swainsoni*), which is listed as threatened by the State of California. The Swainson's hawk nests in large trees in riparian systems or adjacent to agricultural fields and pastures. They generally hunt by soaring and often catch prey by following agricultural equipment and capturing animals attempting to escape from the farm equipment. Vegetation types/agricultural crops that are considered to be small mammal and insect foraging habitat for Swainson's hawks include alfalfa, fallow fields, low-growing row or field crops such as beet or tomato, dry-land pasture, irrigated pasture, non-flooded rice land, and cereal grain crops, including corn after harvest. Vineyards and orchards are generally not considered to be Swainson's hawk foraging habitat because the dense vine and tree canopy precludes access to prey species on the ground.

The California Department of Fish and Game (DFG) has issued a staff report regarding mitigation requirements for the Swainson's hawk in the Central Valley of California. The mitigation requirements are based on a project's proximity to an active Swainson's hawk nest tree. Based on a review of DFG's Natural Diversity Data Base, there are no active Swainson's hawk nest trees within one mile of the project site, but there are several active nest trees within five miles of the project site. According to the DFG staff report, projects within five miles of an active nest tree but greater than one mile from the nest tree shall provide 0.75 acre of Habitat Management (HM) land for each acre of urban development authorized (0.75:1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to DFG) on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk.

Figure 3 shows the occurrences of the species listed above as reported to the California Natural Diversity Data Base. The critical habitat units discussed above are also shown.

## **Discussion**

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

### **Less than Significant with Mitigation**

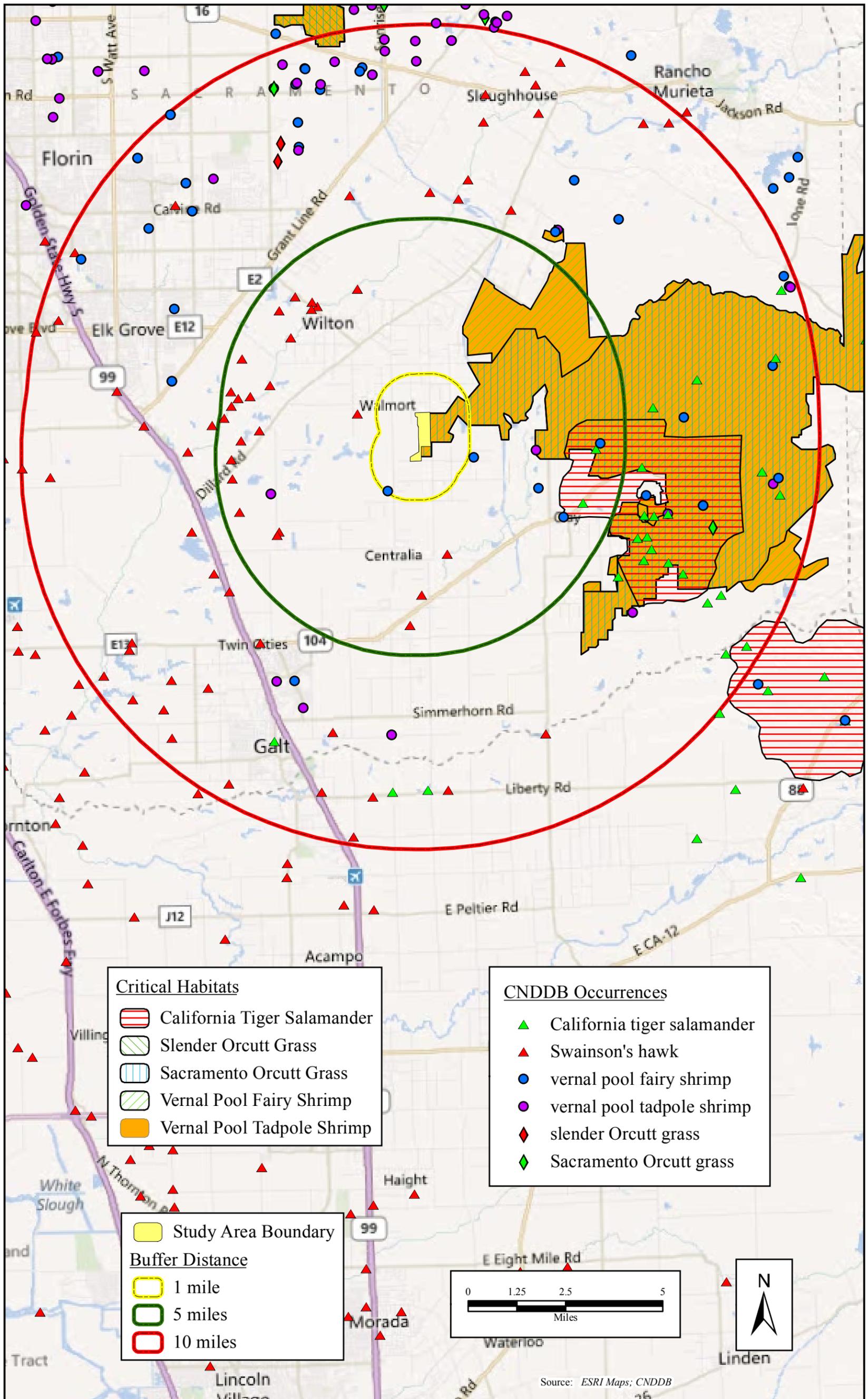


Figure 3  
Select CNDDDB Occurrences  
within 10-Mile Radius

The project will impact 3.326 acres of seasonal wetlands, including 0.411 acre of potential habitat for the federally-listed vernal pool fairy shrimp. The project will also impact 223 acres of Swainson's hawk foraging habitat that is within five miles of an active nest tree.

The proposed mitigation listed below includes mitigation for both impacts to waters of the U.S. and impacts to potential habitat for the listed vernal pool fairy shrimp.

### **Mitigation Measure BIO-1**

Mitigation for direct impacts to 0.411 acre and indirect impacts to 0.03 acre of potential vernal pool fairy shrimp habitat will be done in accordance with the May 11, 2012, B.O. issued by the USFWS.

#### Preservation credits for direct/indirect effects to potential habitat – 2:1 ratio:

$$(0.411 + 0.03) \times 2 = 0.882 \text{ acre}$$

The Applicant will purchase 0.882 acre of vernal pool preservation habitat credits from the Corps- and USFWS-approved Gill Ranch Vernal Pool Preservation Bank. The mitigation credits will be purchased prior to work in any waters of the U.S. or wetlands that may potentially support the listed vernal pool fairy shrimp.

#### Restoration credits for direct effects to potential habitat – 1:1 ratio:

$$0.411 \text{ acre} \times 1 = 0.411 \text{ acre}$$

In order to meet Corps and Central Valley Water Board requirements for replacement of wetland functions and services on the project site, a total of 3.326 acres of vernal pool creation/restoration habitat will be preserved prior to project initiation.

In lieu of purchasing vernal pool creation/restoration credits from a mitigation bank, the Applicant proposes to preserve 3.326 acres of created vernal pool habitat on the Gill Ranch property. These vernal pools were created in 2007 as mitigation for a project which was never constructed. Details are provided below.

Background: The constructed vernal pools were intended to serve as mitigation for impacts to waters of the U.S. (including vernal pool branchiopod habitat) that would occur during the implementation of the Douglas 103 Project. The Mitigation Area design and supporting documents had been submitted to the USFWS when the Douglas 103 Project was halted as a result of litigation. Since construction equipment was already on-site at Gill Ranch constructing wetlands for other agency-approved projects, Conservation Resources, LLC requested USFWS permission to move forward with the construction of the now former

Douglas 103 wetlands following agency approval of the Construction Plan Set. Authorization to construct these features was issued by the USFWS on July 30, 2007.

Acreage: As previously agreed with the USFWS, Conservation Resources, LLC may allocate the remaining 6.706 acres of constructed wetlands to serve as mitigation for future projects. Therefore, on behalf of the Applicant for the purpose of this project, Conservation Resources proposes to allocate 3.326 acres of constructed pools to mitigate for impacts to waters of the U.S. by the proposed project.

Monitoring: Since construction in 2007, monitoring has been conducted for the constructed wetlands, with annual monitoring reports submitted to the Corps and USFWS. Monitoring began in 2008 and will continue for 10 years. As Corps and USFWS approval is obtained to allow various off-site projects to use the constructed unallocated vernal pools as mitigation (including the proposed project), the overall results will be included in a single comprehensive annual monitoring report. According to the results of the 2010 (third year) monitoring effort, the site is in good condition and is providing habitat for a variety of plant and animal species (ECORP 2011).

#### **Mitigation Measure BIO-2**

Swainson's hawk mitigation will consist of placing annual grassland foraging habitat under a permanent conservation easement. Based on the DFG staff report requirements of 0.75:1 replacement, a conservation easement will be recorded for 167.25 acres of grassland habitat on the Gill Ranch property. In addition, an endowment will be established for the ongoing management and maintenance of the habitat. The conservation easement language and management plan will be reviewed and approved by the Central Valley Water Board prior to the issuance of the 401 Water Quality Certification.

- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

#### **No Impact**

There is no riparian habitat associated with the project site. There are no sensitive natural communities identified local or regional plans, policies, regulations, or by DFG or the USFWS.

- c. **Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

**Less than Significant with Mitigation**

The impact to the wetlands and ditch on the site will be mitigated via the allocation of credits for the creation of 3.326 acre of vernal pools on the Gill Ranch site. This will provide 1:1 replacement of wetland acreage lost. In addition, since the created wetlands support vernal pool species, the functional value of the created wetlands will be higher than at the impact site, which supports disturbed seasonal wetlands that lack plant species typically associated with vernal pools.

- d. **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

**No Impact**

No migratory fish can access the swales on the project site, nor could the wetland swales support fish. No migratory wildlife is known in the project area, nor are any native wildlife nursery sites known in the area.

- e. **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**No Impact**

No trees will be removed as part of site development, and there are no Swainson's hawk nesting trees within one mile of the project site. The project will not conflict with any local environmental policies or ordinances.

- f. **Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

**No Impact**

There are currently no Habitat Conservation Plans or Natural Community Conservation Plans that have been adopted for the project area. Sacramento County is developing a Habitat Conservation Plan for the south part of the county; however, the plan has not been adopted.

<b>4.5. Cultural Resources: Would the project:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### **Affected Environment**

Section 106 of the National Historic Preservation Act requires that each federally sponsored project consider how that undertaking could affect historic properties. ECORP Consulting, Inc. conducted a cultural resources assessment of the Bottimore Field III property as part of a larger cultural resources survey report prepared in December 2006. A records search was conducted; it was determined that two cultural resources surveys had been conducted within a half-mile radius of the study area. No archaeological sites or historic resources had been recorded in or within a half mile of the study area. In addition, no properties listed or eligible for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) were identified within a half mile of the study area.

An intensive cultural resources assessment, including a complete pedestrian survey, was conducted on the larger study area. One isolated find consisting of two pieces of farm equipment was recorded within the study area. This historic isolate (P-34-3728-H) was located on the Bottimore Field III parcel.

ECORP Consulting, Inc. was asked to update the records search for the Bottimore Field III project area in support of this permit application. The updated records search was conducted on March 3, 2011, and found that three cultural resources surveys have been conducted within a half mile of the project site. No archaeological resources have been recorded within a half mile of the

project site, and no properties listed or eligible for listing in the NRHP or CRHR were identified within a half mile of the project site.

In March 2011 ECORP Consulting, Inc. conducted a field integrity inspection of the historic isolate, since more than two years had passed since the original field survey. The isolate was located and determined to be in the same condition as previously recorded. P-34-3728-H was evaluated using NRHP and CRHR eligibility criteria. It was concluded that although the isolate retains integrity, it is not associated with important events or persons, is not architecturally distinctive, and has no potential to yield important information, and therefore determined to be ineligible for inclusion in the NRHP or CRHR. The Corps submitted this determination to the State Historic Preservation Office (SHPO); on January 25, 2012, the SHPO sent a letter to the Corps concurring with the Corps' determination of no effects to eligible properties.

In 2006 and 2011, ECORP Consulting, Inc. contacted the California Native American Heritage Commission (NAHC) to request a search of the sacred land files for the project area. All persons identified on the contact list provided by the NAHC were contacted regarding the proposed project. A response was received by the United Auburn Indian Community (UAIC) requesting the cultural resources information for review. The Corps provided the UAIC with a copy of the cultural resources survey report and detailed project information regarding impacts to waters of the U.S. in response to this request. The UAIC sent a letter to the Corps stating that they had no further concerns regarding the project based on the negative findings of the cultural resources report. The Shingle Springs Rancheria also requested general project information and additional information regarding the historic isolate identified on the project site. The Corps provided this information to the Shingle Springs Rancheria, which acknowledged receipt of the information but offered no further comment. To date, no other responses or additional comments have been received by the Corps.

