SMUD Nature Preserve Mitigation Bank

Final Initial Study
and
Mitigated Negative Declaration

SCH #2010062079

Prepared for:

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.®

Sacramento Municipal Utility District
6201 S Street
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Prepared by:

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August 2010

FINAL MITIGATED NEGATIVE DECLARATION SACRAMENTO MUNICIPAL UTILITY DISTRICT SMUD NATURE PRESERVE MITIGATION BANK PROJECT

Lead Agency:

Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817-1899 or

P.O. Box 15830 MS B203
Sacramento, CA 95852-1830
Attn: Ronald Scott, Environmental Management Specialist III
(916) 732-5114 or rscott@smud.org

Introduction

This document has been prepared to evaluate the Sacramento Municipal Utility District's (SMUD) proposed SMUD Nature Preserve Mitigation Bank Project (Proposed Project) for compliance under the California Environmental Quality Act (CEQA). SMUD is the lead agency responsible for complying with the provisions of CEQA. The purpose of the Proposed Project is to create a multi-species/multi-habitat mitigation bank that provides for long-term protection of special-status species and habitats found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Credits from the Proposed Project would be used to offset future, unavoidable impacts to special-status species and their habitats, wetland impacts, and oak tree impacts that could result from future public or private agency-approved projects. The Proposed Project would also be used to offset carbon emissions from future projects.

Project Description

The Proposed Project site consists of approximately 1,132 acres owned by SMUD. It is located in southeastern Sacramento County, approximately 12 miles east of State Route 99, south of Route 104, and east of the towers of the decommissioned Rancho Seco nuclear power plant, which was shut down in 1989.

The Proposed Project would restore and establish vernal pools, vernal swales, seasonal wetlands, and seasonal swales within an approximately 92-acre area in the eastern portion of the Proposed Project site that was leveled more than 40 years ago for use as irrigated pasture. The Proposed Project would also establish additional populations of special-status species, including several plant species, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western burrowing owl within existing, restored, and created habitats, thus contributing to the overall recovery of these species. A more detailed project description is included in Chapter 1 and would include oak tree planting and extinguishing an existing oil and gas lease at the Proposed Project site.

Findings

As Lead Agency for compliance with CEQA requirements, SMUD finds that the Proposed Project would be implemented without causing a significant adverse impact on the environment. Mitigation measures for potential impacts associated with air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, hazards and hazardous materials, and noise would be implemented as part of SMUD's Proposed Project.

Cumulative Impacts

CEQA requires that SMUD assess whether its Proposed Project's incremental effects are significant when viewed in connection with the effects of other projects. Based on the analysis presented in this Initial Study, the Proposed Project would not contribute incrementally to considerable environmental changes when considered in combination with other projects in the area. This is because: (1) the Proposed Project would preserve, restore, and establish wetland habitats; (2) the Proposed Project would contribute to the protection and preservation of special-status plants and wildlife; (3) oak tree plantings would contribute to the reduction of greenhouse gases; (4) potential environmental effects of the Proposed Project were determined to be less than significant; and (5) all identified potentially significant impacts would be mitigated to a less-than-significant level.

Growth Inducing Impacts

SMUD exists as a public agency to supply electrical energy to customers in the Sacramento area. It has an obligation to serve all new development approved by the local agencies and Sacramento County. SMUD does not designate where and what new development may occur. Establishment of a mitigation bank would allow for the sale of mitigation credits for planned development and would not induce additional population growth. The Proposed Project would not create new electricity infrastructure or extend infrastructure into areas not served by SMUD. Therefore, SMUD projects are not considered to be "growth inducing," as defined by CEQA. In addition, the Proposed Project would not cause increased demand on public infrastructure, public services, housing, circulation, or other resources.

Determination

On the basis of this evaluation, SMUD concludes:

a. The Proposed Project does not 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 species, or eliminate important examples of the major periods of California history or prehistory.

b. The Proposed Project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

c. The Proposed Project would not have impacts that are individually limited, but cumulatively considerable.

d. The Proposed Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

e. No substantial evidence exists to demonstrate that the Proposed Project would have a substantive negative effect on the environment.

Once approved, this Mitigated Negative Declaration will be filed pursuant to CEQA Guidelines.

Signature

8/12/10

Date

Environmental Management Specialist III

Title

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1.0 Introduction

The Sacramento Municipal Utility District (SMUD) proposes to establish the SMUD Nature Preserve Mitigation Bank (Bank) on approximately 1,132 acres of SMUD-owned property located in southeastern Sacramento County, approximately 12 miles east of State Route (SR) 99, south of SR 104, and east of the decommissioned Rancho Seco Nuclear Generating Station (shut down in 1989) towers. Development of the Bank will create a multispecies/multihabitat mitigation bank that provides for long-term protection of special-status species and habitats (Proposed Project) found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Bank credits would be used to offset future unavoidable impacts to special-status species and their habitats, wetlands, and oak trees that could result from future agency-approved projects.

This document is the Final Initial Study/Mitigated Negative Declaration (IS/MND) for the Sacramento Municipal Utility District Nature Preserve Mitigation Bank Project. The Draft IS/MND and supporting appendices are incorporated as part of the Final IS/MND and attached.

1.1 Review of the Draft IS/MND

Copies of the Draft IS/MND were circulated for a 30-day public review period to all individuals who requested a copy, local libraries, and appropriate resource agencies. A Notice of Intent (NOI) was also distributed to all property owners of record identified by the Sacramento County Assessor's office as having property within 500 feet of Proposed Project boundaries. The NOI identifies where the document is available for public review and invites interested parties to provide written comments for incorporation into the final IS/MND. The NOI also invites interested parties to attend a public meeting on the Proposed Project. A copy of the NOI is attached to this document.

At the end of the public review period, one comment letter was received from the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit. This letter is presented in the Comments and Response section of this document. The comment did not change the conclusions presented in the attached Final IS/MND.

1.2 Preparation of the Final IS/MND

The comment letter was reviewed, comments were identified, and a response was prepared (see Comments and Responses section). Based on the content of the comment, no changes or edits were made to the Draft IS/MND.

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2.0 Comments and Responses

One letter was received during and after the public review period in response to the distribution of the Draft IS/MND. Table 1 lists the source of the comment letter and the number of comments contained in the letter.

Table 1. List of Commenters

Commenter	Letter Number	Number of Comments
Scott Morgan, Director, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit	1	1-1

Letter 1

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cathleen Cox
Acting Director

July 28, 2010

Ronald Scott
Sacramento Municipal Utility District
P.O. Box 15830, MS B203
Sacramento, CA 95852-1830

Subject: SMUD Nature Preserve Mitigation Bank
SCH#: 2010062079

Dear Ronald Scott:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on July 27, 2010, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Comment 1-1

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Letter 1, Page 2

Document Details Report
State Clearinghouse Data Base

SCH#	**2010062079**
Project Title	SMUD Nature Preserve Mitigation Bank
Lead Agency	Sacramento Municipal Utility District
Type	**MND** Mitigated Negative Declaration
Description	SMUD proposes to establish the SMUD Nature Preserve Mitigation Bank on ~1,132 acres of SMUD owned property located in southeastern Sacramento County (APN 140-0050-011, 013, 024, & -00060-011, 013). The Proposed Project will create a multispecies/multihabitat mitigation bank that provides for long term protection of special-status species and habitats found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Bank credits would be used to offset future unavoidable impacts to special-status species and their habitats, wetlands, and oak trees that could result from future agency-approved projects. Elements of the Proposed Project will preserve, enhance, restore, and create wetlands and special-status wildlife and plant habitats and extinguish an existing onsite oil and gas lease.

Lead Agency Contact

Name	Ronald Scott		
Agency	Sacramento Municipal Utility District		
Phone	(916) 732-5114	***Fax***	
email			
Address	P.O. Box 15830, MS B203		
City	Sacramento	***State*** CA	***Zip*** 95852-1830

Project Location

County	Sacramento				
City					
Region					
Lat / Long	38° 39' 10.3" N / 121° 16' 49.5" W				
Cross Streets	Clay East Rd and Twin Cities Rd				
Parcel No.	140-0050-011, 013, 024, -00060-011, 013				
Township	6N	***Range*** 8E	***Section*** 27,28	***Base***	

Proximity to:

Highways	104 (Twin Cities Rd)
Airports	No
Railways	SPRR
Waterways	Clay Creek
Schools	No
Land Use	Agriculture/Permanent Agriculture, 80 acre minimum/Reserve Conservation Area

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Landuse; Minerals; Noise; Public Services; Recreation/Parks; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian
Reviewing Agencies	Resources Agency; Department of Fish and Game, Region 2; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 3; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; Public Utilities Commission

Date Received 06/28/2010 ***Start of Review*** 06/28/2010 ***End of Review*** 07/27/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter No. 1 – Scott Morgan, Director, Governor's Office of Planning and Research, State Clearinghouse and Planning Unit

Response to Comment 1-1

Comment noted.

3.0 Changes and Edits to the Draft IS/MND

3.1 Overview

No changes were made to the Draft IS/MND

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PUBLIC NOTICE

SMUD NATURE PRESERVE MITIGATION BANK DRAFT INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

A Draft Initial Study and Mitigated Negative Declaration has been prepared for the proposed Sacramento Municipal Utility District (SMUD) Nature Preserve Mitigation Bank Project (project) in Sacramento County, California. This document was prepared in compliance with the California Environmental Quality Act (CEQA). SMUD is the CEQA lead agency.

SMUD proposes to establish the SMUD Nature Preserve Mitigation Bank (Proposed Project) on approximately 1,132 acres of SMUD-owned property located in southeastern Sacramento County. The Proposed Project will create a multispecies/multihabitat mitigation bank that provides for long-term protection of special-status species and habitats found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Bank credits would be used to offset future unavoidable impacts to special-status species and their habitats, wetlands, and oak trees that could result from future public or private agency-approved projects. Elements of the Proposed Project will preserve, enhance, restore, and create wetlands and special-status wildlife and plant habitats.

This Draft Mitigated Negative Declaration complies with CEQA, pursuant to Section 21080 of the California Public Resource code, to evaluate the environmental impacts associated with the construction and operation of subject Project. The Mitigated Negative Declaration concludes that the Project will not cause a significant adverse environmental impact and an Environmental Impact Report is not required.

With the guidance and oversight of the State Clearinghouse, the Draft Initial Study and Mitigated Negative Declaration was released for circulation to concerned resource agencies and to interested parties on June 28, 2010, for a 30-day public review period that will end July 28, 2010. The document is available on SMUD's web page at http://www.smud.org/en/about/pages/reports-ceqa.aspx and hardcopies may be reviewed at the following locations:

- Galt-Marian O. Lawrence Community Library, 1000 Carolina Avenue, Galt, CA 95632
- Sacramento Central Library, 828 I Street, Sacramento, CA 95814
- Sacramento Municipal Utility District Office, 6201 S Street, Sacramento, CA 95817
- State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814

Written comments should be submitted to Ron Scott, SMUD, P.O. Box 15830, MS B203, Sacramento, CA, 95852-1830, rscott@smud.org, fax (916) 732-6890 before 5 p.m., July 28, 2010. If you would like a copy or have questions please contact Ron Scott at (916) 732-5114 or at rscott@smud.org.

SMUD invites members of the public to attend a public meeting regarding the Draft Initial Study and Mitigated Negative Declaration. The public meeting will be held on:

July 15, 2010 at 6 p.m.
SMUD Headquarters Building
6201 S Street, Rm HCC
Sacramento, CA 95817

The SMUD Board of Directors will consider adoption of the Mitigated Negative Declaration for this Project at two meetings at which the public may make oral comments. The Board will take no action at the Integrated Resources and Customer Service Committee meeting.

Both public meetings will be held at
SMUD Headquarters Building
6201 S Street, Sacramento, CA 95817

SMUD's Integrated Resources and Customer Service Committee Meeting September 1, 2010, 5:00 p.m., Rm.: HCC	SMUD Board of Directors Meeting September 2, 2010, 6:00 p.m., Rm.: Auditorium

Accommodations are available for disabled individuals. If you need a hearing assistance device or other aid, or have questions, please contact Ron Scott at (916) 732-5114.

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.®

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©SMUD-PN002-10 6/10 (5.135 x 12.25) Forms Management

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SMUD Nature Preserve Mitigation Bank

Draft Initial Study
and
Mitigated Negative Declaration

Prepared for:

Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817
Contact: **Ron Scott**
(916) 732-5114
Email: rscott@smud.org

Prepared by:

Area West Environmental, Inc.
7006 Anice Street
Orangevale, CA 95662
Contact: **Becky Rozumowicz**
(916) 987-3362
Email: areawest@pacbell.net

June 2010

This report should be referenced as:

Area West Environmental, Inc. 2010. SMUD Nature Preserve Mitigation Bank Draft Initial Study and Mitigated Negative Declaration. Prepared for Sacramento Municipal Utility District. June.

DRAFT MITIGATED NEGATIVE DECLARATION
SACRAMENTO MUNICIPAL UTILITY DISTRICT
SMUD NATURE PRESERVE MITIGATION BANK PROJECT

Lead Agency:

Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817-1899 or

P.O. Box 15830 MS B203
Sacramento, CA 95852-1830
Attn: Ronald Scott, Environmental Management Specialist III
(916) 732-5114 or rscott@smud.org

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This document has been prepared to evaluate the Sacramento Municipal Utility District's (SMUD) proposed SMUD Nature Preserve Mitigation Bank Project (Proposed Project) for compliance under the California Environmental Quality Act (CEQA). SMUD is the lead agency responsible for complying with the provisions of CEQA. The purpose of the Proposed Project is to create a multi-species/multi-habitat mitigation bank that provides for long-term protection of special-status species and habitats found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Credits from the Proposed Project would be used to offset future, unavoidable impacts to special-status species and their habitats, wetland impacts, and oak tree impacts that could result from future public or private agency-approved projects. The Proposed Project would also be use to offset carbon emissions from future projects.

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The Proposed Project would restore and establish vernal pools, vernal swales, seasonal wetlands, and seasonal swales within an approximately 92-acre area in the eastern portion of the Proposed Project site that was leveled more than 40 years ago for use as irrigated pasture. The Proposed Project would also establish additional populations of special-status species, including several plant species, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western burrowing owl within existing, restored, and created habitats, thus contributing to the overall recovery of these species. A more detailed project description is included in Chapter 1 and would include oak tree planting and extinguishing an existing oil and gas lease at the Proposed Project site.

Findings

As Lead Agency for compliance with CEQA requirements, SMUD finds that the Proposed Project would be implemented without causing a significant adverse impact on the environment. Mitigation measures for potential impacts associated with air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, hazards and hazardous materials, and noise would be implemented as part of SMUD's Proposed Project.

Cumulative Impacts

CEQA requires that SMUD assess whether its Proposed Project's incremental effects are significant when viewed in connection with the effects of other projects. Based on the analysis presented in this Initial Study, the Proposed Project would not contribute incrementally to considerable environmental changes when considered in combination with other projects in the area. This is because: (1) the Proposed Project would preserve, restore, and establish wetland habitats; (2) the Proposed Project would contribute to the protection and preservation of special-status plants and wildlife; (3) oak tree plantings would contribute to the reduction of greenhouse gases; (4) potential environmental effects of the Proposed Project were determined to be less than significant; and (5) all identified potentially significant impacts would be mitigated to a less-than-significant level.

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Determination

On the basis of this evaluation, SMUD concludes:

a. The Proposed Project does not 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 species, or eliminate important examples of the major periods of California history or prehistory.

b. The Proposed Project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

c. The Proposed Project would not have impacts that are individually limited, but cumulatively considerable.

d. The Proposed Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

e. No substantial evidence exists to demonstrate that the Proposed Project would have a substantive negative effect on the environment.

Once approved, this Mitigated Negative Declaration will be filed pursuant to CEQA Guidelines.