## **Discussion**

- a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?**

### **Less Than Significant Impact with Mitigation**

No significant historical resources were identified on the project site. Although there is no indication that buried historical resources are present on the site, there is always a possibility, however, that unknown resources could be discovered during the conversion of the site to vineyard use. Therefore, the following mitigation measure is identified to avoid or reduce this impact to a less than significant level:

### **Mitigation Measure CUL-1**

If evidence of any archaeological, cultural, and/or historic deposits is found, hand excavation and/or mechanical excavation will proceed to evaluate the deposits for determination of significance as defined by CEQA Guidelines.<sup>1</sup> An archaeologist shall submit reports, to the satisfaction of Central Valley Water Board and the Corps, describing the testing program and subsequent results. These reports shall identify any program mitigation that the applicant shall complete in order to mitigate archaeological impacts (including resources recovery and/or avoidance testing and analysis, removal, reburial, and curation of archaeological resources.)

- b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

#### **Less Than Significant Impact with Mitigation**

No significant archaeological resources were identified on the site. Although there is no indication that buried archaeological resources are present on the site, there is always a possibility, however, that unknown resources could be discovered during the conversion of the site to vineyard use. Implementation of Mitigation Measure CUL-1 (see above) would avoid or reduce this impact to a less than significant level.

- c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

#### **Less Than Significant Impact with Mitigation**

No paleontological resources or unique geological features were identified on the project site. There is always a possibility, however, that unknown paleontological resources could be discovered during the conversion of the site to vineyard use. Therefore, the mitigation measure described in Part a. above will be implemented to avoid or reduce this impact to a less than significant level.

- d. Disturb any human remains, including those interred outside of formal cemeteries?**

#### **Less Than Significant Impact with Mitigation**

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<sup>1</sup> Significant cultural resources may include: (a) human bone – either isolated or intact burials; (b) habitation [occupation or ceremonial structures as interpreted from rock rings/features, distinct ground depressions, differences in compaction (e.g. house floors)]; (c) artifacts, including chipped stone objects such as projectile points and bifaces; groundstone artifacts such as manos, mutates, mortars, pestles, grinding stones, pitted hammerstones; and shell and bone artifacts, including ornaments and beads; (d) various features and samples including hearths (fire-cracked rock; baked and vitrified clay), artifact caches, faunal and shellfish remains (which permit dietary reconstruction), distinctive changes in soil stratigraphy indicative of prehistoric activities; and (e) isolated artifacts.

No human remains have been identified on the site, nor are human remains likely to occur on the site. There is always a possibility, however, that unknown human remains could be discovered during the conversion of the site to vineyard use. Therefore, the following mitigation measure is identified to reduce or avoid this potential impact to a less than significant level:

### **Mitigation Measure CUL-2**

If during land preparation activities human remains or bones are unearthed, all work within a 50-foot radius of the find will stop immediately in order to proceed with the following testing and mitigation procedures:

- In the event of the discovery of human remains during ground-disturbing activities, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The Sacramento County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, he shall notify the Native American Heritage Commission, who shall attempt to identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the landowner shall re-inter the human remains and items associated with the Native American burials on the property in a location not subject to further subsurface disturbance.

<b>4.6. Geology and Soils:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **Affected Environment**

The proposed project is located in southeastern Sacramento County, in the central portion of the Sacramento Valley. Regional geologic maps indicate that the project site would be located entirely within older, Quaternary deposits, which consist of former floodplain area that has been dissected by stream erosion. Soils in this area are characterized by layers of hardpan or dense, impervious clay. Soils on the project site were mapped as Redding Gravelly Loam and San Joaquin Silt Loam (Natural Resources Conservation Service 2007).

There are no principal active faults zoned under the Alquist-Priolo Earthquake Fault Zoning Act or Special Study Zones in Sacramento County (California Department of Conservation 2007).

## **Discussion**

**a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?**

**No Impact**

No known faults are located on or near the project site. No structures are proposed by the project; therefore, the project would not expose people to seismic danger to a degree not already present.

- ii. Strong seismic ground shaking?**

**No Impact**

Although Sacramento County does not contain any known faults, the Sacramento area can experience ground shaking due to earthquakes occurring in the San Francisco Bay area. However, since no structures are proposed by the project, the project would not expose people to seismic danger to a degree not already present.

- iii. Seismic-related ground failure, including liquefaction?**

**No Impact**

The project is not in the portions of Sacramento County that have been identified as susceptible to liquefaction, which are the downtown area and the delta area. No structures are proposed by the project; therefore, the project would not expose people to seismic danger to a degree not already present.

**iv. Landslides?**

**No Impact**

The project site is flat and not near any steep slopes that would be subject to landslides. No structures are proposed by the project; therefore, the project would not expose people to seismic danger to a degree not already present.

**b. Result in substantial soil erosion or the loss of topsoil?**

**Less than Significant Impact with Mitigation**

Exposed soil from deep-ripping operations could potentially cause erosion problems, particularly during the rainy season. The Applicant shall implement the following erosion control measures during all construction (e.g., site preparation and planting) activities to avoid or reduce this impact to a less than significant level:

**Mitigation Measure GEOL-1**

- Ground preparation activities will be done during the fall months when the site is dry.
- A 20-foot vegetation buffer on the project's north, east and south boundaries will not be plowed during the vineyard development process and shall serve as a filter strip to intercept any sediment that could potentially be carried off-site by surface runoff.
- The project will utilize best management practices to prevent soil from eroding or being tracked off the site by farm equipment.
- Straw waddles will be placed at strategic locations on the western project boundary to intercept any sediment that could potentially be carried off-site by surface runoff.
- Hay bales will be placed within the main wetland swale which enters the site via a culvert under Alta Mesa Road to reduce water velocities and suppress the chance for soil erosion.

- After fall ground preparation activities, a winter cover crop will be planted to help stabilize the soil until planting occurs.
- c. **Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

**No Impact**

Ground preparation will only disturb soil to a depth of five or six feet, and will not affect the stability of the soils on site.

- d. **Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

**No Impact**

Soils on the project site have low to high shrink-swell potential (Natural Resources Conservation Service 2007). Volume changes in soil, such as swelling, can be detrimental to structures. However, there will be no structures constructed as part of this project and no risks to life or property.

- e. **Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

**No Impact**

The project does not propose to construct any structures and will not result in wastewater generation; therefore, no wastewater disposal systems will be required or construction as part of the project.

<b>4.7. Greenhouse Gas Emissions:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **Affected Environment**

It is widely-accepted that human activities, particularly the burning of fossil fuels, affect the world's climate by increasing the atmospheric concentration of greenhouse gas (GHG) beyond natural levels. Contributing additional GHG pollution to the atmosphere leads to higher global average temperatures, changes to climate, and adverse environmental impacts both locally and worldwide.

In response to the challenge of climate change, California has taken a leadership role by committing to reduce its GHG emissions to 1990 levels by 2020 (about a thirty percent reduction in business-as-usual emissions in 2020) and to 80% below 1990 levels by 2050.

Sacramento County's General Plan Update was adopted in November 2011, which included policies directing the County to complete a multi-phase Climate Action Plan (CAP). The Sacramento County Board of Supervisors has approved the first phase of a climate action plan that will provide a framework for reducing GHG emissions. The first phase focuses on the County's overall strategy and goals for addressing climate change (Sacramento County 2009). Key goals in the first phase include a reduction in vehicle miles traveled (VMT) per capita in the region; improving energy efficiency of all existing and new buildings; emphasizing water use efficiency as a way to reduce energy consumption; maximizing waste diversion, composting, and recycling through residential and commercial programs; and protecting important farmlands and open space from conversion and encroachment and maintaining connectivity of protected areas.

Agricultural projects can include the following sources of GHG emissions:

- Soil preparation and harvest activities resulting in exhaust emissions of GHGs from fuel combustion for mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commuter trips; and
- Motor vehicle trips generated by workers arriving to and leaving the project site.

ARB and the Sacramento Metropolitan Air Quality Management District (SMAQMD) have not identified a significance threshold for analyzing GHG emissions associated with land use development projects. SMAQMD has updated its CEQA guidance, and it released its *Guide to Air Quality Assessment in Sacramento County* in December 2009 (SMAQMD 2009a). However, SMAQMD does not include any particular GHG significance threshold in its guide. Instead, it suggests that lead agencies identify thresholds of significance applicable to a proposed project that is supported by substantial evidence (SMAQMD 2009a, page 6-5). Nevertheless, the primary focus of SMAQMD's guidance for addressing GHG emissions is "to provide guidance

about evaluating whether the GHG emissions associated with a proposed project would be a cumulatively considerable contribution to global climate change” (SMAQMD 2009a, page 6-3).

The Central Valley Water Board and Corps acknowledge that, by adoption of AB 32 and SB 97, the State of California has identified GHG emission reduction goals and that the effect of GHG emissions as they relate to global climate change is inherently an adverse environmental impact. While the emissions of one single project will not cause measurable global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet AB 32 goals, California would need to generate fewer GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels.

For the purposes of this IS/MND, project-generated GHG emissions have been quantified using the generally accepted methodologies available at this time. The analysis also focuses on whether the project’s emissions would substantially help or hinder the State’s ability to attain the goals identified in AB 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020). As stated above, the mandate of AB 32 demonstrates California’s commitment to reducing GHG emissions and the State’s associated contribution to climate change, without intending to limit population or economic growth within the State. Thus, to achieve the goals of AB 32, which are tied to mass GHG emission levels of a specific benchmark year (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population (per person) and/or per level of economic activity (e.g., per job) than its current rate. Furthermore, to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than it achieved in 1990. (The goal—to achieve 1990 quantities of GHG emissions by 2020—will need to be accomplished despite 30 years of population and economic growth beyond 1990.) For this reason, land uses need to be GHG “efficient” to attain AB 32 goals while accommodating population and job growth.

One of the primary challenges to establishing a reasonable threshold and determining impacts (and mitigation) relates to enactment of AB 32 and other GHG emission-reduction legislations. As previously described, much of this legislation requires ARB and others to establish standards that relate to energy efficiency, carbon levels in fuels, stationary-source emissions, and regional transportation planning (i.e., SB 375). These standards are in the development process but may be a few to several years away from implementation.

While the SMAQMD, the local agency in charge of air quality considerations in Sacramento County, has not established specific thresholds applicable to GHG emissions, CEQA still

requires an evaluation of GHGs. CEQA also specifies that thresholds adopted by other agencies may also be considered by lead agencies when determining project significance. The Bay Area Air Quality Management District (BAAQMD) formally adopted a CEQA significance threshold for GHGs of 1,100 metric tons carbon dioxide equivalent per year (MT CO<sub>2</sub>e/yr) (BAAQMD 2010). The BAAQMD's threshold is specific to that district, and is not meant to apply to construction-related GHG emissions (rather, it is applicable to operational emissions). It is not the intention of the RWQCB to adopt BAAQMD's threshold as its own. Rather, it is making a comparison of the magnitude of emissions considered substantial by the nearby BAAQMD.

## **Discussion**

- a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

### **Less Than Significant**

The proposed project would result in GHG emissions during construction (short-term) and operation (long-term). GHG emissions associated with the project were calculated using applicable portions of the California Emissions Estimator Model (CalEEMod). CalEEMod allows for the input of project-specific information to estimate emissions generated by worker commute trips, on-site equipment, and haul truck trips. Input parameters were based on project-specific information, default model settings, and reasonably conservative assumptions. GHG emissions from construction and operation are described separately below.

#### ***Short-Term Construction-Related Emissions***

GHG emissions generated by construction activities associated with the proposed project would predominantly be in the form of CO<sub>2</sub> from mobile-sources associated with worker commute trips, haul truck trips, and heavy equipment used on site (e.g., tractors, pick-up trucks). While emissions of other GHGs such as methane and nitrous oxide are important with respect to global climate change, the emission levels of these GHGs for the sources associated with project activities are nominal compared with CO<sub>2</sub> emissions, even considering their higher global warming potential. Therefore, all GHG emissions for construction are reported as CO<sub>2</sub>.

Modeling was conducted for all construction activities (e.g., site preparation and planting) expected to take place in 2012 and 2013. The modeled emissions are summarized in Table 3 and described in more detail in Appendix A.

<b>Table 3</b>	
<b>Summary of Modeled Emissions of Greenhouse Gas Emissions Associated with Vineyard Construction</b>	
<b>Construction Activities</b>	<b>Total CO<sub>2</sub>e (MT)</b>
2012 Annual GHG Emissions (Site Preparation)	7.8
2013 Annual GHG Emissions (Site Preparation + Planting)	59.3
Total GHG Emissions During Construction Period (MT)	<b>67.1</b>
BAAQMD Threshold of Significance	1,100 MT/year
<small>Notes: BAAQMD = Bay Area Air Quality Management District; CO<sub>2</sub>e = carbon dioxide equivalent emissions; MT = metric tons. Emissions levels were estimated using CalEEMod Version 2011.1.1.1. Estimates shown are for the mass emission levels that would be generated during project construction (2012-2013). Source: Modeling Conducted by Ascent Environmental, Inc. 2012.</small>	

Construction activities would take place in 2012 and 2013 in two separate phases and would include site preparation for a maximum of 224 hours in 2012 and 140 hours in 2013 followed by vineyard planting in 2013 which is expected to last 14 days. No new area or stationary sources of GHGs would be associated with the proposed project. As shown from the emission estimate in Table 3, the emissions from this project would be minor (e.g., less than 100 metric tons). Although the SMAQMD has not established levels of significance for GHG emissions, the BAAQMD has established a level of 1,100 MT CO<sub>2</sub>e/yr as its significance threshold for GHG emissions. Short-term GHG emissions from the proposed project would be well-below the level considered substantial by the nearby air district, BAAQMD.