Signature	Date
Environmental Management Specialist III	
Title	

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Table of Contents

Page

Chapter 1 Project Overview and Background 1-1
1.1 Project Overview 1-1
1.2 Purpose of This Document 1-1
1.3 Organization of the Initial Study and Mitigated Negative Declaration 1-2
1.4 General Project Information 1-2
1.5 Public Review Process 1-3
1.6 SMUD Board Approval Process 1-3
1.7 CEQA Determination 1-3
1.8 Environmental Factors Potentially Affected 1-4
Chapter 2 Project Description 2-1
2.1 Project Location 2-1
2.2 Project Background 2-1
2.3 Description of Project Area, Land Use, and Zoning 2-2
2.3.1 Zoning and General Plan Designation 2-2
2.4 Surrounding Land Uses and Setting 2-2
2.4.1 Rancho Seco Nuclear Generating Station 2-2
2.4.2 Cosumnes Power Plant 2-3
2.4.3 Rancho Seco Recreation Area 2-3
2.4.4 Amanda Blake Memorial Wildlife Refuge 2-3
2.4.5 Howard Ranch 2-3
2.4.6 Howard Ranch Nature Trail 2-3
2.5 Project Objectives 2-4
2.6 Project Features 2-4
2.7 Project Construction 2-5
2.7.1 Wetlands Restoration/Establishment 2-6
2.7.2 Burrowing Owl Habitat Enhancement 2-9
2.7.3 California Tiger Salamander Habitat Enhancement 2-10
2.7.4 Oak Tree Planting 2-10
2.7.5 Fencing and Signage 2-11
2.7.6 Erosion Control Practices 2-11
2.8 Project Operation 2-12
2.8.1 Short-Term Management and Monitoring 2-12
2.8.2 Long-Term Management and Monitoring 2-13
2.9 Project Schedule 2-14
2.9.1 Mitigation Monitoring Plan 2-14
2.10 Required Permits and Approvals 2-14
Chapter 3 Environmental Checklist 3-1
3.1 Aesthetics 3-1
3.1.1 Environmental Setting 3-1
3.1.2 Answers to Checklist Questions 3-1
3.1.3 Mitigation 3-2
3.2 Agriculture and Forest Resources 3-3
3.2.1 Environmental Setting 3-3
3.2.2 Answers to Checklist Questions 3-4
3.2.3 Mitigation 3-4
3.3 Air Quality 3-5

3.3.1 Environmental Setting 3-5
3.3.2 Thresholds of Significance 3-9
3.3.3 Emissions Modeling Methods 3-10
3.3.4 Answers to Checklist Questions 3-11
3.3.5 Mitigation 3-14
3.4 Biological Resources 3-16
3.4.1 Environmental Setting 3-16
3.4.2 Waters of the U.S., Including Wetlands 3-17
3.4.3 Special-Status Species 3-17
3.4.4 Answers to Checklist Questions 3-23
3.4.5 Mitigation 3-27
3.5 Cultural Resources 3-31
3.5.1 Environmental Setting 3-31
3.5.2 Answers to Checklist Questions 3-34
3.5.3 Mitigation 3-35
3.6 Geology and Soils 3-37
3.6.1 Environmental Setting 3-37
3.6.2 Answers to Checklist Questions 3-39
3.6.3 Mitigation 3-40
3.7 Greenhouse Gas Emissions 3-41
3.7.1 Environmental Setting 3-41
3.7.2 Thresholds of Significance 3-44
3.7.3 Greenhouse Gas Emissions Modeling Methods 3-45
3.7.4 Answers to Checklist Questions 3-45
3.7.5 Mitigation 3-46
3.8 Hazards and Hazardous Materials 3-47
3.8.1 Environmental Setting 3-48
3.8.2 Answers to Checklist Questions 3-48
3.8.3 Mitigation 3-50
3.9 Hydrology and Water Quality 3-51
3.9.1 Environmental Setting 3-52
3.9.2 Answers to Checklist Questions 3-53
3.9.3 Mitigation 3-55
3.10 Land Use and Planning 3-56
3.10.1 Environmental Setting 3-56
3.10.2 Answers to Checklist Questions 3-57
3.10.3 Mitigation 3-57
3.11 Mineral Resources 3-58
3.11.1 Environmental Setting 3-58
3.11.2 Answers to Checklist Questions 3-58
3.11.3 Mitigation 3-59
3.12 Noise 3-60
3.12.1 Environmental Setting 3-60
3.12.2 Ambient Noise Modeling Methods 3-61
3.12.3 Answers to Checklist Questions 3-61
3.12.4 Mitigation 3-63
3.13 Population and Housing 3-65
3.13.1 Environmental Setting 3-65
3.13.2 Answers to Checklist Questions 3-65
3.13.3 Mitigation 3-66
3.14 Public Services 3-67

3.14.1 Environmental Setting 3-67
3.14.2 Answers to Checklist Questions 3-67
3.14.3 Mitigation 3-68
3.15 Recreation 3-69
3.15.1 Environmental Setting 3-69
3.15.2 Answers to Checklist Questions 3-69
3.15.3 Mitigation 3-70
3.16 Transportation/Traffic 3-71
3.16.1 Environmental Setting 3-71
3.16.2 Answers to Checklist Questions 3-72
3.16.3 Mitigation 3-72
3.17 Utilities and Service Systems 3-73
3.17.1 Environmental Setting 3-73
3.17.2 Answers to Checklist Questions 3-74
3.17.3 Mitigation 3-75
3.18 Mandatory Findings of Significance 3-76
3.18.1 Answers to Checklist Questions 3-76
Chapter 4 List of Preparers 4-1
4.1 Sacramento Municipal Utility District 4-1
4.2 Area West Environmental, Inc. 4-1
Chapter 5 References 5-1

TABLES, FIGURES, AND APPENDICES

Tables

Page

2-1 Equipment Likely To Be Used During Construction 2-5
2-2 Estimated Number of Construction Personnel and Duration of Activity 2-6
2-3 Estimated Water Usage 2-6
3-1 State and Federal Ambient Air Quality Standards and Attainment Status Summary 3-6
3-2 Health Effects of Main Criteria Air Pollutants 3-8
3-3 Summary of Construction Requirements 3-11
3-4 Construction-Generated Criteria Air Pollutant Emissions 3-12
3-5 Summary of Waters of the U.S., Including Wetlands 3-17
3-6 Special-Status Species Survey Dates and Findings 3-19
3-7 Geologic Formation and Associated Soil Map Units 3-38
3-8 Construction-Generated Greenhouse Gas Emissions 3-46
3-9 Representative Construction Equipment Vibration Levels 3-63

Figures

		Page
1	Regional Location	2-17
2	Proposed Project Location	2-18
3	Zoning at the Proposed Project	2-19
4	Land Use Near the Project	2-20
5	Waters of the U.S.	2-21
6	Proposed Construction Access Routes and Offsite Staging Area	2-22
7	Historic Aerial Photographs of the Irrigated Pasture	2-23
8	Proposed Conceptual Wetlands to be Restored/Established	2-24
9	Proposed Wildlife Enhancement Locations	2-25
10	Proposed Oak Tree Planting Area	2-26
11	Location of Fences, Gates, Firebreaks, and Signage	2-27
12	Special-Status Plant Locations	2-28
13	Special-Status Wildlife Locations	2-29
14	USFWS-Designated Critical Habitat	2-30
15	Soils	2-31

Appendices

Appendix A. Mitigation Monitoring Program

Appendix B. Air Quality Modeling Data

Appendix C. Greenhouse Gas Emissions Modeling Data

Appendix D. Noise Modeling Data

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	assembly bill
amsl	above mean sea level
APN	Assessor's Parcel Number
ATV	all-terrain vehicle
AWE	Area West Environmental, Inc.
Bank	SMUD Nature Preserve Mitigation Bank
BMPs	Best Management Practices
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAT	Climate Action Team
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CFGC	California Fish and Game Code
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHABA	Committee of Hearing, Bio-Acoustics, and Bio-Mechanics
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
Corps	U.S. Army Corps of Engineers
County	County of Sacramento
CPP	Cosumnes Power Plant
CWA	Clean Water Act
dB	decibels

dBA	A-weighted decibels
DOE	U.S. Department of Energy
EIR	Environmental Impact Report
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
gpm	gallons per minute
HCP	habitat conservation plan
IOSB	Interim Onsite Storage Building
IRCS	Integrated Resources and Customer Service
IS	Initial Study
ISFSI	Independent Spent Fuel Storage Installation
IS/MND	Initial Study/Mitigated Negative Declaration
kV	kilovolt
lb/day	pounds per day
L_{eq}	noise-level equivalent
LOS	level of service
MND	Mitigated Negative Declaration
$MTCO_2e$/year	metric tons of CO_2 equivalent per year
ND	negative declaration
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPDES	National Pollution Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OPR	Governor's Office of Planning and Research

PAWS	Performing Animal Welfare Society
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
Ppv	peak particle velocity
CPUC	California Public Utilities Commission
RCRA	Resource Conservation and Recovery Act
RDM	residual dry matter
ROG	reactive organic gasses
RWQCB	Central Valley Regional Water Quality Control Board
SB	Senate Bill
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SR	State Route
SRHP	State Register of Historic Places
SSHCP	Draft South Sacramento Habitat Conservation Plan
SVAB	Sacramento Valley Air Basin
SVC	Sacramento Valley Conservancy
SWPPP	Storm Water Pollution Prevention Plan
TNC	The Nature Conservancy
USDA	U.S. Department of Agriculture
USEPA	U. S. Environmental Protection Agency
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements
yd^3	cubic yards

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CHAPTER 1 PROJECT OVERVIEW AND BACKGROUND

1.1 Project Overview

The Sacramento Municipal Utility District (SMUD) proposes to establish the SMUD Nature Preserve Mitigation Bank (Bank) on approximately 1,132 acres of SMUD-owned property located in southeastern Sacramento County, approximately 12 miles east of State Route (SR) 99, south of SR 104, and east of the decommissioned Rancho Seco Nuclear Generating Station (shut down in 1989) towers. Development of the Bank will create a multispecies/multihabitat mitigation bank that provides for long-term protection of special-status species and habitats (Proposed Project) found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Bank credits would be used to offset future unavoidable impacts to special-status species and their habitats, wetlands, and oak trees that could result from future agency-approved projects.

1.2 Purpose of This Document

The purpose of this Initial Study/Mitigated Negative Declaration (IS/MND) is to disclose environmental impacts that may result from the Proposed Project. This IS/MND assesses the environmental effects of the Proposed Project, as required by the California Environmental Quality Act (CEQA), and is in compliance with State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000, et seq.), which requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

As CEQA Lead Agency for the Proposed Project, SMUD has prepared the following IS to determine if the Proposed Project may have a significant impact on the environment. In accordance with CEQA Guidelines Sections 15063 and 15074, an Environmental Impact Report (EIR) must be prepared if there is substantial evidence supporting a fair argument that the Proposed Project under review may have a potentially significant impact on the environment. A Negative Declaration (ND) is a written statement prepared by the Lead Agency describing the reasons why the Proposed Project would not have a significant impact on the environment, and therefore would not require preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, an ND or MND shall be prepared for a project subject to CEQA should be prepared when either:

a) The IS shows that there is no substantial evidence, in light of the whole record before the Lead Agency, that the project may have a significant impact on the environment, or

b) The initial study identifies potentially significant impacts, but:

   (i) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed MND and IS are released for public review would avoid the impacts or mitigate the impacts to a point where clearly no significant impacts would occur; and

   (ii) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant impact on the environment.

As stated below, SMUD has analyzed the potential environmental impacts created by the Proposed Project, determined that Proposed Project impacts can be reduced to a less-than-significant level with mitigation, and has prepared an MND.

1.3 Organization of the Initial Study and Mitigated Negative Declaration

This IS/MND is organized into the following chapters:

Chapter 1 – Project Overview and Background: provides summary information about the Proposed Project, describes the public review process for the IS/MND, and includes the CEQA determination for the Proposed Project.

Chapter 2 – Project Description: contains a detailed description of the Proposed Project.

Chapter 3 – Environmental Checklist: provides an assessment of Proposed Project impacts by resource topic. The Environmental Checklist form, from Appendix G of the State CEQA Guidelines, is used to make one of the following conclusions for impacts from the Proposed Project:

- No Impact: identifies areas in which the Proposed Project would have no impact.
- Less-Than-Significant Impact: identifies impacts that are considered to be less than significant and do not require the implementation of mitigation measures.
- Less-Than-Significant Impact with Mitigation: identifies impacts that could be mitigated with incorporation of mitigation measures.
- Potentially Significant Impact: identifies impacts that need additional study and require analysis in an EIR.

The Environmental Checklist concludes with a determination as to whether additional environmental documentation is required.

Chapter 4 – List of Preparers: identifies the individuals who contributed to the environmental document.

Chapter 5 – References Cited: identifies the information sources used in preparing this document.

1.4 General Project Information

This section provides a brief project description and general project information. Chapter 2 provides a detailed description of the Proposed Project.

Project Title: SMUD Nature Preserve Mitigation Bank Project

Lead Agency: Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817-1899 *or*

P.O. Box 15830, MS B203
Sacramento, CA 95852-1830

Contact Person: Ron Scott
Environmental Management Specialist III – Project Manager
916-732-5114 or rscott@smud.org

Project Location: Southeastern Sacramento County, approximately 12 miles east of SR 99, south of SR 104, and east of the decommissioned Rancho Seco Nuclear Generating Station.

Project Description: The Proposed Project will create a multi-species/multi-habitat mitigation bank that provides for long-term protection of special-status species and habitats found within SMUD's service territory (majority of Sacramento County and a portion of Placer County). Bank credits would be used to offset future unavoidable impacts to special-status species and their habitats, wetlands, and oak trees that could result from future agency-approved projects. As part of project implementation, existing oil and gas leases at the Proposed Project site would be extinguished.

1.5 Public Review Process

This IS/MND is being circulated for a 30-day public review period to all individuals who have requested a copy, local libraries, and appropriate resource agencies. A Notice of Intent (NOI) is also being distributed to all property owners of record identified by the Sacramento County Assessor's office as having property within 500 feet of Proposed Project boundaries. The NOI identifies where the document is available for public review and invites interested parties to provide written comments for incorporation into the final IS/MND. The NOI also invites interested parties to attend a public meeting on the Proposed Project. A copy of the NOI is attached to this document.

A final IS/MND, including written responses to comments received on significant environmental issues, will be prepared. The final IS/MND will be circulated to all parties commenting on the IS/MND before a decision on the Proposed Project is made.

1.6 SMUD Board Approval Process

The SMUD Board of Directors must adopt the IS/MND and approve the mitigation monitoring plan (Appendix A) before it can approve the Proposed Project. The project and environmental documentation pertaining thereto will be formally presented to the SMUD Board of Directors for information at an Integrated Resource and Customer Services (IRCS) Committee meeting. The SMUD Board of Directors will then consider adopting the final IS/MND at the next Board of Directors meeting. The IRCS Committee and Board of Directors meetings are held at SMUD's Headquarters (6201 S Street, Sacramento, CA 95817-1899) and are open to the public. The public may comment at both meetings. Once the IS/MND has been adopted, the SMUD Board of Directors may render a decision on project approval or defer such a decision to a later date.

1.7 CEQA Determination

Based on the information contained in this IS/MND, the Proposed Project would not have a significant adverse effect on the environment.

Mitigation measures necessary to avoid, or reduce to a less-than-significant level, the Proposed Project's potentially significant effects on the environment are detailed in the following checklist. SMUD has

hereby agreed to incorporate and implement each of the identified mitigation measures as part of the Proposed Project. The mitigation measures will be adopted as part of a Mitigation Monitoring Program.

1.8 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Proposed Project, as indicated by the checklists on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the lead agency)

On the basis of this initial evaluation:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Proposed Project have been made by or agreed to by the Proposed Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Proposed Project MAY have a "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.

☐ 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.

Ronald Scott — Signature

6/28/10 — Date

Ronald Scott — Printed Name

Sacramento Municipal Utility District — For

CHAPTER 2 PROJECT DESCRIPTION

2.1 Project Location

The Proposed Project is located on approximately 1,132 acres of SMUD-owned property located in southeastern Sacramento County, approximately 12 miles east of SR 99, south of SR 140, and east of the decommissioned Rancho Seco Nuclear Generating Station (shut down in 1989) towers (Figure 1, all figures [1 through 15] are located at the end of this chapter). The Proposed Project site is mostly within Township 6 North, Range 8 East, Sections 27, 28, 29, 32, 33, and 34 of the Goose Creek U.S. Geological Survey (USGS) 7.5-minute quadrangle, with a small portion along the western boundary located in Section 29 of the Clay USGS 7.5-minute quadrangle (Figure 2).

2.2 Project Background

In 1966, SMUD purchased 2,100 acres (including the Proposed Project site) in southeast Sacramento County for construction of a nuclear power plant. Part of the 2,100 acres purchased contained oil and gas lease encumbrances dating back to 1934. Construction of the Rancho Seco Nuclear Power Plant began in 1969. Commercial operation started in 1975, approximately 0.5 mile west and north of the Proposed Project, and was operated until 1989, when it was closed by public vote.

As part of the development agreement to construct and operate the power plant, SMUD contracted with the State of California to operate part of the power plant site as a public park for 50 years. SMUD entered into the contract with the State of California that granted SMUD funding for the construction of the Rancho Seco dam and reservoir, recreational facilities, and water and sanitary facilities associated with the recreation plan. This contract requires SMUD to maintain these facilities in a manner that supports public recreational use and fisheries. The reservoir may not be drawn down below an elevation of 237 feet above mean sea level (amsl) without the prior written consent of the State. The contract remains in effect until December 31, 2022.

In accordance with the State contract, SMUD entered into a contract with the County of Sacramento for the management of public recreational uses. Under the terms of the contract between SMUD and the County of Sacramento, SMUD agreed to operate the reservoir and construct potable water, restrooms, and recreation facilities with the County of Sacramento managing the public facilities; however, a budget shortfall in September 1992 resulted in the County of Sacramento discontinuing management of the park facilities and SMUD assuming those responsibilities.

In October 2006, SMUD consulted with the Sacramento Valley Conservancy (SVC) and The Nature Conservancy (TNC) to set aside approximately 1,200 acres of land on the SMUD-owned site as a temporary nature preserve. SMUD granted SVC a 30-month temporary easement for the protection of critical ecological and agricultural resources, including wetlands that support species that are state and federally listed as threatened and endangered. SVC assumed management of grazing on the land, which is leased to a cattle rancher. The temporary conservation easement was extended to December 31, 2010, and the grazing lease is still active.

2.3 Description of Project Area, Land Use, and Zoning

The Proposed Project site is characterized by rolling hills vegetated with naturalized non-native annual grasses. Seasonal wetlands, swales, and intermittent drainages are present throughout much of the site. An area of irrigated pasture exists in the eastern portion of the site and several stockponds are present throughout the site. Clay Creek, which is dammed to create Rancho Seco Lake (outside the boundaries of the site), runs through the site. Current land uses on the Proposed Project site consist of dry-land cattle grazing and recreation along the Howard Ranch Nature Trail that crosses through the site.

2.3.1 Zoning and General Plan Designation

The Proposed Project includes portions of Assessor's Parcel Numbers (APN) 140-0050-011-0000, 140-0050-013-0000, 140-0050-024-0000, 140-0060-011-0000, and 140-0060-013-0000. All of these parcels are zoned Permanent Agriculture, 80-Acre Minimum (Figure 3). The 1993 Sacramento County General Plan identifies the land use of these parcels Public/Utilities (Figure 4) and the General Plan Land Use diagram shows an overlay for Resource Conservation Area.

2.4 Surrounding Land Uses and Setting

Surrounding lands consist mostly of grazed annual grasslands with large vernal pool complexes, including Howard Ranch, located to the east of the Proposed Project site (Figure 4). Adjacent developed areas include the decommissioned Rancho Seco Nuclear Generating Station (shut down in 1989), Cosumnes Power Plant (CPP), Rancho Seco Lake and associated recreational facilities, and Amanda Blake Memorial Wildlife Refuge (Figure 4). Lands surrounding the Proposed Project site are zoned Permanent Agriculture, 80-Acre Minimum (Figure 3) (County of Sacramento 2010a). No known development is planned on lands adjacent to the Proposed Project site (County of Sacramento 2010b) although a mining operation is being proposed at the Borden Ranch approximately 2.5 miles to the south (County of Sacramento 2010b). SMUD has the option to construct a second 500-megawatt natural gas power plant associated with the CPP, and SMUD may consider installation of solar power–generation facilities on lands adjacent to the Proposed Project site. There are existing preserves and conservation easements adjacent to the site. Developed or preserve facilities/areas surrounding the site are briefly described below.

2.4.1 Rancho Seco Nuclear Generating Station

SMUD's Rancho Seco Nuclear Generating Station facilities are approximately 160 acres and are located 0.5 mile north and west of the Proposed Project site. SMUD permanently terminated nuclear power operations at these facilities on June 7, 1989, and began decommissioning activities in February 1997. On June 30, 2000, the Nuclear Regulatory Commission (NRC) issued Materials License SNM-2510 for the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI), which authorizes SMUD to store spent fuel in the ISFSI. SMUD completed transferring all of the spent fuel on August 21, 2002. On June 8, 2009, SMUD requested the release of a majority of the Rancho Seco Nuclear Generating Station site from the NRC 10 Code of Federal Regulations (CFR) Part 50 license DPR-54. The area requested for release included the entire licensed site, except for a 1-acre area associated with the Interim Onsite Storage Building (IOSB) and the ISFSI. The request stated that the area to be released was "not impacted" by the reactor operation as detailed in the License Termination Plan, which was approved by the NRC. The NRC granted this request on September 25, 2009, and released the area for unrestricted use (Nuclear Regulatory Commission 2009).

2.4.2 Cosumnes Power Plant

The SMUD CPP is located on a 30-acre site approximately 0.5 mile south of the decommissioned Rancho Seco Nuclear Generating Station and north of the Proposed Project site. The first phase of the CPP (500 megawatts) went online on February 24, 2006. The CPP is considered a state-of-the-art facility that uses combined-cycle technology to capture heat normally lost in the production of electricity, making it highly fuel efficient and clean. The 500-megawatt CPP, the largest power plant in Sacramento County, can provide enough power to meet the annual energy needs of approximately 450,000 single-family homes. A potential second phase of the CPP could add an additional 500 megawatts. To date, no plans have been developed for a second phase.

2.4.3 Rancho Seco Recreation Area

In the early 1970s, a small pond located on the Rancho Seco property was expanded into a 160-acre lake (Ranch Seco Lake) and used as an emergency backup water supply in the event that water delivery from the Folsom South Canal was temporarily halted. The current lake and surrounding park facilities (developed area) are located in the central portion of the Proposed Project site but outside its boundaries (Figure 2).

2.4.4 Amanda Blake Memorial Wildlife Refuge

In 1995, SMUD entered into a lease agreement with the Performing Animal Welfare Society (PAWS) to establish the Amanda Blake Memorial Wildlife Refuge. The refuge is a 75-acre sanctuary that houses rescued animals including oryx, eland, fallow deer, giraffe, zebra, ostrich, and emu. A portion of the refuge lies adjacent to the southern boundary of the Proposed Project site (Figure 4).

2.4.5 Howard Ranch

Howard Ranch is located immediately adjacent to the eastern boundary of the Proposed Project site. In 1999, TNC purchased 12,000 acres of the Howard Ranch from the heirs of Charles Howard, owner of the famed racehorse, Seabiscuit. TNC placed permanent protective restrictions on the property and resold the land to a local cattleman. This area will remain in its present state (grazed vernal pool grassland) in perpetuity (Figure 4).

2.4.6 Howard Ranch Nature Trail

On October 1, 2002, a Memorandum of Agreement was recorded between SMUD and TNC for construction and maintenance of a foot trail that would extend through a portion of the Proposed Project site. In June 2006, SMUD, working cooperatively with TNC, dedicated the Howard Ranch Nature Trail, a 7-mile-long trail through the Proposed Project site and the adjoining Howard Ranch. Within the Proposed Project site, the Howard Ranch Nature Trail extends for approximately 0.62 mile from the eastern boundary of the site, through a vernal pool and grassland landscape until it reaches the site boundary at the westernmost finger of Rancho Seco Lake. The trail continues along the northern edge of Rancho Seco Lake outside the Proposed Project site.

2.5 Project Objectives

The Proposed Project will preserve, restore, enhance, and establish wetlands and special-status wildlife and plant habitats through establishment of an approximately 1,132-acre mitigation bank. The Proposed Project will provide mitigation credits for impacts on sensitive resources within the Bank's service area. Objectives of the Proposed Project are as follows:

- Restore vernal pools and vernal swales within an approximately 92-acre area of the Proposed Project site that was leveled more than 40 years ago for use as irrigated pasture;
- Establish vernal pools and vernal swales using appropriate landforms and soil conditions adjacent to existing vernal pools, relying on natural hydrology, thereby increasing wetland functions and values to the maximum extent practicable;
- Establish additional populations of special-status species, including Boggs Lake hedge-hyssop (*Gratiola heterosepala*), legenere, (*Legenere limosa*), Sacramento Orcutt grass (*Orcuttia viscida*), Lobb's aquatic buttercup (*Ranunculus lobbii*), dwarf downingia (*Downingia pusilla*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), and western burrowing owl (*Athene cunicularia hypugea*) within existing, restored, enhanced, and created habitats, thereby contributing to the overall recovery of these species;
- Establish oak trees to diversify the habitats present on the Proposed Project site; and
- Integrate with SMUD's proposed Habitat Conservation Plan (HCP) (in progress) by providing a mechanism for offsetting future impacts associated with SMUD's operations, maintenance, and construction activities through the preservation and construction of mitigation habitats.

2.6 Project Features

The Proposed Project will result in the preservation of approximately 52.57 acres of existing wetland habitats (including vernal pool, vernal swale, seasonal wetland, seasonal swale, Juncus wetland, intermittent drainage, and open water) (Figure 5), many of which provide suitable habitat for special-status wildlife including vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and tricolored blackbird. It would also result in the preservation of approximately 1,051 acres of annual grasslands that provide upland habitat for California tiger salamanders, foraging and nesting habitat for burrowing owls, and foraging habitat for Swainson's hawks (*Buteo swainsoni*). To ensure protection of these resources, the existing oil and gas lease will be extinguished.

In addition to preserved habitats, the Proposed Project site supports 2.977 acres of previously restored vernal pools and vernal swales (Figure 5) created in 1996–97 as part of mitigation for a project that was never constructed.

As part of mitigation bank development, proposed construction activities include those associated with wetland restoration, wildlife habitat enhancement, oak tree plantings, and new fencing and signage.

2.7 Project Construction

All construction activities and equipment access would take place on SMUD-owned property or by way of public roads; therefore no right-of-way acquisition would be required. No utilities would need to be relocated to construct the Proposed Project. No road improvements are planned except for general routine maintenance (e.g., grading and disking) of existing access roads and firebreaks.

Onsite construction staging will occur within the wetland construction area. An offsite construction staging area has been designated within a previously disturbed area in Rancho Seco Park associated with the maintenance building, adjacent to but outside the Proposed Project site boundaries (Figure 6). Construction access to the areas where activities are proposed would be by way of existing roads (including a SMUD-owned paved road, dirt roads, and firebreaks). The location of proposed access routes within the Proposed Project site is shown on Figure 6.

Table 2-1 below provides a list of the type of equipment likely to be used during wetland construction, wildlife habitat enhancement activities, oak tree plantings, and new fence construction.

Table 2-1. Equipment Likely to be Used During Construction

Equipment	Construction Purpose	Number Needed
Auger (two person)	Test pit excavations and acorn/tree planting	1
Bulldozer with ripper	Earthwork, clearing, and grubbing	1
Compressor	Tire inflation	1
Flat-bed truck	Hand equipment transport	1
Float tractor (skid loader)	Contouring wetland basins and mound surfaces	4
Front-end loader	Dirt manipulation	1
Paddle-wheel scraper	Excavation to construct wetlands	4
Pneumatic T-post driver	Fence construction	1
Water truck (5,000 gallon)	Dust control	2
Backhoe	Burrowing owl nest box construction	1
Weed eater	Maintenance of tree planting areas	2
Hydroseed truck	Hydroseeding disturbed areas	1
All-terrain vehicle (ATV)	Acorn/tree planting, irrigation system installation, monitoring	2
Standard truck	Site access and delivery equipment	1

Table 2-2 provides an estimation of the number of personnel, number of days, and duration of activity required to complete wetland construction, wildlife habitat enhancement activities, oak tree plantings, new fence construction, and short-term and long-term monitoring/management. These tasks would not be performed concurrently with one another. Table 2-3 identifies the timing and approximate amount of water used for the Proposed Project.

Table 2-2. Estimated Number of Construction Personnel and Duration of Activity

Task	Number of Construction Personnel	Number of Days	Duration of Activity
Wetland construction	15	30	One year*
Burrowing owl nest box construction	3	6	One year*
Tree planting	10	8	Annually for 7 years
Fence construction	4	8	Annually for 5 years
Short-term monitoring/management	4	12	Annually for 5 years
Long- term monitoring/management	2	2	Annually in perpetuity

* First year following agency approval of the Proposed Project

Table 2-3. Estimated Water Usage

Task	Water Needed (Gallons)
Dust control during construction	570,000
Oak tree watering – first year	11,760
Oak tree watering – second year	23,520
Oak tree watering – third year	35,280
Oak tree watering – fourth year	35,280
Oak tree watering – fifth year	35,280
Oak tree watering – sixth year	23,520
Oak tree watering – seventh year	11,760

Note: Approximately 11,760 acorns/oak trees will be planted over a 5-year period. Each tree will be watered twice a month from April to October for the first year following planting. Thereafter, each tree will be watered once a month from April to October for the second and third years following planting. Each tree will receive approximately 5 gallons of water per watering.

2.7.1 Wetlands Restoration/Establishment

Vernal pool, vernal swale, seasonal wetland, and seasonal swale restoration will be conducted in an approximately 92-acre irrigated pasture area (wetland restoration site) located in the southeastern corner of the Proposed Project site. The wetlands that were historically present in the irrigated pasture (Figure 7) were filled more than 40 years ago, when the site was leveled. The wetland restoration site consists of two adjacent areas. The southern portion of the wetland restoration site consists of an approximately 73-acre area that is currently used as an irrigated pasture for cattle grazing and supports only two wetland habitats (seasonal wetland and agricultural return ditch) (Figure 8). The northern 19-acre area was used as a wetland mitigation site in 1996 for a proposed golf course at Rancho Seco that was never constructed. This 19-acre area is grazed and supports several existing, restored wetlands (Figure 8). With a few exceptions, the proposed restored wetlands will be generally of the same size and shape as the historical wetlands depicted on aerial photographs (Figures 7 and 8).

Construction of vernal pools and seasonal wetlands within the wetland restoration site will consist of excavating shallow to moderately deep (approximately 6–24 inches) depressions. To determine an appropriate depth for wetland restoration/establishment, cross-sectional depth measurements were taken

from existing wetlands of similar shape and size that are located on the Proposed Project site. Because California tiger salamanders are known to occur near the proposed restoration site, restoration activities will also focus on identifying suitable wetlands that could be restored to a depth that would allow sufficient ponding to support successful California tiger salamander metamorphosis.

Swales proposed for restoration/establishment will be constructed similarly to vernal pools and seasonal wetlands, as described above. The main difference in construction is that the swales will be designed to convey water, whereas the vernal pools and seasonal wetlands will be designed to pond water.

To ensure that the restored/established wetlands have the proper physical conditions for success, they will be constructed according to the following parameters:

- Grading work will be conducted between May 15 and October 15 and will be minimized in areas of existing wetlands.
- To avoid the introduction of non-native invasive plants within the wetland restoration site, all equipment used for wetland construction will be washed at an appropriate wash station before entering the Proposed Project site.
- A qualified biologist will monitor all construction activities.
- No offsite inoculum will be used in the constructed wetlands.
- Excavated soil will be placed adjacent to constructed basins to mimic natural mima mound topography, or will be placed in designated temporary soil spoil areas (within the irrigated pasture) and then smoothed across the 92-acre restoration site to recreate the historical topography.

To ensure the success of restored/established wetlands, material containing vernal pool plant seeds and vernal pool invertebrate eggs/cysts may be collected, primarily by mowing and vacuum method, from preserved pools on the Proposed Project site and used as inoculum.

To protect newly restored/established wetlands within the wetland restoration area, existing fencing will be repaired, secured, and maintained during the first year after wetland construction, or as needed to allow vegetation to become established without interference from livestock grazing activities.

Several weeks before the rainy season following completed construction, restored/established wetlands may be initially irrigated to encourage plant growth and prevent erosion. Water used to irrigate the wetlands would be obtained from an existing well located along the eastern boundary of the Proposed Project site between the 19-acre and the 73-acre restoration areas.

Approximately 25 acres of vernal pools, vernal swales, seasonal wetlands, and seasonal swales are proposed for restoration/establishment within the wetland restoration site. More detailed construction methods for the 73-acre area and the 19-acre area are described below.

2.7.1.1 73-Acre Area

From direct field observations, conversation with SMUD staff, and current estimates of soil excavations for wetland restoration/establishment, it appears that the historical leveling of the 73-acre area to create the irrigated pasture had a balanced cut-and-fill ratio. That is, no soil was hauled onto or off the site; therefore, wetland restoration/establishment in this area will have a balanced cut-and-fill ratio. Soils

excavated from historically filled wetlands will be placed atop existing terrain to restore it to the historical grade.

To properly restore the wetlands within the irrigated pasture, the existing level terrain will need to be re-contoured to the historical grade. In general, the northern boundary of the irrigated pasture is 1 to 4 feet below the historical grade. Soils excavated to create wetlands in the southern half of the 73-acre area will be used to raise the current grade in the northern portion of the 73-acre area to the historical grade. This will allow natural hydrologic connections from adjacent existing wetlands to the restored/established wetlands and will more closely match historical elevations.