***Long-Term Operation-Related Emissions***

The net increase in operational emissions associated with area-, mobile-, and indirect-sources emissions of GHGs) associated with implementation of the proposed project were estimated using CalEEMod, as recommended by SMAQMD. Mobile-source emissions for the proposed project were estimated based on harvesting activities. Indirect emissions of GHGs would occur at off-site utility providers associated with the generation of electricity to serve the project. In this case, indirect GHG emissions would be primarily associated with electricity required for ground water pumping for irrigation of the project site. Additionally, the project site is currently used for livestock grazing which results in the production of GHG emissions (ARB 2009). These livestock would be relocated and would continue to emit GHG emissions somewhere else and therefore these emissions are not subtracted from the total estimated operational emissions. The net increase in operational emissions is presented in Table 4 and described in more detail in Appendix A.

<b>Table 4</b>	
<b>Summary of Modeled Emissions of Greenhouse Gas Emissions Associated with Vineyard Operation</b>	
Source	Total CO <sub>2</sub> e (MT)
<b>2016</b>	
Onsite Activities (e.g., harvesting)	6
Mobile (e.g., harvest hauling, worker commute trips)	25
Irrigation Water Consumption	9
Total GHG Emissions for Operational Activities	<b>36</b>
BAAQMD Threshold of Significance	1,100
<small>Notes: BAAQMD = Bay Area Air Quality Management District; CO<sub>2</sub>e = carbon dioxide equivalent emissions; MT = metric tons. Emissions levels were estimated using CalEEMod Version 2011.1.1. Estimates shown are for the mass emission levels that would be generated during the first year of operation (2016). Source: Modeling Conducted by Ascent Environmental 2012.</small>	

As discussed above, SMAQMD does not have an established threshold of significance for GHG emissions. Based on the modeling conducted, operational activities associated with the proposed vineyard would be well-below the level considered substantial by the BAAQMD. Additionally, no new area or stationary sources of GHGs would be associated with the proposed project.

For these reasons, the proposed project would not result in GHG emissions that would have a significant impact on the environment. Therefore, the proposed project would have a less-than-cumulatively considerable and, therefore, **less than significant impact** on climate change.

**b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

**Less Than Significant**

As discussed under item a) above, the total GHG emissions associated with this project would be below other established thresholds (e.g., 1,100 MT CO<sub>2</sub>e/yr applicable to BAAQMD’s jurisdiction). Additionally, the County’s General Plan Update was adopted in November 2011, which included policies directing the County to complete a multi-phase CAP (Sacramento County 2011a: p 115). The first phase of the County’s CAP was adopted concurrently with the General Plan Update. The CAP includes an emissions inventory for activities in the County in 2005 and a general policy framework for the County’s climate action strategy (Sacramento County 2011b). The CAP lists goals and actions related to agriculture and opens space, such as preserving farmland. The proposed project is currently zoned for agricultural uses and would not result in a conversion of farmland to urban uses. The project would be consistent with the County’s zoning code and associated general strategies in the CAP.

As evaluated above in a) the proposed project would not generate substantial GHG emissions, and therefore, would not substantially conflict with AB 32, the Sacramento

County General Plan, or the Sacramento County CAP. As a result, this impact would be less than significant.

<b>4.8. Hazards and Hazardous Materials:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**Affected Environment**

A review of the List of Hazardous Waste and Substances sites from the Department of Toxic Substances Control Envirostor database (also known as the Cortese List) was conducted on October 4, 2011 (California Department of Toxic Substances Control 2007). No hazardous waste or substances were identified within the project site or in the immediate vicinity.

The only potential hazardous materials associated with the proposed project would be common substances associated with the mechanized equipment used for site development and harvest, and chemicals used to control disease and pest infestation of the vines.

Herbicide use will include a winter 2011 application of Roundup and Goal. A summertime application of Roundup will be applied via an Enviromist Ultra Low-Volume Land Sprayer.

Standard vineyard fungicides to be used on the site include Elite, Serenade, and Vanguard. Fungicides are typically applied from late March until daily high temperatures reach 95 degrees Fahrenheit.

Insecticide use on the site would depend on the types of insects that appear on the site, but could include Provado for control of leafhoppers, and various miticides for mite control.

**Discussion**

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

**Less Than Significant Impact**

Hazardous materials associated with the project would include common petroleum products associated with mechanized farming equipment, such and diesel fuel, lubricants, antifreeze, and solvents, as well as insecticides, fungicides, and herbicides associated with the ongoing vineyard operations.

The mechanized equipment used on the site will be inspected and maintained regularly to prevent leakage of fuel and lubricants. Best management practices will be implemented to prevent the release of fuel and other materials from the farming equipment and to ensure worker safety.

The Applicant will also obtain a permit from the Sacramento County Agriculture Commissioner for the use of insecticides and herbicides during planting of the project site. Every application of every herbicide, fungicide, and insecticide will be done according to label directions. Reports addressing all pesticide, fungicide and herbicide use will be submitted to the Sacramento County Agriculture Commissioner on a monthly basis during the life of the project.

- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

**Less Than Significant Impact**

As described in item a) above, when properly used and stored, the materials associated with the ground preparation and ongoing farming of the project site will not create a significant hazard to the environment or to the public.

- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

**No Impact**

There are no schools within one quarter of a mile of the project site.

- d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

**No Impact**

The project site is not listed as a hazardous materials site, according to the California Envirostor database (California Department of Toxic Substances Control 2007).

- e. **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

**No Impact**

The project is not within an airport land use plan or within two miles of a public airport or public use airport. The closest public use airport is the Rancho Murieta Airport, located approximately 10.5 miles to the northeast. The closest publicly owned airport is Franklin Field, located approximately 11.5 miles to the southwest. The project will continue the agricultural practices of the vicinity and will not present a safety hazard to people residing or working in the project area.

- f. **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

**No Impact**

The project is within ½ mile of the Alta Mesa Airpark Airport, which is a private airstrip. Other private airstrips in the project vicinity include Luchetti Ranch (3.6 miles north) and Boeckmann Ranch (4.9 miles northeast). The project will continue the agricultural practices that currently exist in the vicinity and will not present a safety hazard to people residing or working in the project area.

- g. **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**No Significant Impact**

Traffic along Alta Mesa Road may be temporarily affected by the ingress and egress of farming equipment during ground preparation and harvest activities. However, there would be no closure of the road to through traffic and would not interfere with any adopted emergency response plan or emergency evacuation plan.

- h. **Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

**No Impact**

The project will convert the site from un-irrigated grassland to irrigated vineyard, which will reduce the potential for wildfire on the site since the amount of dry grasses will be reduced in the area.

<b>4.9. Hydrology and Water Quality: Would the project:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **Affected Environment**

The project site is located within the Herald hydrologic sub-area of the Lower Cosumnes-Dry Hydrologic area, which is within the San Joaquin River Hydrologic Region. Natural water bodies on the project site include scattered seasonal wetlands and seasonal wetland swales, which generally drain east-to-west across the project site. One of the seasonal wetland swales drains into an agricultural ditch on the adjoining property to the west; this ditch eventually drains into an unnamed tributary of the North Fork of Badger Creek.

Water for drip irrigation of the vineyard will be obtained from existing agricultural wells located on adjoining property to the west of the project site. The wells draw from the South (Galt) Area Groundwater Basin (South Basin), one of three hydraulically continuous sub-basins that lie beneath Sacramento County. The aquifer in this area is at 20 to 310 feet depths. The majority of water uses in this basin are obtained from private wells without water meters; however, studies based on estimated water demands show that between 1980 and 2004, the South Basin aquifer storage gained an average of 2,500 acre-feet of water during this period (Robertson-Bryan, Inc. et al 2011).

The site will utilize 1.25 acre feet of water/year per acre planted. Because drip irrigation will be used, there will be no irrigation return water discharged to adjoining waterways.

The majority of Sacramento County has poor groundwater recharge capability due to clay or hardpan soils (Sacramento County 2011a). In the South Basin, groundwater recharge occurs from irrigation return flow, infiltration from rainfall, stream seepage (predominantly from the Cosumnes River, Deer Creek, Dry Creek, and Badger Creek), and from subsurface boundary inflow from other sub-basins.

## **Discussion**

### **a. Violate any water quality standards or waste discharge requirements?**

#### **Less Than Significant Impact**

The Applicant has applied for 401 Water Quality Certification. The Central Valley Water Board has adopted a *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. Turbidity, settleable matter, temperature, pH, and dissolved oxygen limits are based on water quality objectives contained in the Basin Plan and required as part of 401 Water Quality Certification.

The Basin Plan lists agricultural as an existing beneficial use for the hydrologic subunit which includes the project site.

### **b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?**

#### **Less Than Significant Impact**

Currently, the project site is not irrigated. Under the existing agricultural practices of the area, conversion of the project site from non-irrigated pasture to vineyard would result in an increase in the amount of groundwater used in the area. Drip irrigated vineyard at this location will require approximately 1.25 acre feet/acre/year, even in drought conditions, for a total use of 278.75 acre-feet/year. Although deep-ripping of the site will break up the underlying claypan that currently interferes with groundwater recharge, it is unlikely that the limited amount of water applied during drip irrigation would percolate to the groundwater aquifer.

The existing agricultural wells to be used for the project draw from the South Area Groundwater Basin. The South Basin, although fluctuating with the hydrologic cycle, is considered to be stable in terms of aquifer storage (Robertson-Bryan, Inc. et al 2011). In addition, there has been a significant increase in the number of vineyards planted in the South Basin, which have in many cases replaced crops that used a larger amount of water. Therefore, the use of 278 acre-feet of water per year by this project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level to the extent that would not support existing and planned land uses that also depend on groundwater wells.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

#### **Less Than Significant Impact**

There are no streams or rivers located on the project site. Site preparation for vineyard planting will not alter the general land contours of the land, so drainage patterns should not be significantly disrupted.

- d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**

#### **Less Than Significant Impact**

The project will utilize drip irrigation, which will not result in any irrigation runoff from the site.

- e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

#### **No Impact**

The project will utilize drip irrigation, which will not result in any irrigation runoff from the site.

**f. Otherwise substantially degrade water quality?**

**Less Than Significant Impact**

The project will utilize best management practices to prevent soil from eroding or being tracked off the site by farm equipment, and will not contribute any pollutants to natural waterways. The outer 20 feet of the 40-foot equipment turnaround areas on the project's north, east, and south boundaries will not be plowed or disked and will serve as vegetated filter strips to intercept any sediment that could potentially be carried off-site by surface runoff.

**g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**

**No Impact**

The project does not include the construction of housing.

**h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

**No Impact**

The project does not include construction of any structures.

**i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?**

**No Impact**

The project does not include the construction of any housing or other structures and therefore would not expose people or structures to any flooding risk.

**j. Inundation by seiche, tsunami, or mudflow?**

**No Impact**

The project does not include the construction of any housing or other structures and therefore would not expose people or structures to any inundation risk.

<b>4.10. Land Use and Planning: Would the project:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **Affected Environment**

The project site is zoned for general agricultural and agricultural-residential uses. The property was placed in the Sacramento County (California Land Conservation Contract No. 72-AP-080) Williamson Act program by Helen and E. O. Bottimore on 2/4/1972.

### **Discussion**

#### **a. Physically divide an established community?**

##### **No Impact**

The project proposes continued agricultural use of the site, and will not divide an established community.

#### **b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

##### **No Impact**

The project is consistent with the agricultural zoning of the property, and is consistent with the Sacramento County General Plan.

**c. Conflict with any applicable habitat conservation plan or natural community conservation plan?**

**No Impact**

There are currently no Habitat Conservation Plans or Natural Community Conservation Plans that have been adopted for the project area. Sacramento County is developing a Habitat Conservation Plan for the south part of Sacramento County, including the project site; however, the plan has not been adopted.

<b>4.11. Mineral Resources:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Affected Environment**

The project site is not located in an area designated as having significant mineral resources (Sacramento County 2011a).

**Discussion**

**a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

**No Impact**

No known mineral resources are located in the project vicinity; therefore the project would not result in the loss of availability of known mineral resources.

**b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?**

**No Impact**

The Sacramento County General Plan indicates that there are no mineral resources in the project vicinity.

<b>4.12. Noise:</b> Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **Affected Environment**

The primary source of noise in Sacramento County is car, aircraft and train traffic (Sacramento County 2011a). Sacramento County has established noise standards and ordinances in order to limit population exposure to physically and/or psychologically damaging noise levels. So called “sensitive receptors” to noise levels include residences, schools, parks, libraries, and playgrounds. Activities conditionally exempt from the noise standards include construction activities that occur during the daytime hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and from 9:00 a.m. to 6:00 p.m. on Sunday.