To minimize the movement of soil (maximize construction efficiency) onsite, the following construction procedures will generally be implemented:

- Before excavation work, all of the topsoil (roughly the first 1 to 3 inches) within the 73-acre area will be removed and stockpiled in the southwestern portion of this area.
- Soil material will be excavated to create the wetland areas.
- Excavations will commence from the south to north to minimize heavy equipment traffic in finished graded basins.
- The excavated material from the southern basins will be placed around the basins proposed for excavation in the north and compacted. Soil placement will be from north to south.
- Once the historical rough grade is achieved, soils excavated to create the remaining basins will be used to construct mound topography.
- After finished grades generally have been achieved, the stockpiled topsoil will be distributed within each basin and lightly compacted. Upland grasses within the topsoil (organic layer) are expected to aid in erosion prevention during the first rainy season. By the second rainy season, upland grasses are expected to be replaced by wetland plant species. If needed, inoculum will be collected from onsite wetlands and placed in the restored/established wetlands.
- The upland portions of the site, including mound areas, will be seeded with native or naturalized seed mix to minimize erosion and colonization of undesirable plant species (weeds) and to maximize recolonization of the grassland community.

2.7.1.2 19-Acre Area

Within the former irrigated pasture with restored wetlands (19-acre area), several additional wetlands will be restored. To minimize the movement of soil (maximize construction efficiency) onsite, the following general construction procedures will be implemented:

- Existing wetlands will be fenced or flagged for avoidance.
- In areas where wetlands or mounds will be constructed, the topsoil (roughly the first 1 to 3 inches) will be removed and stockpiled adjacent to the proposed wetland excavation area.
- Soil material excavated to create the wetland areas will be used to create mound areas. No soil will be hauled offsite.

- After finished grades generally have been achieved, the stockpiled topsoil will be distributed within each basin and lightly compacted. If needed, inoculum will be collected from onsite wetlands and placed in the restored/established wetlands.

- The upland portions of the site, including mounds, will be seeded with a native or naturalized seed mix.

2.7.2 Burrowing Owl Habitat Enhancement

SMUD proposes to enhance wildlife habitat on the Proposed Project site to encourage burrowing owls to nest onsite and to increase their numbers during the nonbreeding season. Enhancement of burrowing owl habitat involves installation of burrowing owl nest boxes. Clusters or pairs of nest boxes may be constructed in areas where burrowing owls have been sighted and in areas that do not support wetland habitats (Figure 9). There will be no nest box construction in culturally sensitive areas.

Nest boxes will be constructed of 5-gallon plastic buckets, plastic irrigation valve boxes, or other regulatory agency–approved material. Four-inch-wide flexible irrigation pipes will be used to create an 8- to 12-foot-long tunnel to the nest box. To optimize the use of these artificial nest boxes by burrowing owls, the boxes will be generally constructed and placed using the following methods:

- Place boxes in locations near previous sightings;

- Place boxes in areas with low, sparse vegetation (i.e., grazed habitats);

- Place boxes in areas with easy access for construction, installation, and maintenance;

- Provide two separate entrances into each nest box;

- Place nest box entrances in a manner that will not allow water to drain into the nest box;

- Place pipe at a 90-degree angle before reaching the surface to minimize light reaching the nest box;

- Create earthen mounds near burrows for perching sites;

- Avoid or minimize disturbances to other sensitive biological resources, such as vernal pools or other wetlands;

- Construct nest boxes only during the dry season;

- Excavation equipment will be rubber tired;

- Limit disturbance to no greater than 15 feet in diameter; and

- If needed, broadcast a native/naturalized erosion-control seed mix over the disturbed soil or collect onsite seeds to use for reseeding.

2.7.3 California Tiger Salamander Habitat Enhancement

Habitat enhancement on the Proposed Project site for California tiger salamander will focus on areas that pond water for a minimum of 4 months but that do not currently support California tiger salamander (Figure 9). Each of the wetlands proposed for enhancement is close (from 0.1 to 0.45 mile) to known breeding populations.

Enhancement of California tiger salamander habitat at the Proposed Project site involves removal of non-native fish and bullfrogs from onsite wetlands that were identified as potential breeding habitat but do not currently support California tiger salamanders. Removal of non-native fish and bullfrogs may be accomplished by the following methods:

- After a minimum of 4 months of continuous ponding, allow wetlands to dry down naturally during the summer months.
- During the beginning of the fall season (September to mid-October), pump any remaining water out of wetlands at a rate that allows all game fishes to be collected and relocated to Rancho Seco Lake.
- Keep wetlands dry for no less than 7 days.
- Destroy any bullfrogs or bullfrog larvae encountered during the dewatering to reduce the potential for recolonization.

2.7.4 Oak Tree Planting

To further enhance native habitat on the Proposed Project site and provide future mitigation credits for impacts on native oak trees and/or carbon sequestration, SMUD may plant oaks within an approximately 280-acre area located primarily in the northern portion of the Proposed Project site (Figure 10).

Oak tree planting at the Proposed Project site would mimic the species and densities of trees within the blue oak (*Quercus douglasii*) woodland found on the adjacent Howard Ranch Preserve. Tree species that may be planted include blue oak, valley oak (*Quercus lobata*), and possibly some interior live oak (*Quercus wislizenii*) depending on the soil, slope, and availability of water. The ultimate goal is to achieve an average stocking rate of 14 established trees per acre (up to 3,920 trees). An established tree is one that does not require further care to continue to grow in a healthy manner. To achieve the desired stocking rate, approximately 11,760 acorns may be planted over several years, as mortality is often very high for this type of restoration. Plantings will be clustered and fenced to reduce cattle and deer browse. Raptor perch poles will be installed near the clusters to reduce the amount of rodent activity in the fenced areas.

Acorns will be planted in clustered locations for ease of fence installation. Acorn planting holes would be dug by loosening the soil within a 12- by 12-inch area down to 10 inches below the ground surface. All weeds and rocks would be removed from this area. Acorns would be planted flat on their side, 2 inches below the soil surface for optimum protection and germination. A tree shelter would be placed around each planting.

An aboveground irrigation system will be installed to provide for interim watering of the acorns and/or trees. The irrigation pipeline may be constructed of plastic measuring approximately 1-¼ to 2 inches in

diameter and placed above ground. Water will be pumped from Rancho Seco Lake through the above-ground irrigation pipes to the tree clusters.

Tree saplings may be planted to replace trees that do not survive. Tree sapling planting holes and perch pole holes will be excavated approximately 3–4 feet deep and 1 foot wide. Saplings will be planted when the planting area soils are moist or dry. Exposed soils will be covered with erosion control materials (e.g., straw). The clustered-tree areas may be mowed annually for maintenance for a minimum of 5 years; this may extend up to 10 years following planting of individual tree clusters. Once tree clusters are established and able to withstand cattle grazing, temporary fencing will be removed.

2.7.5 Fencing and Signage

The Proposed Project site contains approximately 62,500 feet of fencing (barbed wire) (Figure 11) to manage cattle herds and denote grazing areas. Fencing is present along the boundaries of all of the grazing lease areas. Installation of new fencing may be required if there is a change in land use within any of the grazing areas that are adjacent to unfenced areas in order to demarcate either the edge of the Proposed Project site or a new land use.

Existing fencing just east of Rancho Seco Lake will be moved to allow grazing in vernal pools that are presently within an ungrazed grassland area on the Proposed Project site (Figure 11).

Where needed, replacement fencing or new fencing will be constructed within annual grassland habitat to exclude cattle during initial vegetation establishment within the wetland restoration site, in oak tree planting areas, or in habitat enhancement areas for California tiger salamander. The length of cattle exclusion fencing will vary depending on the type of vegetation being established. For example, cattle may be excluded for only one growing season to allow annual grassland and vernal pool vegetation to establish, but they may be excluded for up to 10 years where oak trees are planted.

Permanent and temporary impacts on annual grassland from fence pole installation are negligible. For fence construction, it will be necessary for wood or steel posts to be driven up to 24 inches below the ground surface. Existing fencing and proposed replacement fencing as part of Proposed Project construction are shown in Figure 11. The installation of fencing surrounding the proposed wetland restoration/establishment area, proposed oak tree planting areas, and California tiger salamander enhancement areas will be constructed as needed. Seasonal wetlands, vernal pools, and seasonal swales are present within the areas proposed for fence installation; however, these features will be avoided by placing posts outside the boundary of the wetland features.

Signs will be posted, at 0.5-mile intervals around the perimeter of the Proposed Project site to denote the site as a legally protected area. Within the Proposed Project site, three sensitive habitat signs will be posted along the existing Howard Ranch Nature Trail (Figure 11) to discourage users from hiking off trail and to inform them of state and federal laws that protect sensitive species and habitats.

2.7.6 Erosion Control Practices

Construction areas that expose soil in upland habitat will be reseeded and mulched. This will reduce the potential for sedimentation in constructed and nearby existing wetlands during the rainy season. The construction areas will be seeded and mulched between approximately September 15 and October 15. Areas to be seeded include bare slopes that have been graded above and below constructed wetlands and other disturbed areas. To prevent the establishment of erosion control mix plants within the constructed wetlands, a 10-foot buffer strip from the edge of any constructed wetland will be maintained. After

lightly disking or raking the soil, mechanical hand spreaders or other appropriate means will be used to apply one of the following two options.

Option 1: Use seed mix of native or naturalized species such as:

- Annual bluegrass (*Poa annua*) – 30 pounds per acre,
- Zorro annual fescue (*Vulpia myuros*) – 8 pounds per acre, and
- Two-colored lupine (*Lupinus bicolor*) – 5 pounds per acre.

Other species that could be included in the seed mix are small fescue (*Vulpia microstachys*), California poppy (*Eschscholzia californica*), native plantain (*Plantago erecta*), and tomcat clover (*Trifolium willdenovii*). If needed, wheat straw or a paper mulch will be broadcast or blown (when accessible) at a minimum rate of ½ ton per acre. At this rate, the mulching depth will be roughly 1 inch. Mulching should be conducted within 24 hours of seeding. Crimping with disk harrow or other appropriate equipment may be needed to embed the mulch into the soil.

Option 2: Mow onsite uplands during the dry season to collect seeds. The seeds and straw collected would be placed in disturbed upland areas.

To promote plant growth under either option, disturbed areas may be irrigated initially after the reseeding. The mulched or seeded areas within the wetland restoration site would be irrigated using water from an existing well located between the 73- and 19-acre restoration areas.

2.8 Project Operation

After construction, the Proposed Project would not result in extensive long-term operational needs. Operation of the Proposed Project will require short-term and long-term management and monitoring of preserved, created, restored, and enhanced habitats within the site. Existing dirt access roads and established firebreaks are present within the Proposed Project site and will be used during monitoring activities, reducing the need to drive motorized vehicles off road. A description of management and monitoring activities are described below.

2.8.1 Short-Term Management and Monitoring

The short-term management and monitoring period begins from the time the mitigation bank is established until the endowment fund has been fully funded for 1 year and all performance standards in the mitigation bank Development Plan have been met; typically this is a 5-year period. Specific short-term management, monitoring, and reporting tasks will be determined in coordination with regulatory agencies, but are expected to include the following.

- Annual photo documentation at a minimum of 10 sites within the wetland restoration area and another 10 control sites in the adjacent preserved habitat.
- Hydrology surveys consisting of monitoring inundation, depths, and duration will be conducted once a month within a minimum of 10 percent of the restored/created wetlands and up to 10 nearby reference wetlands during the first wet season following their construction.

- Quantitative and qualitative wetland vegetation monitoring, special-status plant surveys, and non-native invasive plant surveys will be conducted annually within restored/created wetlands and up to 20 reference wetlands beginning the first spring after wetland construction is complete.

- Aquatic invertebrate sampling will be conducted annually within a minimum of 20 percent of the restored/created wetlands and up to 20 reference wetlands after they begin to fill with water in the first wet season following wetland construction.

- An annual burrowing owl breeding survey will be conducted during the peak of the breeding season (April 15 through July 15) within enhanced habitat and previously identified habitat for at least 2 years during the interim monitoring period.

- Enhanced wetlands and restored/established wetlands with the appropriate ponding duration will be monitored for California tiger salamander twice a year (from December 30 through June 30) for at least 3 years during the interim monitoring period.

- At least once a year, in spring or fall, oak tree plantings will be monitored and survivorship will be recorded.

- The existing grazing program will include adaptive management to determine the most appropriate grazing practices (i.e., stocking rates, stock rotation, and water availability) that will achieve targeted residual dry matter (RDM) levels. RDM monitoring will be conducted annually after the summer season, before the onset of the rainy season (i.e., October), and before cattle are brought onto the Proposed Project site for the next grazing season.

- Up to twice a month, general maintenance activities will include trash removal; monitoring incidences of trespass; maintenance of fences, gates, and signs (including repair and replacement as necessary); and erosion control.

2.8.2 Long-Term Management and Monitoring

The purpose of long-term management and monitoring is to ensure that the mitigation bank is managed, monitored, and maintained in perpetuity. Long-term management, monitoring, and reporting tasks will be determined in coordination with regulatory agencies, but are expected to include the following:

- At least one annual walk-through survey will be conducted and reference photos will be taken to qualitatively monitor the general condition of habitats within the Proposed Project site.

- A spring survey will be conducted every fifth year after completion of short-term monitoring to qualitatively monitor the general condition of representative (10 percent) waters of the U.S., including wetlands, within the Proposed Project site.

- Wet-season invertebrate sampling will be conducted in representative (10 percent) wetlands on the Proposed Project site every fifth year after completion of short-term monitoring to monitor known populations of vernal pool fairy shrimp and vernal pool tadpole shrimp.

- Dip-net sampling for California tiger salamander larvae will be conducted every fifth year after completion of short-term monitoring to monitor the breeding status of the species.

- A botanical survey will be conducted every fifth year after completion of short-term monitoring to monitor the population status of Sacramento Orcutt grass and Boggs Lake hedge hyssop within

wetlands known to support the species and wetlands that provide suitable habitat but where the species was not previously identified.

- A survey of oak tree mortality and natural recruitment will be conducted every fifth year after completion of the short-term monitoring.

- The grazing program will continue to be implemented throughout the Proposed Project site and vegetation will be adaptively managed to determine the most appropriate grazing practices (i.e., stocking rates, stock rotation, and water availability) that will achieve targeted RDM levels. RDM monitoring will be conducted annually after the summer season, before the onset of the rainy season (i.e., October), and before cattle are brought onto the Proposed Project site for the next grazing season.

- Up to twice a month, general maintenance activities will include trash removal; monitoring incidences of trespass; maintenance of fences, gates, and signs (including repair and replacement as necessary); and erosion control.

- Once a year (after the rainy season and before May 15), a minimum 15-foot-wide firebreak will be maintained within and around the Proposed Project site by either disking or scraping practices.

2.9 Project Schedule

Wetland restoration activities would begin in summer 2010, depending on permit approvals, and wetland construction would be completed in approximately 1 month. Wildlife habitat will be enhanced and monitored during the first 5 years after establishment of the mitigation bank. Oak trees would be planted within 10 years or SMUD will request an extension from the regulatory agencies. Long-term management and monitoring will begin after the commencement of short-term monitoring and will continue in perpetuity.

2.9.1 Mitigation Monitoring Plan

SMUD intends to implement mitigation for impacts identified in this draft IS/MND. The mitigation measures, along with responsibility and timing for their implementation and monitoring, will be presented in the Mitigation Monitoring Plan prepared for the Proposed Project (Appendix A).

2.10 Required Permits and Approvals

SMUD anticipates that the following permits, consultations, and approvals would be required for the Proposed Project.

- **Clean Water Act (CWA), Section 404 Permit from the U.S. Army Corps of Engineers (Corps).** Construction of the Proposed Project would result in the filling of waters of the U.S., including wetlands, under the jurisdiction of Corps. The Corps regulates the nation's waterways and wetlands, and is responsible for implementing and enforcing Section 404 of the federal CWA. Corps regulations require that any activity that discharges dredged or fill material in "waters of the U.S., including wetlands", obtain a Section 404 permit. To comply with the CWA, a Section 404 permit would be obtained for the Proposed Project.

- **CWA Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB) and Section 402 National Pollutant Discharge Elimination System (NPDES) Permit from the State Water Resources Control Board (SWRQB).** RWQCB and SWRCB promulgate and enforce narrative and numeric water quality standards to protect water quality and adopt and approve water quality control plans. RWQCB and SWRCB also regulate discharges of harmful substances to surface waters, including wetlands, under the federal CWA and the California Porter-Cologne Water Quality Control Act. If a Section 404 permit is required, the Proposed Project would also require water quality certification under CWA Section 401. To comply with CWA, a Section 401 permit would be obtained for the Proposed Project.

  Under CWA Section 402, a General Permit for Stormwater Discharge Associated with Construction Activity is required for projects disturbing 1 acre or more of soil. The area that encompasses the wetland restoration site is 92 acres; therefore, preparation of a NOI and a Stormwater Pollution Prevention Plan (SWPPP) to comply with the general stormwater permit would be required. To comply with CWA, a Section 402 permit would be obtained for the Proposed Project.

- **Fish and Game Code, Section 1602, Streambed Alteration Agreement from the California Department of Fish and Game (CDFG).** Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify CDFG before beginning any activity that would do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The Proposed Project would affect an agricultural ditch that may fall under the jurisdiction of CDFG. To comply with Section 1602, SMUD would submit a Streambed Alteration Agreement (SAA) application to CDFG to determine whether an SAA is required for the Proposed Project. If required, the SAA would be obtained and implemented.