Sacramento County has adopted a right-to-farm ordinance to provide legal assurance that established agricultural operations are allowed to continue, and to inform residents of areas zoned or designated for agriculture that they may be subject to inconvenience or discomfort resulting from accepted agricultural operations. This would include noise from farming equipment. If an agricultural operation does not appear to be operating within accepted standard practices, any person may file a complaint with the Agricultural Commissioner.

## **Discussion**

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

### **No Impact**

There will be an increase in noise levels during the operation of equipment for site preparation and harvest. Site preparation for planting is expected to last for a period of two weeks and would occur during daylight hours only. Harvesting activities would occur annually and are expected to last for a period of two weeks.

The noise generated by the vineyard preparation and operations would be within the levels expected for such operations.

- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

### **Less Than Significant**

The deep ripping activities for site preparation would result in minor groundborne vibration. However, this would be a temporary condition lasting no more than two weeks.

Although there are rural residences in the vicinity of the project site, this impact is not considered significant because of the temporary nature of the site preparation and the rural agricultural setting.

- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

**No Impact**

The project will not result in any new ambient noise and will have no impact to permanent ambient noise levels in the project vicinity.

- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

**No Impact**

While vineyard installation and harvest would result in a temporary increase in ambient noise, these levels would not be considered significant given the agricultural surroundings.

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact**

The project is not within an airport land use plan or within two miles of a public airport or public use airport. The closest public use airport is the Rancho Murieta Airport, located approximately 10.5 miles to the northeast. The closest publicly owned airport is Franklin Field, located approximately 11.5 miles to the southwest. The project will continue the agricultural practices of the vicinity and will not expose people residing or working in the project area to excessive noise levels.

- f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

**No Impact**

The project is within ½ mile of the Alta Mesa Airpark Airport, which is a private airstrip. Other private airstrips in the project vicinity include Luchetti Ranch (3.6 miles north) and Boeckmann Ranch (4.9 miles northeast). The project will continue the agricultural practices that currently exist in the vicinity and will not expose people residing or working in the project area to excessive noise levels.

<b>4.13. Population and Housing:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Affected Environment**

The project involves vineyard development on a currently vacant parcel. The project will not create any new housing facilities or infrastructure.

**Discussion**

- a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

**No Impact**

The project does not involve construction of any housing facilities, and will utilize existing infrastructure for access to the site by farm workers. The project will not induce substantial population growth, either directly or indirectly.

**b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

**No Impact**

The project site is currently a vacant parcel containing annual grassland. No existing housing will be displaced by the proposed project.

**c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

**No Impact**

The project will not require the displacement of any people.

<b>4.14. Public Services:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Affected Environment**

The project is within unincorporated Sacramento County. Fire protection is provided by the Wilton Fire District. The Sacramento County Sheriff’s Department provides police protection services. The project lies within the Elk Grove Unified School District, and the Sacramento County Regional Parks Department.

**Discussion**

- a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?**

**No Impact**

The project involves development of a vineyard on a currently vacant parcel. The project will not result in an increase in population or employment, so there will not be a need for additional public services beyond what currently exists. Therefore, there will be no impacts to government facilities, and only minimal, if any, additional demands on government services.

<b>4.15. Recreation:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **Affected Environment**

There are no neighborhood or regional parks in the project vicinity. The nearest parks to the project site are located in the City of Elk Grove, more than eight miles northeast of the project site.

## **Discussion**

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

### **No Impact**

The project does not include the development of any new residential facilities, so there will be no increase in the use of regional parks in this part of Sacramento County. There are no neighborhood parks in the project vicinity.

- b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

### **No Impact**

The project proposes development of a vineyard and does not include the development or expansion of any recreational facilities.

<b>4.16. Transportation/Traffic:</b> Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **Affected Environment**

The project is bordered by Alta Mesa Road to the east and Woods Road to the south. The nearest highway is State Route 99, which is located a miles to the west of the project site.

Alta Mesa Road is a two-lane undivided arterial roadway that runs north-south and connects Dillard Road and Dustin Road. The road does not have designated bike lanes or sidewalks. Woods Road is a two-lane undivided roadway that runs east-west and connects Alta Mesa Road and Colony Road. The road does not have designated bike lanes or sidewalks.

There are no public transportation facilities in this portion of Sacramento County. Paratransit, Inc. is a non-profit corporation that provides bus services to the disabled and elderly throughout Sacramento County, including in the project vicinity. This service is not a fixed-route bus service, but provides door-to-door transportation service by reservation.

## **Discussion**

- a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

### **No Impact**

The project will not generate new traffic in the area.

- b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?**

### **No Impact**

The project will not generate new traffic in the area and will have no effect on the level of service standards for the area roadways.

- c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

### **No Impact**

The project proposes an agricultural use and will not require modification to any existing air traffic patterns.

- d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

### **Less Than Significant Impact**

The project will not require modification to any of the area roadways or intersections. There will be a slight increase in the amount of farm equipment utilizing the roadways due to the newly planted vineyard; however, the project is within an agricultural area where farm equipment already utilizes area roadways and is a compatible use with the rural residential areas to the north and east. The additional 223 acres of planted area will not substantially increase hazards or create incompatible uses.

- e. Result in inadequate emergency access?**

### **No Impact**

Access to the project site will remain through a gate located off of Alta Mesa Road, across from the existing fire station. Emergency vehicles can also access the site off of Woods Road via a dirt road.

- f. Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

### **No Impact**

There are no public transit facilities, or bicycle/pedestrian facilities in the project area.

<b>4.17. Utilities and Service Systems: Would the project:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **Affected Environment**

The project involves vineyard development and does not include any urban uses or other activities that would generate wastewater.

## **Discussion**

- a) **Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

### **No Impact**

The project will not generate any wastewater.

- b) **Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### **No Impact**

The project will not require construction of any new water or wastewater treatment facilities.

- c) **Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### **No Impact**

The project will continue the agricultural uses of the site and will not generate storm water runoff. The project will not require the construction of new storm water drainage facilities.

- d) **Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

### **No Impact**

Currently, the project site is not irrigated. Irrigation water will be obtained from existing agricultural wells. Under the existing agricultural practices of the area, conversion of the

project site from non-irrigated pasture to vineyard would result in an increase in the amount of groundwater used in the area. Drip irrigated vineyard at this location will require approximately 1.25 acre feet/acre/year, even in drought conditions, for a total use of 278.75 acre-feet/year. Although deep-ripping of the site will break up the underlying claypan that currently interferes with groundwater recharge, it is unlikely that the limited amount of water applied during drip irrigation would percolate to the groundwater aquifer.

The existing agricultural wells to be used for the project draw from the South Area Groundwater Basin (South Basin). The South Basin, although fluctuating with the hydrologic cycle, is considered to be stable in terms of aquifer storage (Robertson-Bryan, Inc. et al 2011). In addition, there has been a significant increase in the number of vineyards planted in the South Basin, which have in many cases replaced crops that used a larger amount of water. Therefore, the use of 278 acre-feet of water per year by this project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level to the extent that would not support existing and planned land uses that also depend on groundwater wells.

- e) **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

**No Impact**

The project will not generate any wastewater and will not need wastewater treatment services.

- f) **Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

**No Impact**

The project will not have any solid waste disposal needs.

- g) **Comply with federal, state, and local statutes and regulations related to solid waste?**

**No Impact**

The project will not generate any solid waste.

<b>4.18. Mandatory Findings of Significance:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **Affected Environment**

The 223-acre project site consists of non-native grassland with scattered wetland features. The site is currently used for grazing. The project would convert the non-irrigated grazing land to vineyard. Planting would require deep ripping of the soil and installation of a drip irrigation system.

### **Discussion**

- a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or**

**animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

**Less than Significant with Mitigation**

The project is not expected to create any significant environmental impacts, as described in each section above. Potentially significant impacts identified under Air Quality, Biological Resources, Cultural Resources, and Geology and Soils were identified, but these impacts can be reduced to a less-than-significant level through the mitigation identified in each section.

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

**Less than Significant with Mitigation**

The potentially-significant impacts to air quality will be mitigated to less-than-significant levels through the control of dust during site preparation; therefore, the project would not contribute to a cumulative impact to air quality. Impacts to wetlands and special status species habitat will be mitigated to less-than-significant levels through the creation and preservation of in-kind wetlands and annual grasslands; therefore, the project would not contribute to a cumulative impact to wetlands and special status species habitats.

- c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?**

**Less than Significant Impact**

None of the potential impacts identified for the proposed project would cause substantial direct or indirect adverse effects to human beings.

## **5 MITIGATION AND MONITORING PROGRAM**

III (b) Tier 3 and 4 engines

III (c) Dust control measures

IV (a) Fairy shrimp and Swainson's hawk mitigation

IV (c) Wetlands mitigation

V (a), (b), (c) and (d) Measures to address the handling of uncovered archaeological and paleontological resources and human remains

VI (b) Erosion control measures

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# **APPENDIX A**

*Model Input and Output Parameters*

## Sutter Vineyard Construction Site Preparation Sacramento County, Annual

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

#### 1.3 User Entered Comments

Project Characteristics -

Land Use - Field size is 223 acres

Construction Phase - Site prep in 2012-total of 224 hours @16 hour days

Site prep in 2013-total of 140 hours @ 16 hour days

Off-road Equipment - Soil discing will use a John Deer Tractor (6603 or 6115D). The 6603 has a greater HP of 109 (vs 100) so this was used.

Off-road Equipment - Soil discing will use a John Deer Tractor (6603 or 6115D). The 6603 has a greater HP of 109 (vs 100) so this was used.

Trips and VMT - Worker trip commute is approximately 10 miles each way

Construction Off-road Equipment Mitigation -

Grading - Total size is 223 acres

## 2.0 Emissions Summary

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### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.01	0.08	0.06	0.00	0.12	0.01	0.13	0.01	0.01	0.02	0.00	7.79	7.79	0.00	0.00	7.81
2013	0.01	0.05	0.04	0.00	0.12	0.00	0.12	0.01	0.00	0.02	0.00	5.00	5.00	0.00	0.00	5.02
<b>Total</b>	<b>0.02</b>	<b>0.13</b>	<b>0.10</b>	<b>0.00</b>	<b>0.24</b>	<b>0.01</b>	<b>0.25</b>	<b>0.02</b>	<b>0.01</b>	<b>0.04</b>	<b>0.00</b>	<b>12.79</b>	<b>12.79</b>	<b>0.00</b>	<b>0.00</b>	<b>12.83</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.00	0.04	0.06	0.00	0.12	0.00	0.12	0.01	0.00	0.01	0.00	7.79	7.79	0.00	0.00	7.81
2013	0.00	0.02	0.04	0.00	0.12	0.00	0.12	0.01	0.00	0.01	0.00	5.00	5.00	0.00	0.00	5.02
<b>Total</b>	<b>0.00</b>	<b>0.06</b>	<b>0.10</b>	<b>0.00</b>	<b>0.24</b>	<b>0.00</b>	<b>0.24</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>12.79</b>	<b>12.79</b>	<b>0.00</b>	<b>0.00</b>	<b>12.83</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 2.2 Overall Operational

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 3.0 Construction Detail

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### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Site Preparation, 2012 - 2012

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.12	0.00	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.06	0.00		0.01	0.01		0.01	0.01	0.00	7.62	7.62	0.00	0.00	7.64
<b>Total</b>	<b>0.01</b>	<b>0.08</b>	<b>0.06</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.13</b>	<b>0.01</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>7.62</b>	<b>7.62</b>	<b>0.00</b>	<b>0.00</b>	<b>7.64</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.17</b>	<b>0.17</b>	<b>0.00</b>	<b>0.00</b>	<b>0.17</b>

### 3.2 Site Preparation, 2012 - 2012

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.12	0.00	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.04	0.05	0.00		0.00	0.00		0.00	0.00	0.00	7.62	7.62	0.00	0.00	7.64
<b>Total</b>	<b>0.00</b>	<b>0.04</b>	<b>0.05</b>	<b>0.00</b>	<b>0.12</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>7.62</b>	<b>7.62</b>	<b>0.00</b>	<b>0.00</b>	<b>7.64</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.17</b>	<b>0.17</b>	<b>0.00</b>	<b>0.00</b>	<b>0.17</b>

### 3.3 Site Preparation, 2013 - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.12	0.00	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.90	4.90	0.00	0.00	4.91
<b>Total</b>	<b>0.01</b>	<b>0.05</b>	<b>0.04</b>	<b>0.00</b>	<b>0.12</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>4.90</b>	<b>4.90</b>	<b>0.00</b>	<b>0.00</b>	<b>4.91</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.10
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>

### 3.3 Site Preparation, 2013 - 2013

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.12	0.00	0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.02	0.04	0.00		0.00	0.00		0.00	0.00	0.00	4.90	4.90	0.00	0.00	4.91
<b>Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.04</b>	<b>0.00</b>	<b>0.12</b>	<b>0.00</b>	<b>0.12</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>4.90</b>	<b>4.90</b>	<b>0.00</b>	<b>0.00</b>	<b>4.91</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.10
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.10</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	0.00	0.00	0.00		
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	15.00	10.00	10.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.2 Energy by Land Use - NaturalGas

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

**Unmitigated**

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

#### Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 6.0 Area Detail

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#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.0 Water Detail

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## 7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.2 Water by Land Use

### Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 9.0 Vegetation

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**Sutter Vineyard**  
**Sacramento County, Summer**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

**1.3 User Entered Comments**

Project Characteristics -

Land Use - field is 223 acres

Construction Phase - planting in 2013-14 days total

Off-road Equipment - Planting will require 3 tractors and periodic use of trucks

John Deer 6603 or 6115D will be used. 6603 is 109 HP and 6115 is 100 HP so the greater is assumed

Off-road Equipment - Planting will require 3 John Deer Tractors (109 HP each tier 3) and up to 5 pick-up trucks (approx 358 HP each)

Pick-up trucks are not expectd to operate all day

Trips and VMT - Planting will require:

40 works maximum equates to 80 worker trips per day and average distance is 10 miles.