- **National Historic Preservation Act (NHPA) of 1966, Section 106, Compliance.** For projects with federal funding, permits, or approvals, the NHPA, Section 106, as amended, includes provisions for protection of significant archaeological and historic resources. The administering agency for the Section 106 process is the federal lead agency and the State Historic Preservation Officer (SHPO). To comply with Section 106, a cultural resources survey and report for the Proposed Project would be submitted to the Corps for submittal to SHPO for review and approval.

- **Federal Endangered Species Act (ESA), Section 7, Consultation.** Section 7 of the federal ESA provides a means by which to authorize "take" of a threatened or endangered species by federal agencies. Under ESA, "take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Under Section 7, the federal agency that is conducting, funding, or permitting an action (i.e., Corps) must consult with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) as appropriate to ensure that the proposed action would not jeopardize federally endangered or threatened species or destroy or adversely modify designated critical habitat. To comply with Section 7, the Corps would consult with USFWS to address the potential of the Proposed Project to adversely affect species under their jurisdiction, including federally threatened vernal pool fairy shrimp, California tiger salamander, federally endangered vernal pool tadpole shrimp, and Sacramento Orcutt grass. If USFWS determines that the Proposed Project would not jeopardize the continued existence of any federally threatened or endangered species or adversely modify

critical habitat, these agencies would issue an incidental take permit (Biological Opinion) for the Proposed Project.

- **California Endangered Species Act (CESA).** Under CESA, CDFG has the responsibility for maintaining a list of threatened and endangered species designated under state law (California Fish and Game Code [CFGC] Section 2070). CDFG also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project area and determine whether the proposed project will result in take of any such species. Under CESA, "take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." CFGC, Section 2081 (State Incidental Take Permit) or 2081.1 (Consistency Determination) authorizes the incidental take of state-listed species. To comply with CESA, SMUD would consult with CDFG to address the potential of the Proposed Project to result in "take" of species under their jurisdiction, including two state threatened wildlife species (Swainson's hawk and California tiger salamander) and two state endangered plants (Sacramento Orcutt grass and Bogg's Lake hedge-hyssop).

- **Grading Permit.** A grading permit would be required by the County of Sacramento for grading, filling, excavating, and storing more than 350 cubic yards (yd^3) of soil, or clearing and grubbing 1 acre or more of land within the unincorporated area of the county. Approximately 43,600 yd^3 of soil would be excavated and graded within the Proposed Project site; therefore, a grading permit would be required.