30 truck haul trips @ 25 miles (this assumption is based on the distance given for the harvesting trips of 25 miles)

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation -

Grading - Total acreage disturbed would be less than in the site preparation phase ( $223/2=111.5$ )

## **2.0 Emissions Summary**

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## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	7.25	52.24	30.23	0.08	9.76	2.63	12.39	0.04	2.63	2.67	0.00	8,038.43	0.00	0.64	0.00	8,051.77
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	8.64	49.97	29.68	0.08	7.96	1.99	9.95	0.04	1.99	2.04	0.00	8,038.43	0.00	0.64	0.00	8,051.77
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 3.0 Construction Detail

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Planting (2013) - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.92	0.00	7.92	0.00	0.00	0.00						0.00
Off-Road	6.62	50.58	24.63	0.07		2.56	2.56		2.56	2.56		7,088.83		0.59		7,101.17
<b>Total</b>	<b>6.62</b>	<b>50.58</b>	<b>24.63</b>	<b>0.07</b>	<b>7.92</b>	<b>2.56</b>	<b>10.48</b>	<b>0.00</b>	<b>2.56</b>	<b>2.56</b>		<b>7,088.83</b>		<b>0.59</b>		<b>7,101.17</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.12	1.23	0.82	0.00	0.88	0.04	0.92	0.01	0.04	0.05		201.77		0.01		201.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.51	0.43	4.78	0.01	0.97	0.02	0.99	0.04	0.02	0.06		747.82		0.04		748.71
<b>Total</b>	<b>0.63</b>	<b>1.66</b>	<b>5.60</b>	<b>0.01</b>	<b>1.85</b>	<b>0.06</b>	<b>1.91</b>	<b>0.05</b>	<b>0.06</b>	<b>0.11</b>		<b>949.59</b>		<b>0.05</b>		<b>950.60</b>

### 3.2 Planting (2013) - 2013

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.92	0.00	7.92	0.00	0.00	0.00						0.00
Off-Road	8.01	48.31	24.07	0.07		1.93	1.93		1.93	1.93	0.00	7,088.83		0.59		7,101.17
<b>Total</b>	<b>8.01</b>	<b>48.31</b>	<b>24.07</b>	<b>0.07</b>	<b>7.92</b>	<b>1.93</b>	<b>9.85</b>	<b>0.00</b>	<b>1.93</b>	<b>1.93</b>	<b>0.00</b>	<b>7,088.83</b>		<b>0.59</b>		<b>7,101.17</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.12	1.23	0.82	0.00	0.01	0.04	0.05	0.01	0.04	0.05		201.77		0.01		201.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.51	0.43	4.78	0.01	0.04	0.02	0.06	0.04	0.02	0.06		747.82		0.04		748.71
<b>Total</b>	<b>0.63</b>	<b>1.66</b>	<b>5.60</b>	<b>0.01</b>	<b>0.05</b>	<b>0.06</b>	<b>0.11</b>	<b>0.05</b>	<b>0.06</b>	<b>0.11</b>		<b>949.59</b>		<b>0.05</b>		<b>950.60</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	0.00	0.00	0.00		
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	15.00	10.00	10.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.2 Energy by Land Use - NaturalGas

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 6.0 Area Detail

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### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>		<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>		<b>0.00</b>

## 7.0 Water Detail

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**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Vegetation**

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**Sutter Vineyard  
Sacramento County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

**1.3 User Entered Comments**

Project Characteristics -

Land Use - field is 223 acres

Construction Phase - planting in 2013-14 days total

Off-road Equipment - Planting will require 3 tractors and periodic use of trucks

John Deer 6603 or 6115D will be used. 6603 is 109 HP and 6115 is 100 HP so the greater is assumed

Off-road Equipment - Planting will require 3 John Deer Tractors (109 HP each tier 3) and up to 5 pick-up trucks (approx 358 HP each)

Pick-up trucks are not expectd to operate all day

Trips and VMT - Planting will require:

40 works maximum equates to 80 worker trips per day and average distance is 10 miles.

30 truck haul trips @ 25 miles (this assumption is based on the distance given for the harvesting trips of 25 miles)

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation -

Grading - Total acreage disturbed would be less than in the site preparation phase ( $223/2=111.5$ )

## **2.0 Emissions Summary**

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## 2.1 Overall Construction

### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.05	0.39	0.22	0.00	0.07	0.02	0.09	0.01	0.02	0.03	0.00	54.21	54.21	0.00	0.00	54.30
<b>Total</b>	<b>0.05</b>	<b>0.39</b>	<b>0.22</b>	<b>0.00</b>	<b>0.07</b>	<b>0.02</b>	<b>0.09</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>54.21</b>	<b>54.21</b>	<b>0.00</b>	<b>0.00</b>	<b>54.30</b>

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.06	0.37	0.22	0.00	0.06	0.01	0.07	0.01	0.01	0.02	0.00	54.21	54.21	0.00	0.00	54.30
<b>Total</b>	<b>0.06</b>	<b>0.37</b>	<b>0.22</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.07</b>	<b>0.01</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>54.21</b>	<b>54.21</b>	<b>0.00</b>	<b>0.00</b>	<b>54.30</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 2.2 Overall Operational

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 2.3 Vegetation

### Vegetation

	ROG	NOx	CO	SO2	CO2e
Category	tons				MT
Vegetation Land Change					0.00
<b>Total</b>					<b>0.00</b>

## 3.0 Construction Detail

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Planting (2013) - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.38	0.18	0.00		0.02	0.02		0.02	0.02	0.00	48.22	48.22	0.00	0.00	48.30
<b>Total</b>	<b>0.05</b>	<b>0.38</b>	<b>0.18</b>	<b>0.00</b>	<b>0.06</b>	<b>0.02</b>	<b>0.08</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>48.22</b>	<b>48.22</b>	<b>0.00</b>	<b>0.00</b>	<b>48.30</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	1.37	1.37	0.00	0.00	1.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.62	4.62	0.00	0.00	4.62
<b>Total</b>	<b>0.00</b>	<b>0.01</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>5.99</b>

### 3.2 Planting (2013) - 2013

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.06	0.36	0.18	0.00		0.01	0.01		0.01	0.01	0.00	48.22	48.22	0.00	0.00	48.30
<b>Total</b>	<b>0.06</b>	<b>0.36</b>	<b>0.18</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.07</b>	<b>0.01</b>	<b>0.01</b>	<b>0.02</b>	<b>0.00</b>	<b>48.22</b>	<b>48.22</b>	<b>0.00</b>	<b>0.00</b>	<b>48.30</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	0.00	0.00	1.37
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.62	4.62	0.00	0.00	4.62
<b>Total</b>	<b>0.00</b>	<b>0.01</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>5.99</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	0.00	0.00	0.00		
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	15.00	10.00	10.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.2 Energy by Land Use - NaturalGas

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.3 Energy by Land Use - Electricity

### Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

#### Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 6.0 Area Detail

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#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.0 Water Detail

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## 7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.2 Water by Land Use

### Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 9.0 Vegetation

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	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons				MT			
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

### 9.1 Vegetation Land Change

#### Vegetation Type

	Initial/Final	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	Acres	tons				MT			
Grassland	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Sutter Vineyard Operational  
Sacramento County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

**1.3 User Entered Comments**

Project Characteristics -  
 Land Use - No land use matches vineyard. Field size is 223 acres  
 Construction Phase - Harvesting will take up to 120 hours a year (2 weeks per year)  
 Off-road Equipment - Harvesting for 120 hours a year  
 American Grape Harvestors largest harvester is 160 HP  
 Trips and VMT - 84 truck haul trips at a 25 miles each way distance

**2.0 Emissions Summary**

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## 2.1 Overall Construction

### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.01	0.07	0.06	0.00	0.09	0.00	0.09	0.01	0.00	0.01	0.00	13.87	13.87	0.00	0.00	13.88
<b>Total</b>	<b>0.01</b>	<b>0.07</b>	<b>0.06</b>	<b>0.00</b>	<b>0.09</b>	<b>0.00</b>	<b>0.09</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>13.87</b>	<b>13.87</b>	<b>0.00</b>	<b>0.00</b>	<b>13.88</b>

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.01	0.07	0.07	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00	13.87	13.87	0.00	0.00	13.88
<b>Total</b>	<b>0.01</b>	<b>0.07</b>	<b>0.07</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>13.87</b>	<b>13.87</b>	<b>0.00</b>	<b>0.00</b>	<b>13.88</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.02</b>	<b>0.10</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>16.83</b>	<b>16.83</b>	<b>0.00</b>	<b>0.00</b>	<b>16.84</b>

## 2.2 Overall Operational

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.02</b>	<b>0.10</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>16.83</b>	<b>16.83</b>	<b>0.00</b>	<b>0.00</b>	<b>16.84</b>

## 3.0 Construction Detail

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### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Harvesting(Operational) - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.00
<b>Total</b>	<b>0.01</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>6.00</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	7.66	7.66	0.00	0.00	7.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
<b>Total</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>	<b>7.88</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>

### 3.2 Harvesting(Operational) - 2016

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.00
<b>Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>6.00</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.66	7.66	0.00	0.00	7.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
<b>Total</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>	<b>7.88</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Unmitigated	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	10.60	10.60	10.60	38,584	38,584
<b>Total</b>	<b>10.60</b>	<b>10.60</b>	<b>10.60</b>	<b>38,584</b>	<b>38,584</b>

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.2 Energy by Land Use - NaturalGas

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU	tons/yr										MT/yr						
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

**Unmitigated**

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

#### Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 6.0 Area Detail

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#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.0 Water Detail

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## 7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.2 Water by Land Use

### Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 9.0 Vegetation

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## Sutter Vineyard Construction Site Preparation Sacramento County, Summer

### 1.0 Project Characteristics

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#### 1.1 Land Usage

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

#### 1.3 User Entered Comments

Project Characteristics -

Land Use - Field size is 223 acres

Construction Phase - Site prep in 2012-total of 224 hours @16 hour days

Site prep in 2013-total of 140 hours @ 16 hour days

Off-road Equipment - Soil discing will use a John Deer Tractor (6603 or 6115D). The 6603 has a greater HP of 109 (vs 100) so this was used.

Off-road Equipment - Soil discing will use a John Deer Tractor (6603 or 6115D). The 6603 has a greater HP of 109 (vs 100) so this was used.