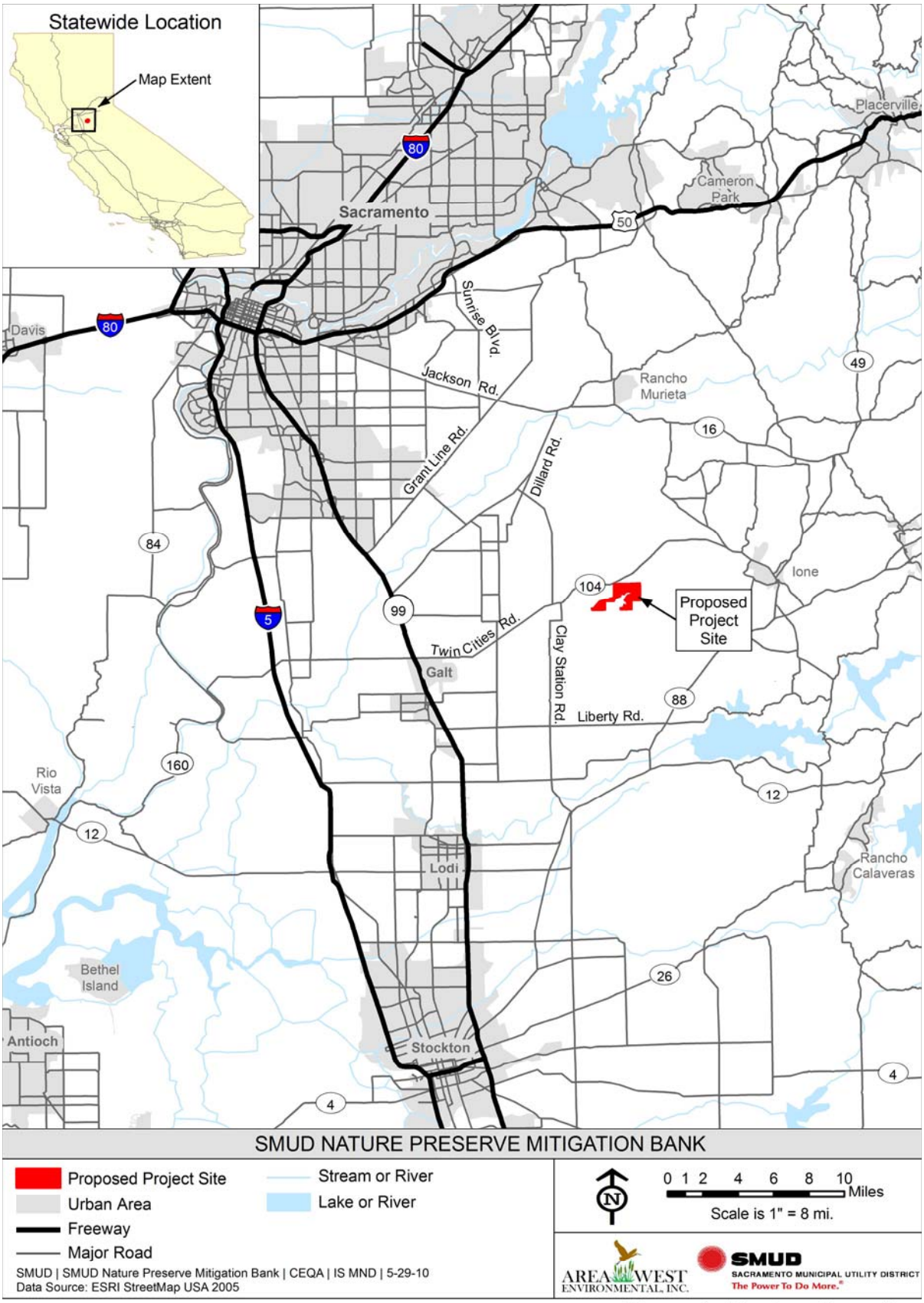

Figure 1. Regional Location

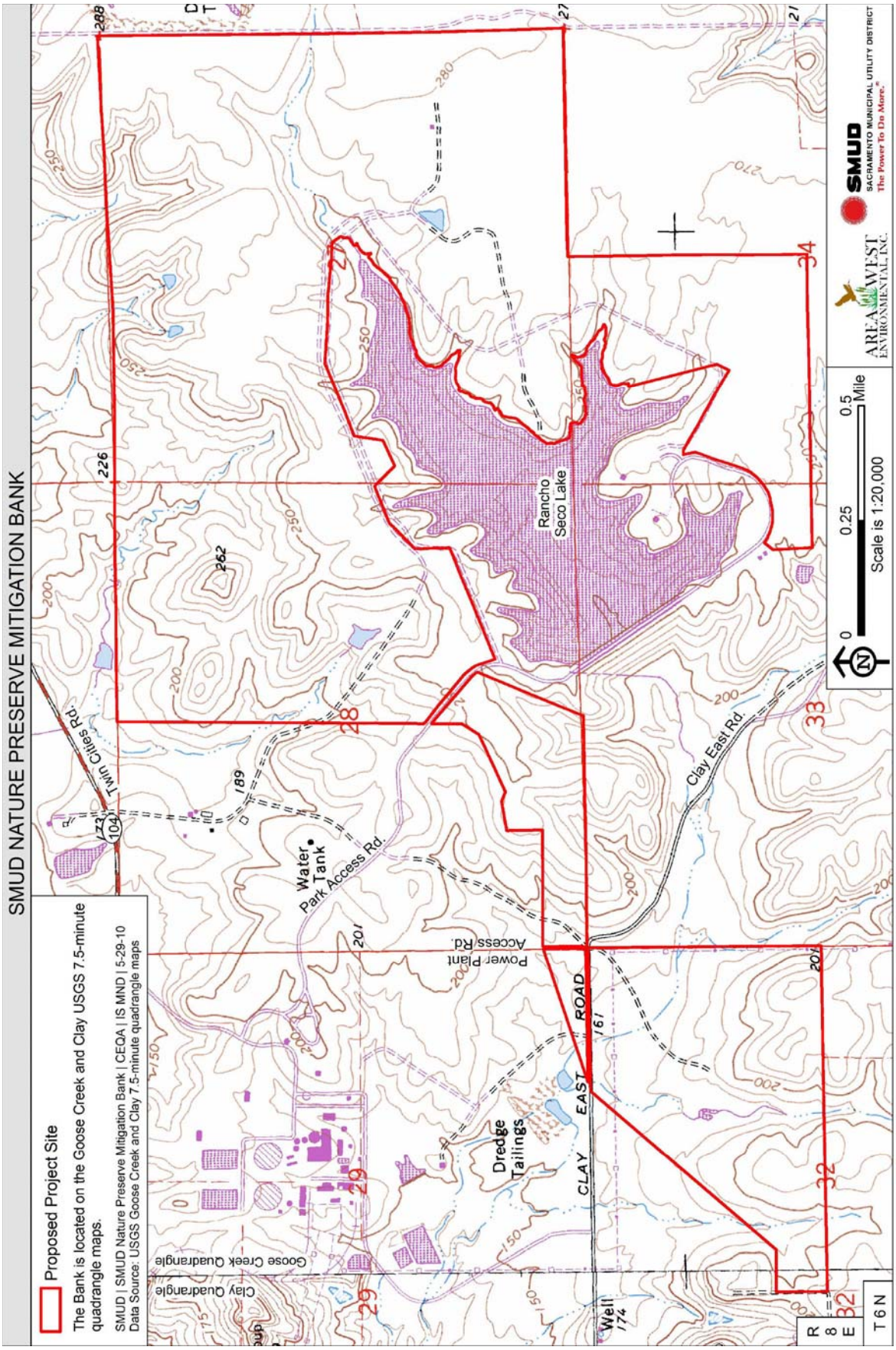

Figure 2. Proposed Project Location

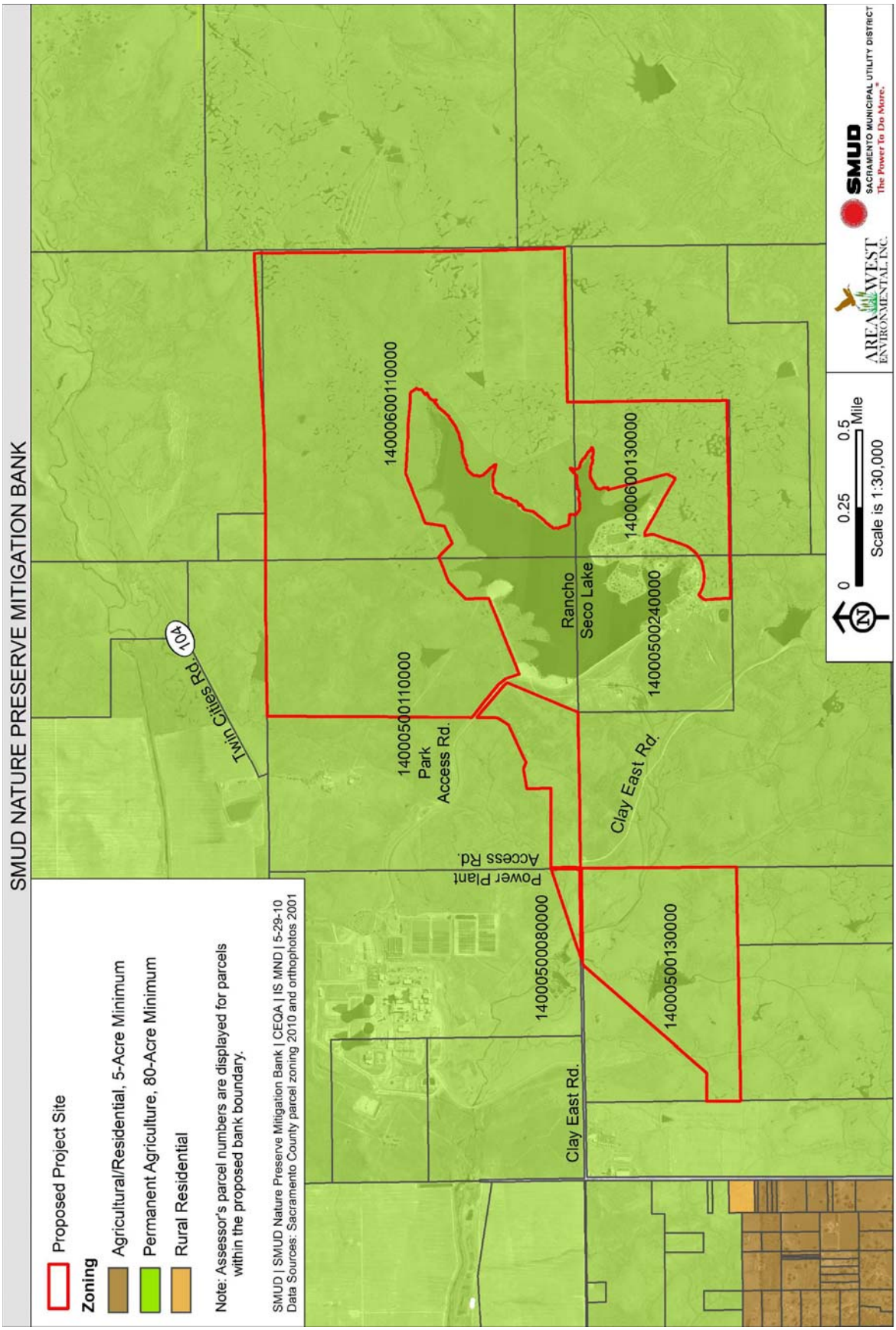

Figure 3. Zoning

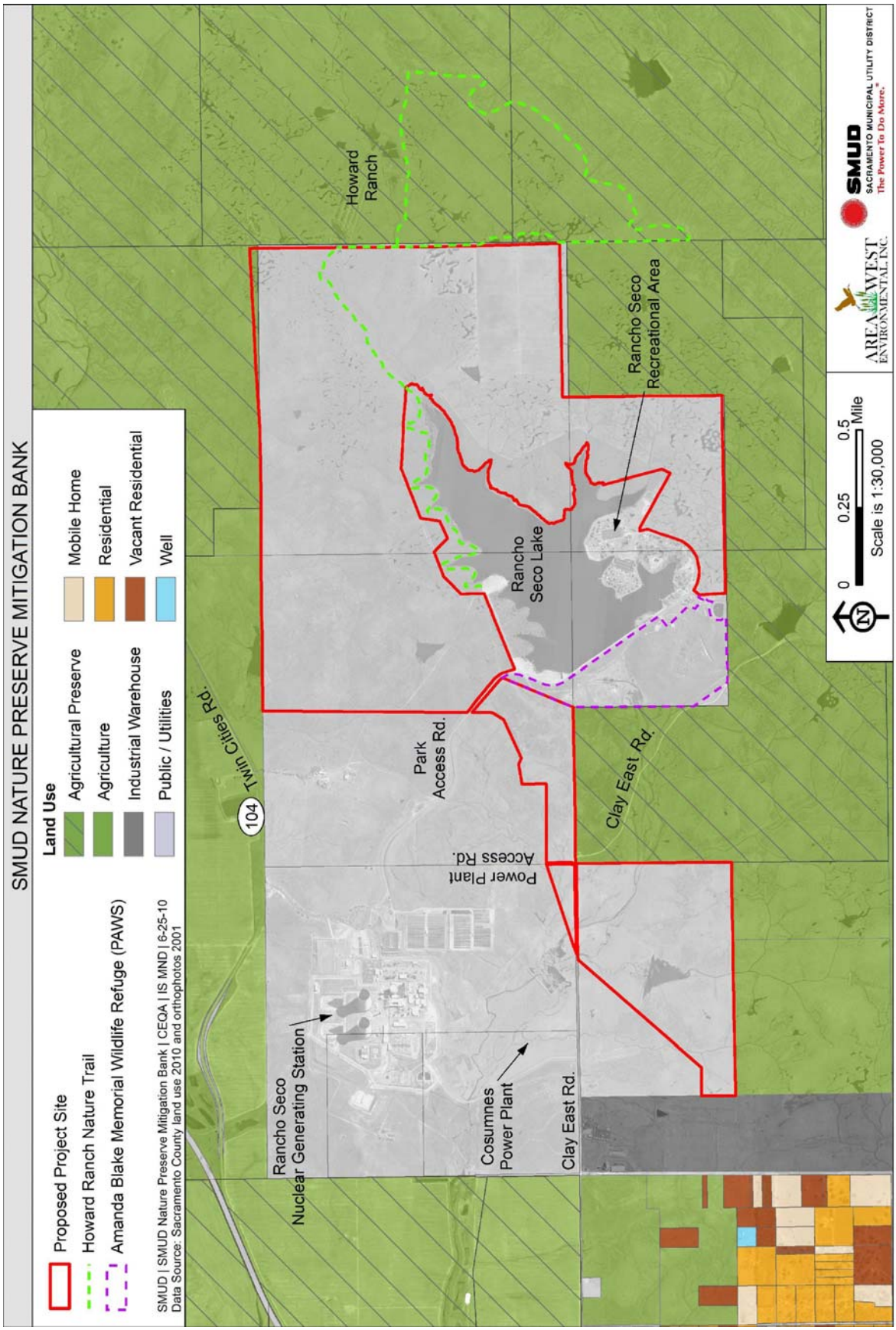

Figure 4. Land Use

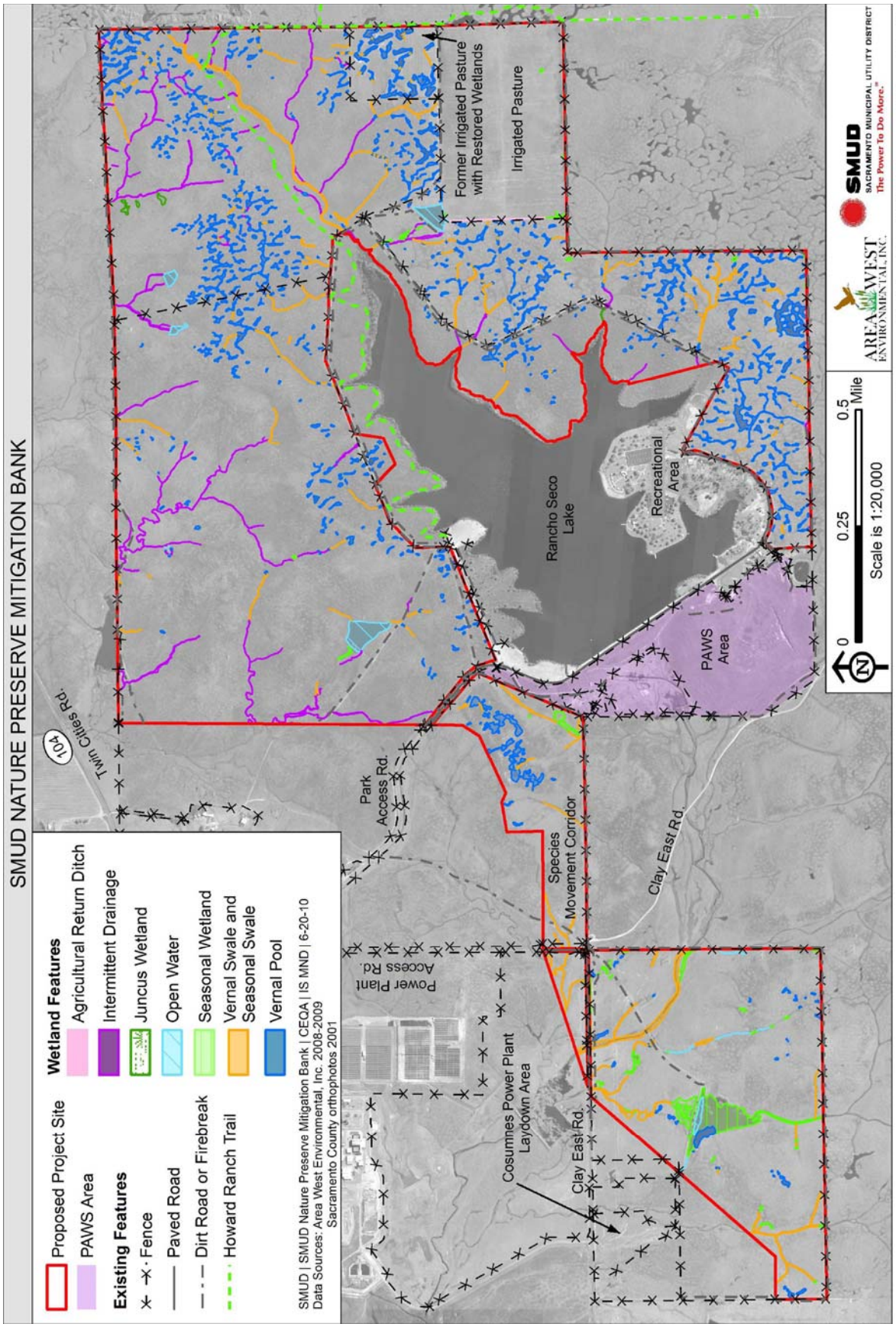

Figure 5. Verified Waters of the U.S.