Trips and VMT - Worker trip commute is approximately 10 miles each way

Construction Off-road Equipment Mitigation -

Grading - Total size is 223 acres

## 2.0 Emissions Summary

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### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	1.78	11.41	8.45	0.01	16.93	1.00	17.93	0.00	1.00	1.00	0.00	1,229.36	0.00	0.16	0.00	1,232.73
2013	1.63	10.61	8.37	0.01	26.31	0.89	27.20	0.00	0.89	0.89	0.00	1,228.71	0.00	0.15	0.00	1,231.76
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	0.32	5.30	8.01	0.01	16.89	0.03	16.93	0.00	0.03	0.03	0.00	1,229.36	0.00	0.16	0.00	1,232.73
2013	0.31	5.30	8.00	0.01	26.28	0.03	26.31	0.00	0.03	0.04	0.00	1,228.71	0.00	0.15	0.00	1,231.76
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 3.0 Construction Detail

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Site Preparation, 2012 - 2012

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					16.89	0.00	16.89	0.00	0.00	0.00						0.00
Off-Road	1.76	11.40	8.26	0.01		1.00	1.00		1.00	1.00		1,200.67		0.16		1,203.99
<b>Total</b>	<b>1.76</b>	<b>11.40</b>	<b>8.26</b>	<b>0.01</b>	<b>16.89</b>	<b>1.00</b>	<b>17.89</b>	<b>0.00</b>	<b>1.00</b>	<b>1.00</b>		<b>1,200.67</b>		<b>0.16</b>		<b>1,203.99</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.20	0.00	0.04	0.00	0.04	0.00	0.00	0.00		28.69		0.00		28.73
<b>Total</b>	<b>0.02</b>	<b>0.02</b>	<b>0.20</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>28.69</b>		<b>0.00</b>		<b>28.73</b>

### 3.2 Site Preparation, 2012 - 2012

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					16.89	0.00	16.89	0.00	0.00	0.00						0.00
Off-Road	0.30	5.28	7.82	0.01		0.03	0.03		0.03	0.03	0.00	1,200.67		0.16		1,203.99
<b>Total</b>	<b>0.30</b>	<b>5.28</b>	<b>7.82</b>	<b>0.01</b>	<b>16.89</b>	<b>0.03</b>	<b>16.92</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>1,200.67</b>		<b>0.16</b>		<b>1,203.99</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00		28.69		0.00		28.73
<b>Total</b>	<b>0.02</b>	<b>0.02</b>	<b>0.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>28.69</b>		<b>0.00</b>		<b>28.73</b>

### 3.3 Site Preparation, 2013 - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					26.28	0.00	26.28	0.00	0.00	0.00							0.00
Off-Road	1.61	10.60	8.19	0.01		0.89	0.89		0.89	0.89		1,200.66		0.14			1,203.68
<b>Total</b>	<b>1.61</b>	<b>10.60</b>	<b>8.19</b>	<b>0.01</b>	<b>26.28</b>	<b>0.89</b>	<b>27.17</b>	<b>0.00</b>	<b>0.89</b>	<b>0.89</b>		<b>1,200.66</b>		<b>0.14</b>			<b>1,203.68</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00			0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00			0.00
Worker	0.02	0.02	0.18	0.00	0.04	0.00	0.04	0.00	0.00	0.00		28.04		0.00			28.08
<b>Total</b>	<b>0.02</b>	<b>0.02</b>	<b>0.18</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>28.04</b>		<b>0.00</b>			<b>28.08</b>

### 3.3 Site Preparation, 2013 - 2013

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					26.28	0.00	26.28	0.00	0.00	0.00						0.00
Off-Road	0.30	5.28	7.82	0.01		0.03	0.03		0.03	0.03	0.00	1,200.66		0.14		1,203.68
<b>Total</b>	<b>0.30</b>	<b>5.28</b>	<b>7.82</b>	<b>0.01</b>	<b>26.28</b>	<b>0.03</b>	<b>26.31</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>1,200.66</b>		<b>0.14</b>		<b>1,203.68</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00		28.04		0.00		28.08
<b>Total</b>	<b>0.02</b>	<b>0.02</b>	<b>0.18</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>28.04</b>		<b>0.00</b>		<b>28.08</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	0.00	0.00	0.00		
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	15.00	10.00	10.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.2 Energy by Land Use - NaturalGas

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 6.0 Area Detail

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### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>		<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>		<b>0.00</b>		<b>0.00</b>

## 7.0 Water Detail

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**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Vegetation**

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**Sutter Vineyard Operational  
Sacramento County, Annual**

**1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Commercial	1	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Rural	<b>Wind Speed (m/s)</b>	3.5	<b>Utility Company</b>	Sacramento Municipal Utility District
<b>Climate Zone</b>	6	<b>Precipitation Freq (Days)</b>	58		

**1.3 User Entered Comments**

Project Characteristics -  
 Land Use - No land use matches vineyard. Field size is 223 acres  
 Construction Phase - Harvesting will take up to 120 hours a year (2 weeks per year)  
 Off-road Equipment - Harvesting for 120 hours a year  
 American Grape Harvestors largest harvester is 160 HP  
 Trips and VMT - 84 truck haul trips at a 25 miles each way distance

**2.0 Emissions Summary**

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## 2.1 Overall Construction

### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.01	0.07	0.06	0.00	0.09	0.00	0.09	0.01	0.00	0.01	0.00	13.87	13.87	0.00	0.00	13.88
<b>Total</b>	<b>0.01</b>	<b>0.07</b>	<b>0.06</b>	<b>0.00</b>	<b>0.09</b>	<b>0.00</b>	<b>0.09</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>13.87</b>	<b>13.87</b>	<b>0.00</b>	<b>0.00</b>	<b>13.88</b>

### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.01	0.07	0.07	0.00	0.06	0.00	0.06	0.01	0.00	0.01	0.00	13.87	13.87	0.00	0.00	13.88
<b>Total</b>	<b>0.01</b>	<b>0.07</b>	<b>0.07</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>13.87</b>	<b>13.87</b>	<b>0.00</b>	<b>0.00</b>	<b>13.88</b>

## 2.2 Overall Operational

### Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.02</b>	<b>0.10</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>16.83</b>	<b>16.83</b>	<b>0.00</b>	<b>0.00</b>	<b>16.84</b>

## 2.2 Overall Operational

### Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Waste						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.02</b>	<b>0.10</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>16.83</b>	<b>16.83</b>	<b>0.00</b>	<b>0.00</b>	<b>16.84</b>

## 3.0 Construction Detail

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### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

### 3.2 Harvesting(Operational) - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.04	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.00
<b>Total</b>	<b>0.01</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>6.00</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	7.66	7.66	0.00	0.00	7.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
<b>Total</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>	<b>7.88</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>

### 3.2 Harvesting(Operational) - 2016

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.06	0.00	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.00
<b>Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.06</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>5.99</b>	<b>5.99</b>	<b>0.00</b>	<b>0.00</b>	<b>6.00</b>

#### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.66	7.66	0.00	0.00	7.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.00	0.00	0.22
<b>Total</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>	<b>7.88</b>	<b>0.00</b>	<b>0.00</b>	<b>7.88</b>

### 4.0 Mobile Detail

#### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
Unmitigated	0.01	0.02	0.10	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	16.83	16.83	0.00	0.00	16.84
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

#### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	10.60	10.60	10.60	38,584	38,584
<b>Total</b>	<b>10.60</b>	<b>10.60</b>	<b>10.60</b>	<b>38,584</b>	<b>38,584</b>

#### 4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Commercial	0.00	0.00	0.00	0.00	0.00	0.00

### 5.0 Energy Detail

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### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

### 5.2 Energy by Land Use - NaturalGas

#### Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.2 Energy by Land Use - NaturalGas

### Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
User Defined Commercial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.3 Energy by Land Use - Electricity

### Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 5.3 Energy by Land Use - Electricity

#### Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 6.0 Area Detail

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#### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.0 Water Detail

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## 7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 7.2 Water by Land Use

### Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
User Defined Commercial	0 / 0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 8.0 Waste Detail

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### 8.1 Mitigation Measures Waste

#### Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					0.00	0.00	0.00	0.00
Unmitigated					0.00	0.00	0.00	0.00
<b>Total</b>	<b>NA</b>							

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
User Defined Commercial	0					0.00	0.00	0.00	0.00
<b>Total</b>						<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 9.0 Vegetation

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CalEEMod Harvesting (Operational) Output Supplemental Calculations						
	ROG <sup>1</sup>	NOx <sup>1</sup>	PM10		PM2.5	
			fugitive	exhaust	fugitive	exhaust
CalEEMod Output "Construction"=Onsite harvesting activities						
fugitive			7.92		0	
off-road	0.68	4.84		0.25		0.25
<b>Onsite Activities(harvesting)</b>	<b>0.68</b>	<b>4.84</b>	<b>7.92</b>	<b>0.25</b>	<b>0</b>	<b>0.25</b>
CalEEMod Output "Construction Off-site"=Mobile						
hauling	0.45	4.64	4.93	0.16	0.04	0.16
worker	0.02	0.02	0.05	0	0	0
	0.47	4.66	4.98			
CalEEMod "Operational Mobile"						
worker	0.07	0.13	0.13	0.01	0	0.01
<b>Mobile (Harvesting+worker commute)</b>	<b>0.54</b>	<b>4.79</b>	<b>5.11</b>	<b>0.17</b>	<b>0.04</b>	<b>0.17</b>
1 Tier 3 engines reduces NOx and ROG emissions so these numbers represent mitigated values						

**Indirect Emissions from Water Use (includes energy consumption for ground water pumping)**

Water Demand (AFY)*	KWh/acre-foot <sup>1</sup>	Total KWh/yr	MWh/yr	Region	Emission Factor (lb CO <sub>2</sub> /MWh) <sup>2</sup>		Emission Factor (lb CH <sub>4</sub> /MWh) <sup>2</sup>		Emission Factor (lb N <sub>2</sub> O/MWh) <sup>2</sup>		Total CO <sub>2</sub> e (Metric Tons/year)	
						GWP		GWP		GWP		
245	145	35,525	36	SMUD	555.26		1	0.029	21	0.011	310	<b>9</b>

\*Water demand is 1.1 acre-feet per acre of vineyard-project site is 223 acres

**Sources:**

1 California Agricultural Water Electrical Energy Requirements. 2003 (December). Prepared by Irrigation Training and Research Center for CEC. <http://www.itrc.org/reports/energyreq/energyreq.pdf>

2. South Coast Air Quality Management District. 2011. California Emission Estimator Model (CalEEMod)

**Conversion Factors:**

1 ton	MT	2204.62 lb
1 AF	mg	
1 yr	days	
1 MW	MWh/yr	

# **APPENDIX B**

*Biological Opinion*



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In Reply Refer To  
08ESMF00-2012-F-0284-1

MAY 11 2012

Ms. Kathleen Dadey, PhD.  
Chief, California Delta Branch  
U.S. Army Corps of Engineers  
Regulatory Division  
1325 J Street, Room 1350  
Sacramento, California 95814-2922

Subject: Formal Endangered Species Consultation on the proposed Bottimore Field III Project (Corps File Number 2004-00555) Sacramento County, California

Dear Dr. Dadey:

This is in response to your February 3, 2012, letter and February 8, 2012 electronic mail (email) message to the U.S. Fish and Wildlife Service (Service) requesting initiation of formal consultation for the proposed Bottimore Field III project (proposed project) in Sacramento County, California. Your request was received by the Service on February 16, 2012. You requested formal consultation based on your determination that the project may affect and is likely to adversely affect the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) and threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp) (collectively, vernal pool crustaceans), slender Orcutt grass (*Orcuttia tenuis*), and endangered Sacramento Orcutt grass (*Orcuttia viscida*) (collectively, vernal pool grasses), and the federally-listed as threatened Central California distinct population segment (DPS) of the Central California tiger salamander (*Ambystoma californiense*) (Central California tiger salamander). Critical habitat has been designated for all of the above species. A portion of the proposed project is within critical habitat unit 14A for vernal pool fairy shrimp, unit 9B for vernal pool tadpole shrimp, and unit 3 for the Sacramento Orcutt grass (71 FR 7117). The project is not located within critical habitat for the Central California tiger salamander.

Our primary concern and mandate is the protection of federally-listed species and this response has been prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. §1531 et seq.) (Act). This document represents the Service's biological opinion on the issuance of a permit under section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. §1251 et seq.) for the filling of jurisdictional wetlands for the conversion of valley grassland, seasonal wetlands, and seasonal wetland swales to a vineyard.

The finding and recommendations in this consultation are based on: (1) the May 18, 2007 *Biological Resources Survey for the Bottimore Property, Sacramento County, California*, prepared by ECORP Consulting, Inc.; (2) the December 4, 2006 *Wetland Delineation for the Bottimore Property, Sacramento County, California*, prepared by ECORP Consulting, Inc.; (3) the May 14, 2007 *Revised Wetland Delineation, Bottimore Property, Sacramento County, California*, prepared by ECORP Consulting, Inc.; (4) the June 24, 2011 *Revised Wetland Delineation, Bottimore Property Field III, Sacramento County, California*, prepared by Gibson & Skordal, LLC; (5) the July 1, 2008 *90-Day Report of Findings Regarding Branchiopod Assessment Survey – Proposed Bottimore Mitigation Bank*, prepared by ECORP Consulting, Inc.; (6) your February 3, 2012 letter initiating formal consultation; (7) various emails, phone calls, and site visits held between the Service, the U.S. Army Corps of Engineers (Corps), and Sutter Home Winery, Inc. (project applicant) to discuss project details; and (8) other information available to the Service.

The Service concurs that the project is not likely to adversely affect the vernal pool grasses and Central California tiger salamander. Although all the species are documented to occur in the vicinity of the project site, rare plant surveys have not documented occurrences within the project site. The Service also concurs that the proposed project is not likely to adversely affect the vernal pool tadpole shrimp and Central California tiger salamander, based on the lack of suitable habitat on the project site. The Service concurs that the project is likely to adversely affect the vernal pool fairy shrimp. This document represents the Service's biological opinion on the effects of the proposed project on the vernal pool fairy shrimp and critical habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, and Sacramento Orcutt grass, in accordance with the Act.

### **Consultation History**

- |                   |  |
|-------------------|--|
| July 1, 2008      | Biological Resources Survey and 90-Day Report of Findings Regarding Branchiopod Assessment Survey were submitted to the Service by the project applicant for review. |
| January 6, 2011   | Pre-Application Meeting with the Corps, Service and project applicant to discuss the project.  |
| June 17, 2011     | Service and Corps staff visited the site and discussed the project, potential effects, and minimization measures.  |
| July 18, 2011     | Corps verifies the revised wetland delineation map for the project site. The acreage of jurisdictional wetlands is reduced to 3.326 acres.                           |
| November 14, 2011 | Service staff met with project applicant's consultants to discuss extent of suitable habitat for listed crustaceans.   |
| December 28, 2011 | Service staff visited the site to evaluate quality of wetland habitat and suitability to support the listed crustaceans.   |
| February 3, 2012  | The Corps sent a letter to the Service requesting section 7 consultation.  |

February 8, 2012      The Corps sent an email to the Service clarifying the wetland acreage.

## BIOLOGICAL OPINION

### Description of the Proposed Action

The approximately 223-acre Bottimore Field III project site is located in Sections 17 and 20, Township 6 North, Range 7 East, MDB&M, Sacramento County, California. The parcel can be found on the Clay and Sloughhouse, California 7.5 Minute USGS Topographic Quadrangles. The current land use on the site is grazing/pastureland. The applicant proposes to develop a vineyard on the 223-acre Bottimore Field III. The proposed project would involve the standard approach to vineyard development in similar soils, which is to prepare the land to provide soil conditions for grape root expansion and exploration. Site preparation will require the use of tractors pulling a straight or beveled shank to a maximum depth of 5 or 6 feet, thus breaking up the soil and allowing deep-rooted perennial plants access to subterranean soil. This procedure will require two or three passes in various directions, followed by disking the soil to provide a fairly uniform surface to eventually stake and plant the vineyard.

Work would occur during the summer and fall and will not change the general contour of the land. The ground preparation activity may be accompanied by the installation of drip irrigation main lines, addition of soil amendments and planting a winter cover crop for erosion control on sloping surfaces. Additional disking may be required after the initial work is completed. Because the entire site will be prepared for installation at one time, no "phasing" other than actual planting of the vines will be required. No off-site improvements are required for this project. The equipment associated with the initial ground preparation for vineyard development will be staged on-site. Access to the site will be off of Alta Mesa Road via a gate located across from an existing fire station. The entire site will be planted with grapes, with the exception of a 40-foot buffer at the northern, eastern, and southern boundaries of the site which will be used as equipment turnaround areas.

The project site includes approximately 3.325 acres of waters of the U.S. that are present within the proposed project area. This includes 0.045 acre of drainage ditch, 1.331 acres of depressional seasonal wetlands, and 1.949 acres of seasonal wetland swales. A total of 3.326 acres of waters of the U.S. would therefore be directly affected by the proposed project. The total for indirect affects are 0.060 acre of wetland swale and 0.100 acre of seasonal wetland/vernal pool. Approximately, 0.441 acre of seasonal wetlands on-site provide suitable habitat for the fairy shrimp. The proposed project will directly impacts 0.411 acre of vernal pool fairy shrimp habitat and indirectly impact 0.03 of vernal pool fairy shrimp habitat (Table 1).

**Table 1.**  
**Bottimore Field III Project**  
**Vernal Pool Branchiopod Habitat**  
**Direct Impacts**

Feature Id	Wetland Type	Area (Acres)
WS15	Swale	0.209
S22	Seasonal Wetland	0.035
S24	Seasonal Wetland	0.018
S25	Seasonal Wetland	0.007
S43	Seasonal Wetland	0.046
S46	Seasonal Wetland	0.096
<b>TOTAL</b>		<b>0.411</b>

### Proposed Conservation Measures

The conservation measures, as proposed below, are considered part of the proposed action evaluated by the Service in this biological opinion.

1. Prior to groundbreaking, the applicant will purchase 0.882 acre of vernal pool preservation credits at a 2:1 ratio for direct impacts to 0.411 acre ( $0.411 \times 2 = 0.822$ ) and indirect impacts to 0.03 acre ( $0.03 \times 2 = 0.06$ ) acre of fairy shrimp habitat at a Service-approved conservation bank with a Service Area covering the action area.
2. Prior to groundbreaking, the applicant will dedicate 0.411 vernal pool creation habitat, known as the "unallocated pools" located at the Gill Ranch property at a 1:1 ratio for direct impacts to 0.411 acre of fairy shrimp habitat.
3. Prior to working near vernal pools, seasonal wetlands, or drainages, all heavy equipment will be examined for oil and fuel discharges. All equipment will be checked and maintained daily to prevent leaks of materials.

### Action Area

The action area is defined in 50 CFR §404.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the proposed action, the Service considers the action area to be the alignment of the Alta Mesa Road on the eastern boundary and Woods Road to the south and those areas within 250-feet from the northern and southeastern property boundaries.

## **Analytical Framework for the Jeopardy Analysis and Adverse Modification Analyses**

### ***Jeopardy***

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the fairy shrimp's range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the fairy shrimp in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the fairy shrimp; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the fairy shrimp; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the fairy shrimp.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the fairy shrimp's current status, taking into account any cumulative effects, to determine if the implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the fairy shrimp in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the fairy shrimp and the role of the action area in the survival and recovery of the fairy shrimp as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects for purposes of making the jeopardy determination.

### ***Adverse Modification***

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR §402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in the biological opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the vernal pool crustaceans and Sacramento Orcutt grass in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which evaluates the condition of the vernal pool crustaceans and Sacramento Orcutt grass critical habitat in the action area, the factors responsible for that condition, and the recovery role of the vernal pool crustaceans and Sacramento Orcutt grass critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected vernal pool crustaceans and Sacramento Orcutt grass critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected vernal pool crustaceans and Sacramento Orcutt grass critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the vernal pool crustaceans and Sacramento Orcutt grass critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve the intended recovery role for the vernal pool crustaceans and Sacramento Orcutt grass.

The analysis in this biological opinion places an emphasis on using the intended range-wide function of the vernal pool crustaceans and Sacramento Orcutt grass critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effect, for purposes of making the adverse modification.

### **Status of the Species and Critical Habitats**

#### ***Vernal Pool Fairy Shrimp***

*Species Description*—The vernal pool fairy shrimp was listed as threatened on September 19, 1994 (Service, 1994) (59 FR 48153). Further details on the life history and ecology of the vernal pool fairy shrimp may be found in the final listing rule, Eng *et al.* (1990), Helm (1998), Simovich *et al.* (1992), and Volmar (2002). Final critical habitat was designated for this species on August 6, 2003 (50 CFR 17).

Vernal pool fairy shrimp have delicate elongate bodies, large stalked compound eyes, no carapace, and 11 pairs of swimming legs. They swim or glide gracefully upside-down by means of complex, wavelike beating movements. Fairy shrimp feed on algae, bacteria, protozoa, rotifers, and detritus. Vernal pool fairy shrimp inhabit alkaline pools, ephemeral drainages, rock outcrop pools, vernal pools, and vernal swales (Eriksen and Belk 1999; Helm 1998). Occupied habitats range in size from rock outcrop pools as small as one square meter to large vernal pools up to 12 acres; the potential ponding depth of occupied habitat ranges from 1.2 inches to 48 inches (in southern California).

The geographic range of this species encompasses most of the Central Valley from Shasta County to Tulare County and the central coast range from northern Solano County to Santa Barbara County, California. Additional occurrences have been identified in western Riverside County, California, and in Jackson County, Oregon near the city of Medford (California Natural Diversity Database [CNDDB] 2012; Helm 1998; Eriksen and Belk 1999; Volmar 2002; Service 1994, 2003). The vernal pool fairy shrimp are currently known from 32 presumed populations. The number of recorded sightings of individuals has increased from 178 to over 550 (CNDDB 2008). Records include old museum records and site duplication, so the number of occurrences that are currently extant is unknown. Known records suggest that in most locations the shrimp is frequently present only in low numbers or only present in a small percentage of the pools at the site.

Due to the local topography and geology, vernal pools are usually clustered into pool complexes (Holland and Jain 1998). The genetic characteristics of the species, as well as ecological conditions, such as watershed continuity, indicate that populations of these animals are defined by pool complexes rather than by individual vernal pools (Fugate 1992). Therefore, the most

accurate indication of the distribution and abundance of these species is the number of inhabited vernal pool complexes. The pools and, in some cases, pool complexes supporting these species are usually small.

*Life History*—Female vernal pool fairy shrimp carry eggs in a pear-shaped, ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks. The dormant cysts are capable of withstanding heat, cold, and prolonged desiccation. When the pools refill in the same or subsequent seasons, some, but not all, of the cysts may hatch. The cyst bank in the soil may therefore be comprised of cysts from several years of breeding (Donald 1983). The vernal pool fairy shrimp can mature quickly, allowing populations to persist in short-lived shallow pools. The adults of the vernal pool fairy shrimp have been collected from early December to early May, depending on annual weather conditions. Such quick maturation permits vernal pool fairy shrimp populations to persist in relatively short-lived, shallow bodies of water (Simovich *et al.* 1992).

*Status and Distribution of the Fairy shrimp*—Fairy shrimp are imperiled by a variety of human-caused activities, primarily the loss and modification of habitat due to urban development, agricultural conversion, and infrastructure construction, especially along the periphery of urban areas (Service 2007a, 2007b). Habitat loss occurs from direct destruction or modification (e.g., to the hydrology) of pools due to filling, grading, disking, leveling, and other activities, as well as modification of surrounding uplands which alters vernal pool watersheds. Other activities which adversely affect these species include off-road vehicle use, certain mosquito abatement measures, and pesticide/herbicide use, alterations of vernal pool hydrology, fertilizer and pesticide contamination, invasions of aggressive non-native plants, gravel mining, and contaminated storm water runoff.

Holland (1978) estimated that between 67 and 68 percent of the area within the Central Valley of California, which once supported vernal pools, had been destroyed by 1973. However, an analysis of this report by the Service revealed apparent arithmetic errors, which resulted in a determination that a historic loss between 60 and 85 percent may be more accurate. Coe (1988) estimate that within 20 years, 60 to 70 percent of the habitat would be destroyed by human activities. The rate of loss of vernal pool habitat in the State has been estimated at 2 to 3 percent per year (Holland and Jain 1988).

Between 1994 and 2005, the Service's Sacramento Fish and Wildlife Office engaged in section 7 consultations for projects with impacts to approximately 50,000 acres of vernal pool habitat, which includes both the vernal pools (wetland acres) and the surrounding uplands (Service 2007a). This total includes the loss of 25,000 acres of vernal pool habitat to residential commercial, and industrial development (Service 2005).

In addition to direct habitat loss, the vernal pool habitat also has been and continues to be highly fragmented throughout their ranges due to conversion of natural habitat for urban and agricultural uses. This fragmentation results in small isolated populations. Ecological theory predicts that such populations will be highly susceptible to extirpation due to chance events, inbreeding depression, or additional environmental disturbance (Gilpin and Soule 1986, Goodman 1987a, b). Should an extirpation event occur in a population that has been fragmented, the opportunities for re-colonization would be greatly reduced due to physical (geographical)

isolation from other (source) populations. Only a small proportion of fairy shrimp habitat is protected from these threats.

The Service's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Recovery Plan) provides a recovery strategy from 20 Federally-listed species: 10 endangered plants, five threatened plants, three endangered animals, and two threatened animals. The vernal pool fairy shrimp is included in the Recovery Plan. The Recovery Plan presents an ecosystem-level strategy for recovery and conservation focused on habitat protection and management. As a basis, the plan uses the 17 vernal pool regions in the State of California as defined by CDFG in the California Vernal Pool Assessment Preliminary Report (Keeler-Wolf *et al.* 1998). The Recovery Plan further designates core areas that are distinct areas in each vernal pool region that provide the feature, populations, and distinct geographic and/or genetic diversity necessary for the recovery of the species. A 5-year review was completed for the vernal pool fairy shrimp in 2007 (Service 2007a, 2007b). No change in status was recommended.

### **Vernal Pool Crustacean and Sacramento Orcutt Grass Critical Habitat**

Critical habitat for vernal pool tadpole shrimp, vernal pool fairy shrimp, and Sacramento Orcutt grass was designated in the *Final Designation of Critical Habitat for Four Fairy shrimp and Eleven Vernal Pool Plants in California and Southern Oregon* (50 CFR Part 17). The designated critical habitat units constitute the Service's best assessment of areas determined to be occupied by the species at the time of listing, areas that contain the Primary Constituent Elements (PCEs) essential to the conservation of the species, and additional areas essential to the conservation of the listed vernal pool species.

There are 35 critical habitat units designated for the vernal pool fairy shrimp, totaling 597,821 acres. There are 18 critical habitat units designated for the vernal pool tadpole shrimp, totaling 228,785 acres (Service 2006). The PCEs of critical habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp are: 1) topographic features characterized by mounds and swales and depressions within a matrix of surrounding uplands that result in complexes of continuously, or intermittently, flowing surface water in the swales connecting the pools providing for dispersal and promoting hydroperiods of adequate length in the pools; 2) depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water for a minimum of 18 days for vernal pool fairy shrimp and 41 days for vernal pool tadpole shrimp, in all but the driest years; thereby, providing adequate water for incubation, maturation, and reproduction; 3) sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and, 4) structure within the pools consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter.