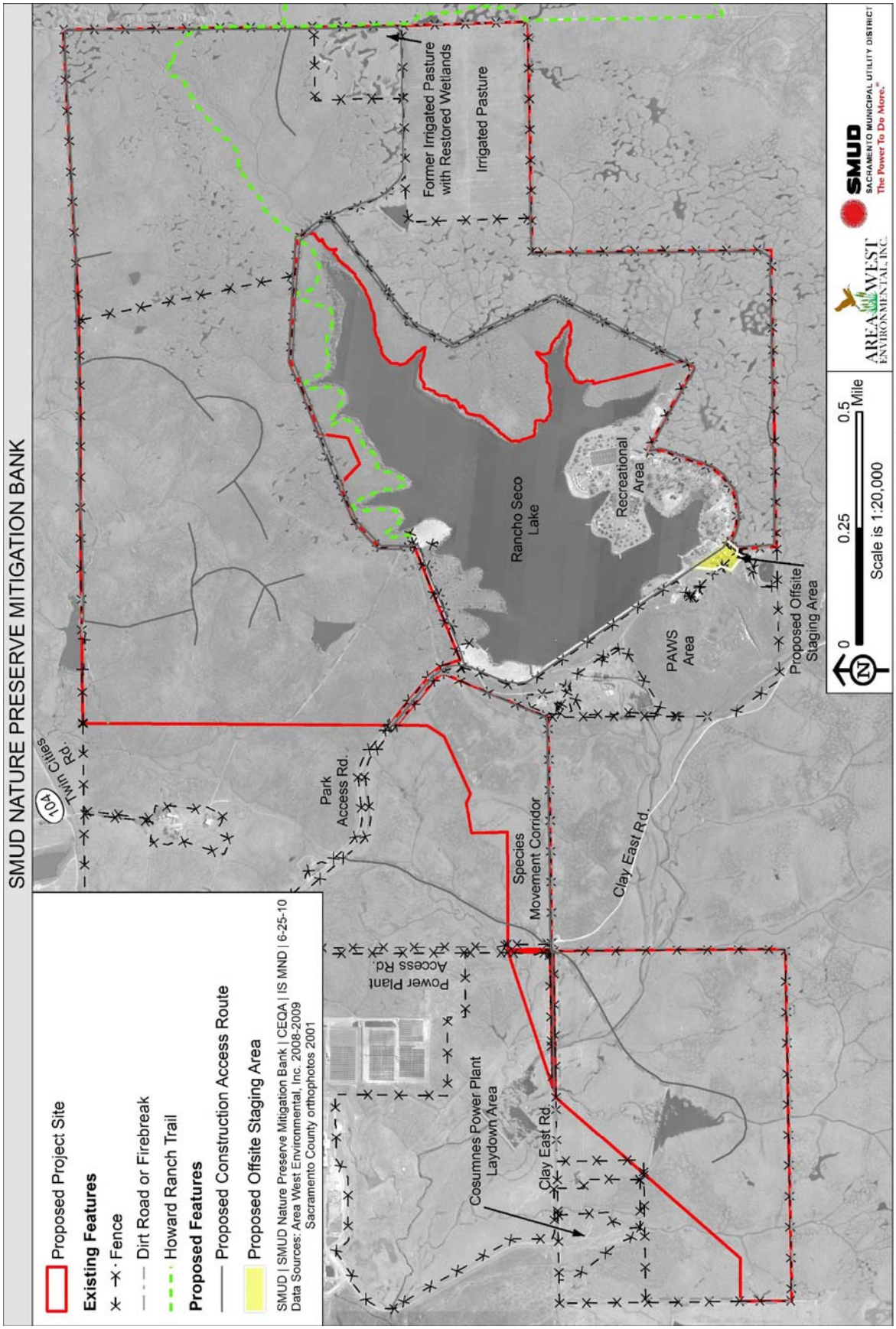

Figure 6. Proposed Construction Access Routes and Offsite Staging Area

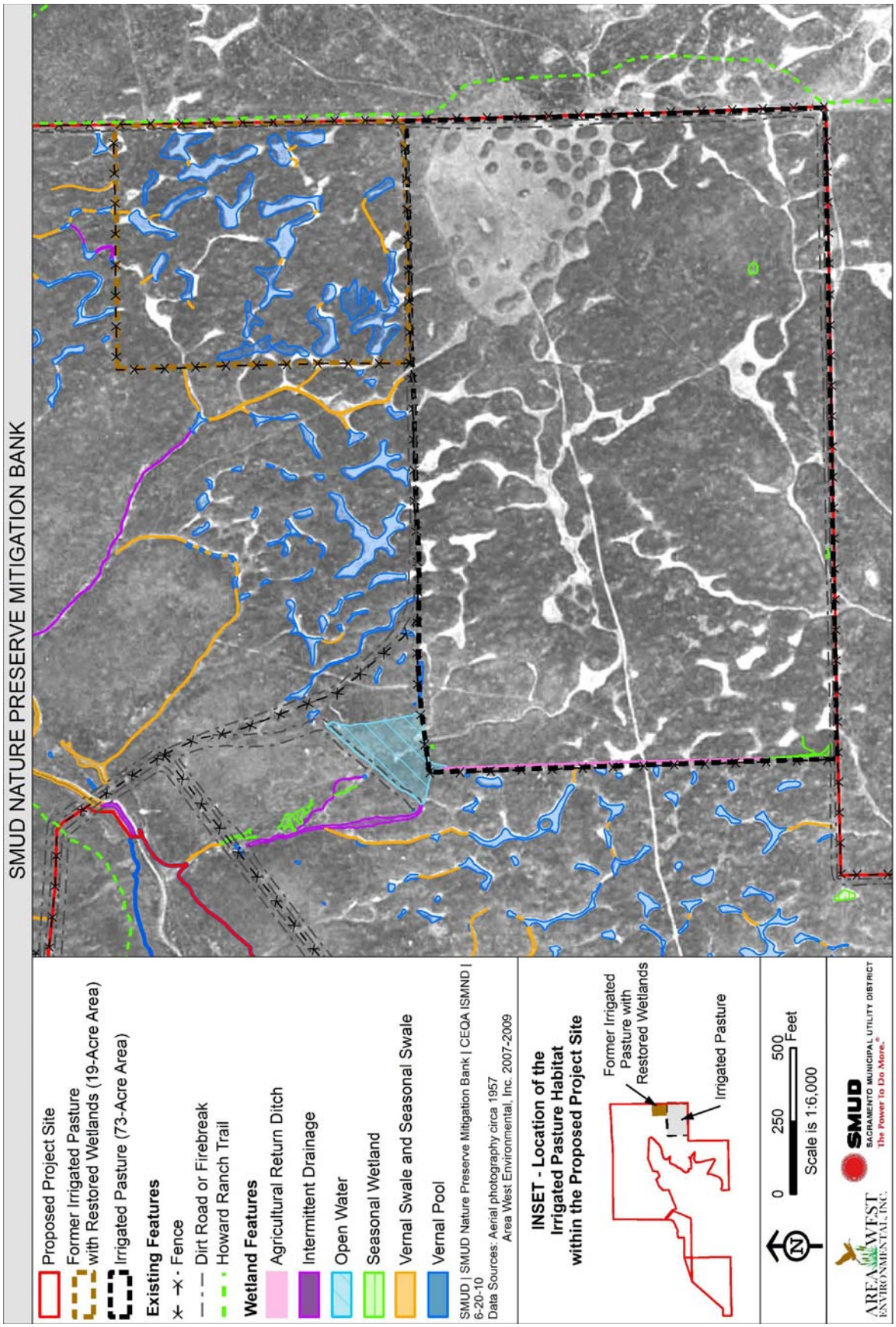

Figure 7. Historical Aerial Photographs of the Irrigated Pasture

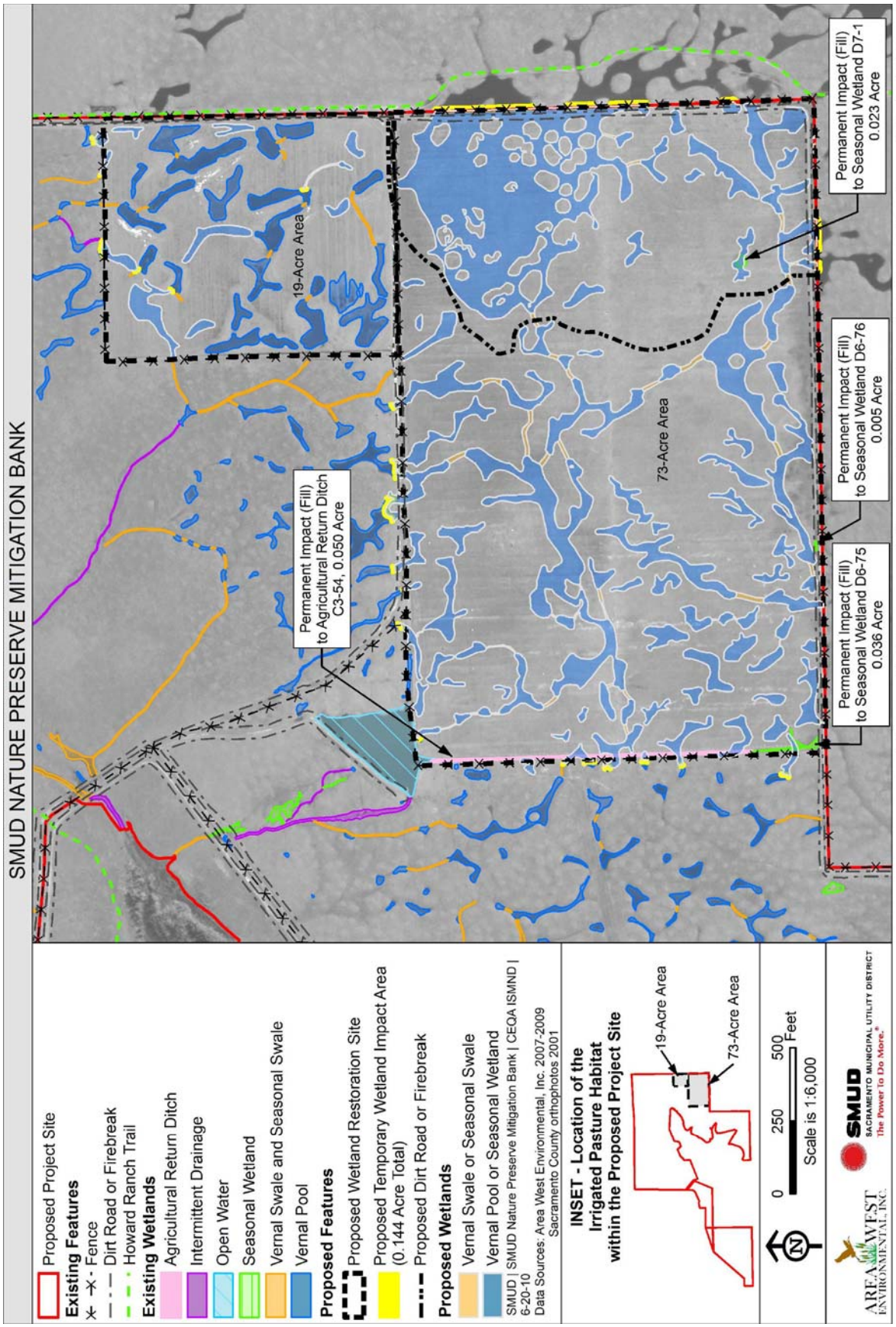

Figure 8. Proposed Conceptual Wetlands to be Restored/Established

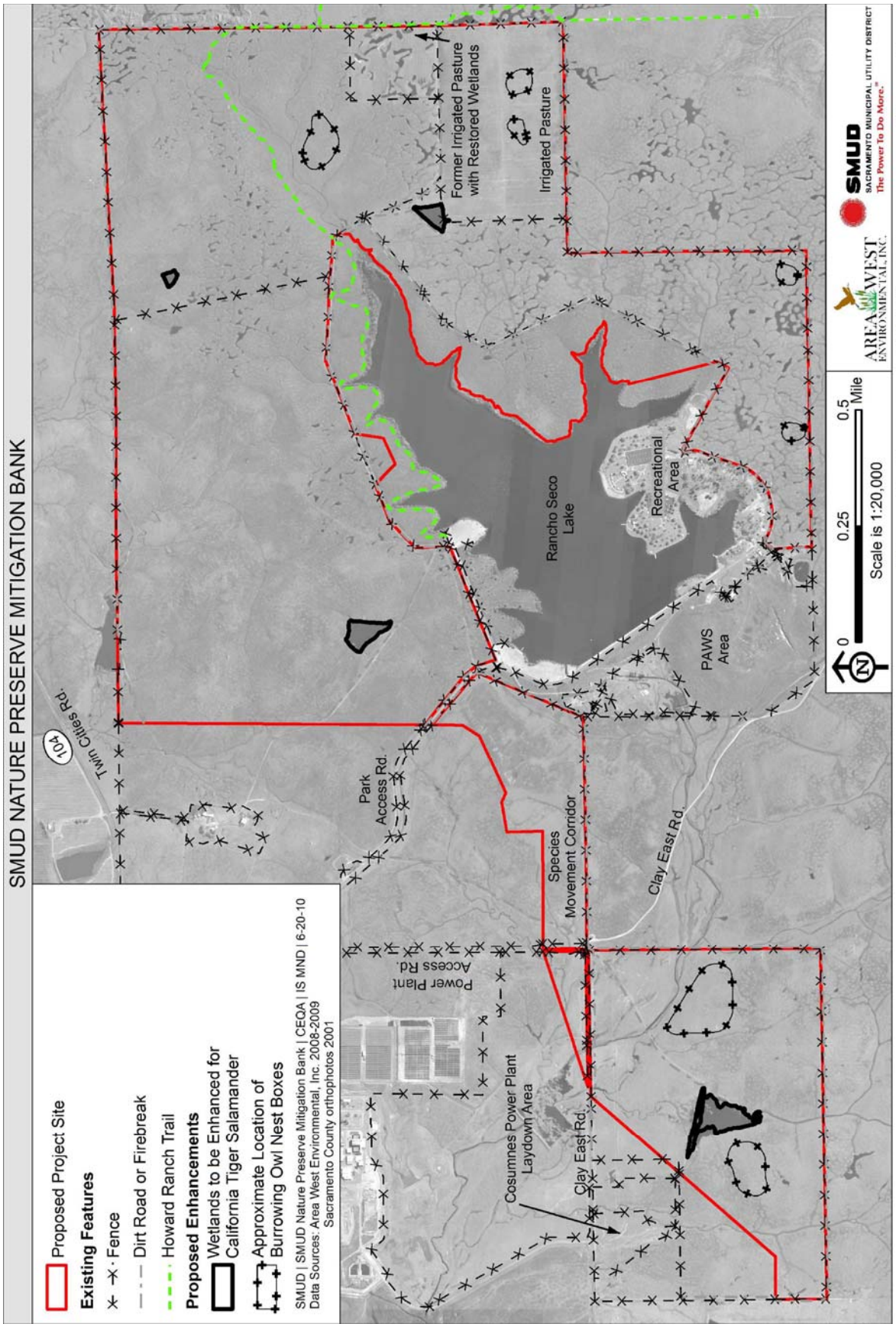

Figure 9. Proposed Wildlife Enhancement Locations

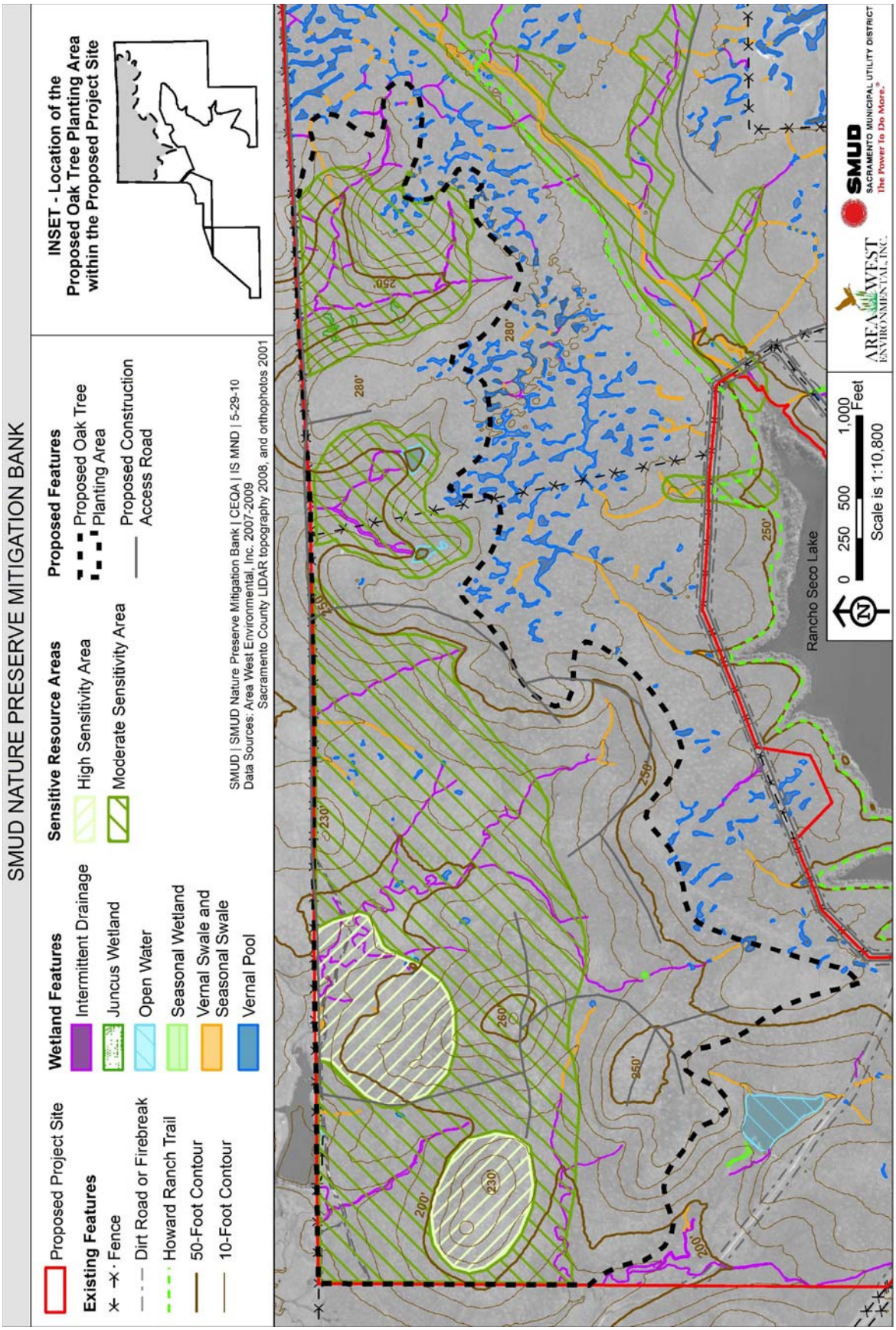

Figure 10. Proposed Oak Tree Planting Area

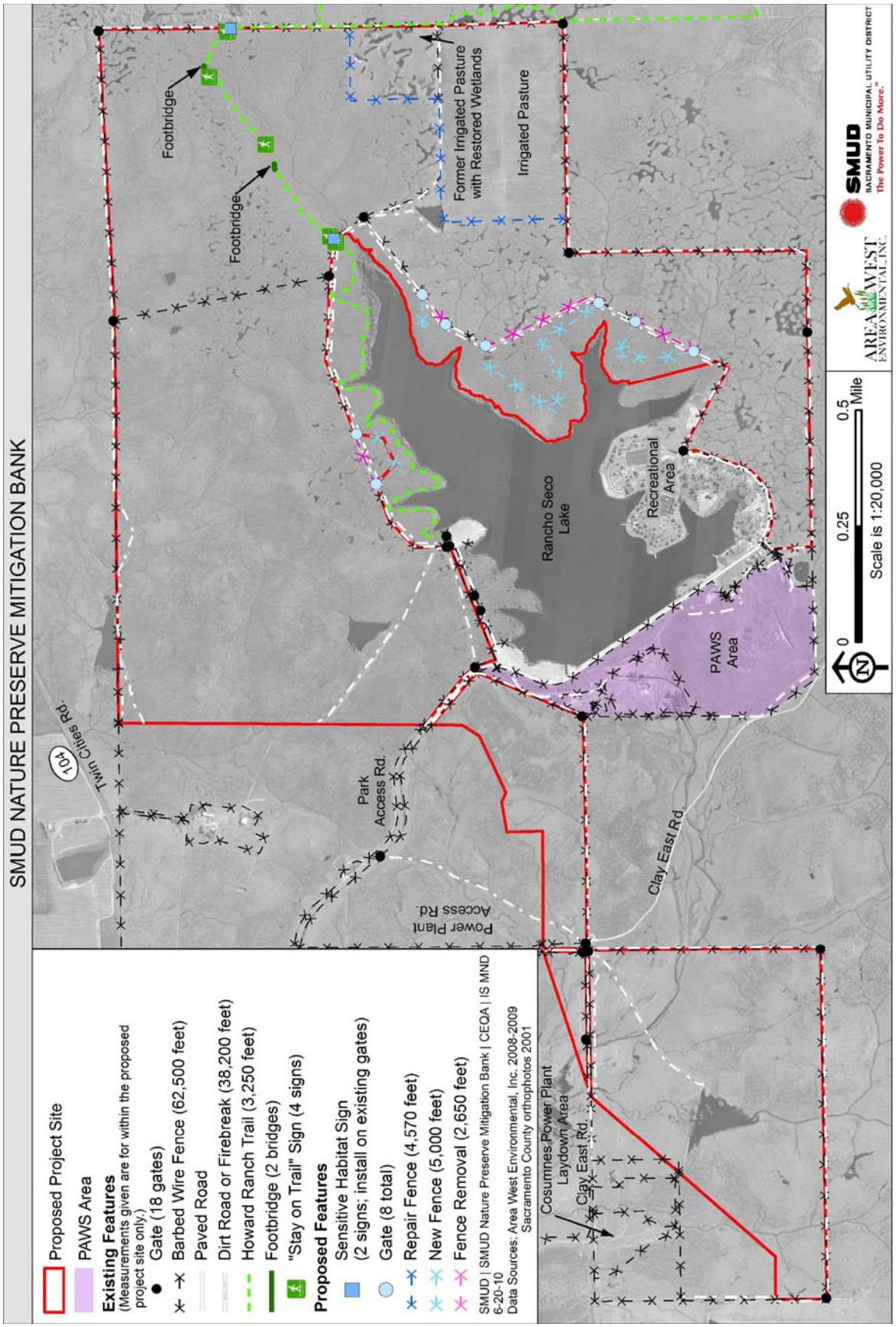

Figure 11. Location of Fences, Gates, Firebreaks, and Signage

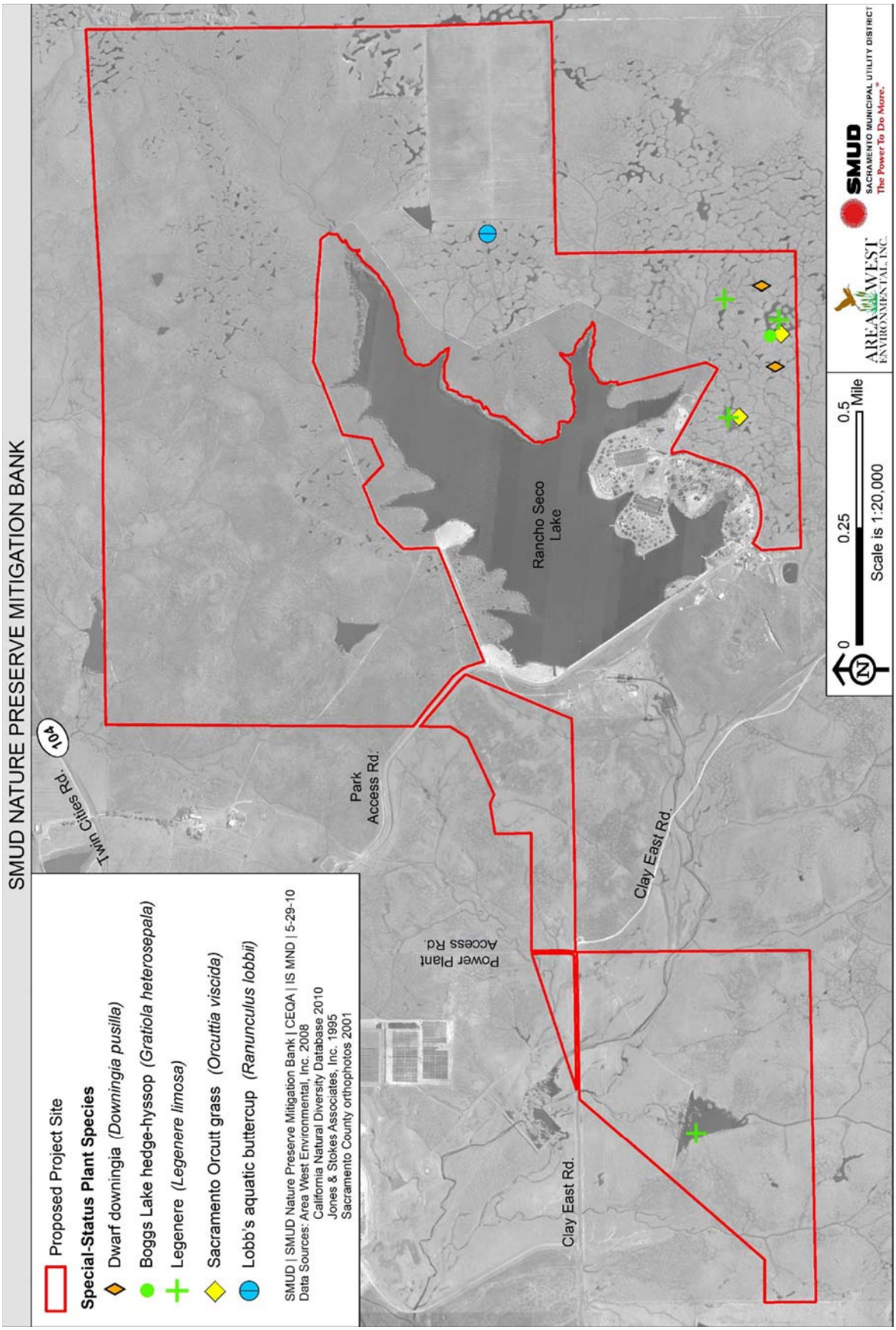

Figure 12. Special-Status Plant Locations

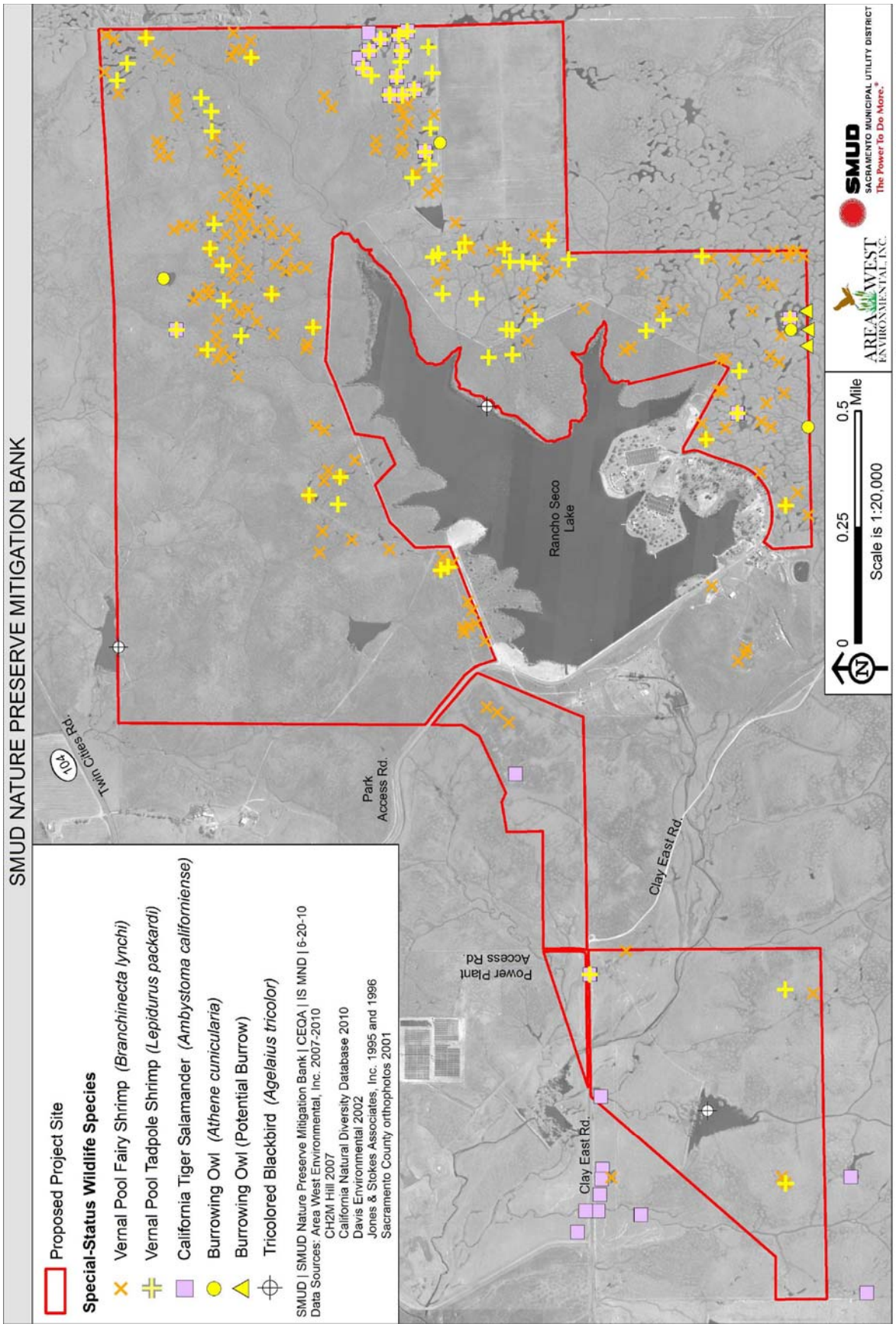

Figure 13. Special-Status Wildlife Locations

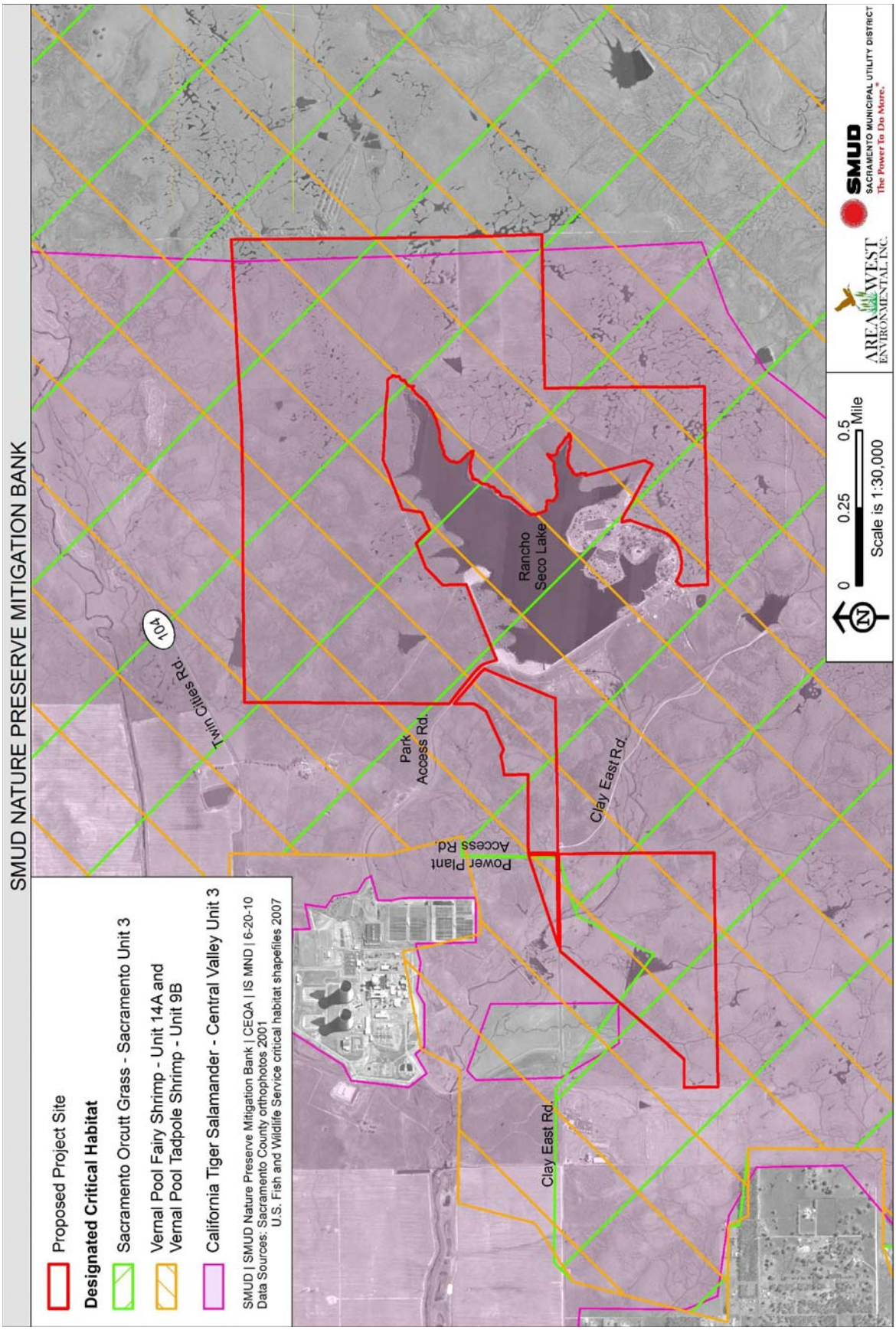

Figure 14. USFWS-Designated Critical Habitat

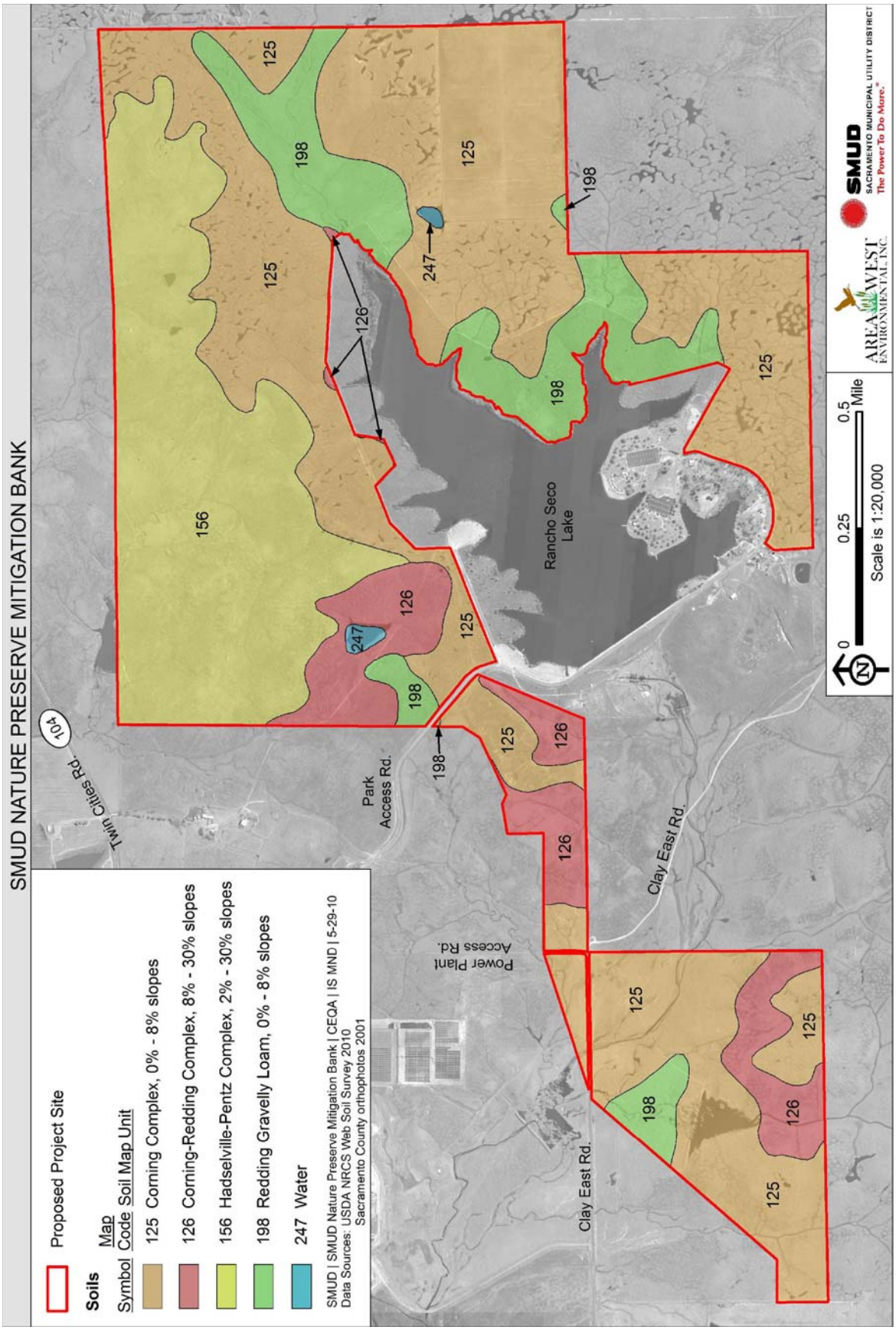

Figure 15. Soils

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CHAPTER 3 ENVIRONMENTAL CHECKLIST

This chapter of the IS/MND incorporates the Environmental Checklist contained in Appendix G of the CEQA Guidelines. Each resource topic section includes a description of the environmental setting, provides an explanation to the checklist impact questions, and describes mitigation measures adopted by SMUD to reduce potential impacts to less-than-significant levels.

3.1 Aesthetics

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporation	Less-Than-Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Environmental Setting

The Proposed Project is located in the southeastern part of Sacramento County. The Proposed Project site and immediate surroundings consist of rolling grassy hills, limited treed areas, vineyards, Rancho Seco Lake and recreation area, rural residences, the Cosumnes Power Plant, and the decommissioned Rancho Seco Nuclear Generating Station facilities. Elevations onsite range from 160 feet above mean sea level (amsl) in the southwestern portion of the site to 289 feet amsl in the northeastern portion of the site.

3.1.2 Answers to Checklist Questions

Question a: There are no designated scenic vistas located within the Proposed Project site. Scenic corridors in Sacramento County are limited to the areas around Garden Highway, Isleton Road, River Road, the Greenback Lane Extension Freeway, and portions of the Watt Avenue Freeway. Areas along the streams, sloughs, and channels of the Delta are also protected by scenic corridor sign controls. The

Proposed Project features will not have a substantial adverse effect on a scenic vista. The Proposed Project will have ***no impact***.

Question b: The only designated state scenic highway in Sacramento County is located along River Road (Highways 160 and 84) extending from the Sacramento city limits at the northern end of the town of Freeport, south to the tip of the Delta at Antioch Bridge. There are no state scenic highways located within or adjacent to the Proposed Project site; therefore, the Proposed Project will not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. The Proposed Project would have ***no impact***.

Question c: Implementation of the Proposed Project would include construction of wetlands by excavating shallow to moderately deep depressions, enhancing wildlife habitat by installing underground burrowing owl nest boxes, removing nonnative fish from onsite stockponds, managing vegetation around stockponds, and planting native oak trees within an approximately 280-acre area in the northern portion of Proposed Project site. The vernal pools will be created by excavating and recontouring the land to historical elevations; no berms will be used. Burrowing owl boxes would create small, approximately 1- to 3-foot-high mounds, consistent with the surrounding topography. Vegetation management would be minimal and limited to the installation of exclusion fencing to prevent cattle from grazing the entire boundary of onsite stockponds. Oak tree plantings could change the future visual character of a portion of the Proposed Project site by converting existing annual grassland to oak woodland; however, this habitat would mimic the species and densities of trees within the oak woodland found on the adjacent Howard Ranch Preserve. Therefore, the Proposed Project features would not substantially degrade the existing visual character or quality of the site and its surroundings. The Proposed Project would have a ***less-than-significant impact***.

Question d: No lighting is proposed. Implementation of the Proposed Project will not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The Proposed Project would have ***no impact***.

3.1.3 Mitigation

The Proposed Project will have no significant impacts on aesthetic resources; therefore, no mitigation is required.

3.2 Agriculture and Forest Resources

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methods provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:				
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a 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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment that, 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?	☐	☐	☐	☒

3.2.1 Environmental Setting