There are three critical habitat units designated for the Sacramento Orcutt grass totaling 33,273 acres. Units 1 and 2 are located in Sacramento County, while unit 3 is located in Sacramento and Amador Counties. The PCEs of critical habitat for Sacramento Orcutt grass are: 1) topographic features characterized by isolated mound and intermound complex within a matrix of

surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools, providing for dispersal and promoting hydroperiods of adequate length in the pools; and 2) depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years.

The reduction and fragmentation of habitat due to urban development, flood control projects, highway development, and agricultural land conversion threaten many of the vernal pool crustacean critical habitat units and Sacramento Orcutt grass critical habitat units. Critical habitat units near areas that are rapidly developing are under the greatest degree of risk. Critical habitat for the vernal pool fairy shrimp is the most threatened by development activities in the following counties: Butte (units 7 and 9); Merced (units 21 to 23); Placer (unit 12); and Sacramento (units 13 and 14). Critical habitat for the vernal pool tadpole shrimp is the most threatened by development in the following counties: Butte (unit 3); Merced (unit 16); and Sacramento (units 8 and 9). The amount of destroyed suitable vernal pool crustacean habitat within these critical habitat units has not been quantified; however, the Service has issued biological opinions for many projects within these counties that have, cumulatively, contributed to a local and range-wide trend of habitat loss and degradation of suitable vernal pool crustacean habitat within designated critical habitat.

## **Environmental Baseline**

### Vernal Pool Fairy Shrimp

*Status of the species within the action area*—The action area is located in the Southeastern Sacramento Valley Vernal Pool Region, which contains almost 15 percent of the remaining vernal pool grasslands in the State of California (Keeler-Wolf *et al.* 1998). The action area is also within the Cosumnes/Rancho Seco Core Area as designated in the Recovery Plan (Service 2005). An “occurrence,” which may represent a documented collection, observation, or museum specimen, is defined by the CNDDDB as a location occupied by a species separated from other locations by at least 0.25 miles, and may contain multiple records. There are 116 occurrences of the vernal pool fairy shrimp in the Southeastern Sacramento Valley Vernal Pool Region, 71 occurrences in Sacramento County and 10 occurrences of the vernal pool fairy shrimp within the Cosumnes/Rancho Seco Core Area (Service 2007a).

There are multiple records of vernal pool fairy shrimp within 10 miles of the action area. Three occurrences of the vernal pool fairy shrimp have been reported within five miles of the site, and one within one mile of the site (CDFG 2003). ECORP Consulting, Inc. (ECORP) conducted an assessment level vernal pool branchiopod survey to document the presence of listed brachiopods at the proposed project site in 2008. The survey was conducted on February 14, 2008 and February 29, 2008. The survey was conducted under the authority of Federal Fish and Wildlife Permit No. TE-012973-4 in compliance with the *April 19, 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* (Guidelines). No branchiopods were observed on-site

during these field surveys. (See 90-Day Report of Findings Regarding Branchiopod Assessment Survey).

Although no branchiopods were observed during assessment-level surveys, the presence of the listed species cannot be ruled out due to the limited sampling period. Based on numerous field reviews of the site and review of the wetland delineation data, it has been determined that only a small portion of the wetland habitat on the site ponds for sufficient duration to support the vernal pool fairy shrimp. The wetlands do not pond at sufficient depth and duration to support vernal pool tadpole shrimp or Sacramento Orcutt grass. For purposes of this evaluation it is assumed that the vernal pool fairy shrimp is present on the site.

*Factors affecting the vernal pool fairy shrimp within the action area*—There are no known concurrent actions from State, local, private, and unrelated Federal actions within the action area.

#### Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp, and Sacramento Orcutt Grass Critical Habitat

*Status of the vernal pool fairy shrimp and vernal pool tadpole shrimp critical habitat within the action area*— Approximately 206 acres in the northern portion of the project site is located within vernal pool fairy shrimp critical habitat unit 14A and vernal pool tadpole shrimp critical habitat unit 9B. Most of the action area appears to contain all PCEs for the fairy shrimp that are essential for the conservation of the species. However, it is unlikely that all of the depressional features within the action area continuously hold water for a minimum of 18 days for vernal pool fairy shrimp and 41 days for vernal pool tadpole shrimp, in all but the wettest years. Therefore, adequate water for incubation, maturation, and reproduction is not entirely certain.

*Factors affecting vernal pool crustacean habitat within the action area*—There are no known concurrent actions from State, local, private, and unrelated Federal actions within the action area affecting the environmental baseline of the critical habitat for these two species within the action area.

*Status of Sacramento Orcutt grass critical habitat within the action area* – The action is located in critical habitat unit 3 for Sacramento Orcutt grass. This unit is approximately 32,086 acres. Roughly, it is bordered on the south by the Sacramento and San Joaquin County line, on the north by Laguna Creek, on the east by the Sacramento and Amador County line, and on the west by Alta Mesa Road. The 206 acres of Sacramento Orcutt grass critical habitat within the action area represents approximately 0.60% of the critical habitat unit.

*Factors affecting Sacramento Orcutt grass critical habitat within the action area* – There are no known concurrent actions from State, local, private, and unrelated Federal actions within the action area affecting the environmental baseline of the critical habitat for the grass within the action area.

## **Effects of the Action**

### Vernal Pool Fairy Shrimp

#### **Direct Effects**

Direct effects are the effects of the action that would directly affect the species, for example, those actions that would immediately remove or destroy habitat or displace animals and plants. The construction of the proposed project would result in the direct loss of 0.411 acre of vernal pool fairy shrimp habitat and the death of an unknown number of vernal pool fairy shrimp. Our analysis is based on the assumption that the proposed project will be implemented within two (2) calendar years of the date of the issuance of this biological opinion.

#### **Indirect Effects**

Vernal pool habitat indirectly affected includes all habitat supported by future destroyed upland areas and swales, and all habitat otherwise damaged by loss of watershed, human intrusion, introduced species, and pollution that will be caused by the project. The proposed project will indirectly impact up to 0.03 acre of potential vernal pool fairy shrimp habitat.

### Vernal Pool Fairy shrimp, Vernal Pool Tadpole Shrimp, and Sacramento Orcutt Grass' Critical Habitat

Based on the PCEs previously described in the Status of the Critical Habitat section, conversion (i.e. deep ripping) that occurs in or near vernal pool habitat will disrupt vernal pool crustacean habitat and Sacramento Orcutt grass habitat through direct and indirect effects. The proposed project is likely to adversely affect 206 acres of the vernal pool fairy and tadpole shrimp and Sacramento Orcutt grass' critical habitat. The proposed project will cause a loss of wetted and upland habitat. Loss of the upland habitat will reduce the function of PCE 1 and PCE 3 because this upland habitat serves to support adequate hydroperiod of the vernal pool crustacean habitat and to provide sources of food (i.e. detritus) to the fairy shrimp. The proposed project will cause indirect effects to wetted vernal pool crustacean habitat. This will result in loss of habitat, including structures within the pools that provide shelter for the fairy shrimp and which will reduce the function of PCE 2 and PCE 4. Overall, the project will affect critical habitat by eliminating upland habitat, and vernal pool and swale complexes. For vernal pool fairy shrimp, the project site represents 0.60 percent of critical habitat unit 14A and only 0.04 percent of the statewide critical habitat. For vernal pool tadpole shrimp, the project site represents 0.60 percent of critical habitat unit 9B and 0.10 percent of statewide critical habitat. For the Sacramento Orcutt grass, the project site represents 0.69 percent of critical habitat unit 3 and 0.67 percent of statewide critical habitat.

#### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

A number of on-going and proposed projects could contribute to adverse effects to fairy shrimp within Sacramento County. In most cases, however, these actions would be subject to Federal review and would, therefore, not be considered cumulative to the proposed project. For instance, several large highway and light rail construction, road improvement, water transfer, and utility and interceptor installation projects are currently planned or underway in south Sacramento County. These projects will contribute to the loss and degradation of habitats of listed species across their range, particularly in South Sacramento County. These activities may alter vernal pool crustacean habitats and can potentially harass, harm, injure, or kill these species. Because these activities have a Federal nexus, the Service will analyze these projects to determine if they will result in the jeopardy of Federally-listed species and/or adverse modification and destruction of critical habitat for these species. An undetermined number of future projects that alter the habitat of fairy shrimp, however, could go forward without the need for a Corps 404 permit. Activities that would potentially affect listed fairy shrimp include development associated with urban, water, flood control, highway/roadway and utility projects, application of herbicides/pesticides, conversion to agricultural use, and indirect effects of adjacent development such as urban run-off altering the hydrologic regime.

### **Conclusion**

After reviewing the current status of the vernal pool fairy shrimp, vernal pool fairy shrimp critical habitat, vernal pool tadpole shrimp critical habitat, and Sacramento Orcutt grass critical habitat, the environmental baseline for the area covered by this biological opinion, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Bottimore Field III project, as proposed, is not likely to jeopardize the continued existence of these species and is not likely to destroy or adversely modify designated critical habitat. The Service reached this conclusion because the project-related effects to these species, when added to the environmental baseline and analyzed in consideration of anticipated cumulative effects, would not rise to the level of precluding recovery of the species or reducing the likelihood of survival of the species. The effects to the vernal pool fairy shrimp and to the critical habitat units are small and discrete, and the conservation measures will contribute to the long-term preservation and management of the vernal pool habitat. All critical habitat elements within the critical habitat designated for the species are expected to remain functional, notwithstanding the loss within the action area, since the loss is discreet and the action area does not represent an area entitled to specific concern as essential for overall species recovery. Additionally, any potential loss in recovery rate of the species caused by the loss within the action area will be of short duration since the project will contribute to the conservation of the vernal pool fairy shrimp by preserving habitat at a conservation bank that will manage a large contiguous section of habitat for the benefit of the species.

### **INCIDENTAL TAKE STATEMENT**

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which created the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to,

breeding, feeding, or sheltering. Harm is further defined by the Service to include significant habitat modification or degradation that results in the death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps; (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

### **Amount or Extent of Take**

The Service anticipates incidental take of the vernal pool fairy shrimp will be difficult to detect or qualify. The cryptic nature of this species and its relatively small body size make the finding of a dead specimen unlikely. The species occurs in habitats that make them difficult to detect. Due to the difficulty in quantifying the number of individuals that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of vernal pools/ponded depressions (vernal pool fairy shrimp habitat) that will become unsuitable for vernal pool fairy shrimp due to direct or indirect effects as a result of the action. Therefore, the Service estimates that all vernal pool fairy shrimp inhabiting 0.411 acre of vernal pool habitat will become harassed, harmed, injured, or killed, as a result of the proposed action.

### **Effect of the Take**

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the vernal pool fairy shrimp.

### **Reasonable and Prudent Measures**

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effects of the proposed project on the vernal pool fairy shrimp:

1. All conservation measures outlined in the Description of the Proposed Action, and as a result in this biological opinion will be fully implemented. Further, these conservation measures shall be supplemented by the Terms and Conditions below.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The project applicant will adhere to the Conservation Measures described in the Description of the Proposed Action of this biological opinion.
2. Prior to the start of construction, the project applicant shall send a copy of the fully executed credit sales agreements, bills of sale, and payment receipts to the Service for the purchase of the vernal pool preservation credits and creation vernal pool habitat purchases.
3. The project applicant shall include a copy of this biological opinion within its solicitations for construction of the project, making the prime contractor responsible for implementing all requirements and obligations included in this biological opinion and to educate and inform all other contractors involved in the project as to the requirements of this biological opinion.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation or recover actions, or development of information and data bases. The Service recommends the following conservation measures:

1. The Corps should work with the Service to implement the recovery actions to achieve recovery criteria of the Recovery Plan, including but not limited to species and habitat status surveys and species-related research.
2. The Corps should utilize their authority and resources to increase public awareness of vernal pool species.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

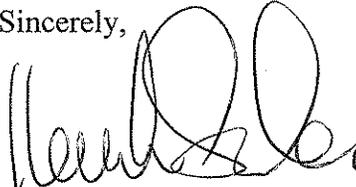
### **REINITIATION—CLOSING STATEMENT**

This concludes formal consultation on the proposed Bottimore Field III project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of the incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an

extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Please contact Terry Adelsbach, Senior Fish and Wildlife Biologist or Kellie Berry, Chief, Sacramento Valley Division of this office at (916) 414-6645, if you have any questions regarding the proposed Bottimore Field III project.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan K. Moore". The signature is fluid and cursive, with a large loop at the end.A small, handwritten mark or initials in black ink, possibly "SKM", located to the left of the typed name.

Susan K. Moore  
Field Supervisor

cc:

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Paul Jones, U.S. Environmental Protection Agency, San Francisco, CA

Ginger Fodge, Gibson and Skordal, LLC., Sacramento, CA

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