All of the parcels within the Proposed Project site, APN 140-0050-011-0000, 140-0050-013-0000, 140-0050-024-0000, 140-0060-011-0000, and 140-0060-013-0000, are zoned Permanent Agriculture, 80-acre Minimum (Figure 3).

The Proposed Project is not located on parcels designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (County of Sacramento 1993a). The Proposed Project area is not enrolled in Williamson Act Contracts.

The Proposed Project site currently supports naturalized non-native annual grassland grazed by cattle for approximately 8 months of the year (November through June) and is bordered to the north, south, and east by grazed annual grasslands. The decommissioned Rancho Seco Nuclear Generating Station and CPP are located to the west of the Proposed Project site.

3.2.2 Answers to Checklist Questions

Question a: The Proposed Project is not located on land designated either as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2008); therefore, the Proposed Project would not result in the conversion of land designated either as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. The Proposed Project would have ***no impact***.

Question b: The Proposed Project site is zoned agriculture and is currently grazed by cattle for approximately 8 months of the year (November through June). Implementation of the Proposed Project would temporarily restrict cattle grazing within a 92-acre wetland restoration site (approximately 1 year) and within tree planting plots (up to 10 years) located within the overall 280-acre tree planting area in the northern portion of the Proposed Project site. The remainder of the Proposed Project site would continue to be grazed by cattle. There are no Williamson Act contracts on the parcels within the Proposed Project. Because the existing zoning designation for agricultural use will not be modified by the Proposed Project and there are no Williamson Act contracts in effect, the Proposed Project would not conflict with any existing zoning for agricultural use or a Williamson Act contract. The Proposed Project would have ***no impact***.

Question c: The Proposed Project site is zoned agriculture and is currently grazed by cattle. No zoning change is proposed by the Proposed Project; therefore, the Proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The Proposed Project would have ***no impact***.

Question d: The Proposed Project site does not include forest or timberland uses and is not zoned for such uses; therefore, the Proposed Project will not result in the loss of forest land or conversion of forest land to non-forest use. The Proposed Project would have ***no impact***.

Question e: The Proposed Project would not involve other changes in the existing environment that, because of their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. The Proposed Project would have ***no impact***.

3.2.3 Mitigation

The Proposed Project will have no significant impact on agricultural or forest resources; therefore, no mitigation is required.

3.3 Air Quality

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
III. AIR QUALITY				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
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)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

The Proposed Project is located in the Sacramento Valley Air Basin (SVAB) and is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The federal and state ambient air quality standards of primary concern within SVAB are summarized in Table 3-1. Associated health effects are presented in Table 3-2. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes are based on avoiding health-related effects. As a result, the federal and state standards differ in some cases. In general, the state standards are more stringent. This is particularly true for ozone and particulate matter 10 microns or less in diameter (generally designated as PM_{10} and $PM_{2.5}$).

Table 3-1. State and Federal Ambient Air Quality Standards and Attainment Status Summary

Pollutant	Averaging Time	California Standards[a]	National Standards[b]		Attainment/Nontattainment Status (Sacramento Valley Air Basin)	
		Concentrations[c]	Primary[c,d]	Secondary[c,e]	State Status/ Classification	Federal Status/ Classification
Ozone (O_3)	8-hour	0.07 ppm	0.08 ppm	Same as primary	Nonattainment/ serious	Nonattainment/ serious
	1-hour	0.09 ppm				
Carbon monoxide (CO)	8-hour	9.0 ppm	9 ppm	None	Attainment/none	Attainment/none
	1-hour	20.0 ppm	35 ppm			
Nitrogen dioxide (NO_2)	Annual mean	0.03 ppm	0.053 pm	Same as primary	Attainment/none	Attainment/none
	1-hour	0.18 ppm	--			
Sulfur dioxide (SO_2)	Annual mean	--	0.03 ppm	--	Attainment/none	Attainment/none
	24-hour	0.04 ppm	0.14 ppm	--		
	3-hour	--	--	0.5 ppm		
	1-hour	0.25 ppm	--	--		
Fine particulate matter (PM_{10})	Annual mean	20 $\mu g/m^3$	--	Same as primary	Nonattainment	Nonattainment/ moderate
	Annual geometric mean	30 $\mu g/m^3$	--	--		
	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as primary		
Fine particulate matter ($PM_{2.5}$)	Annual mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Same as primary	Nonattainment	Nonattainment
	24-hour	--	35 $\mu g/m^3$			

Notes:

ppm = parts per million.

$\mu g/m^3$ = micrograms per cubic meter.

[a] California standards for O_3, CO (except Lake Tahoe), SO_2 (1 and 24 hour), NO_2, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of CCR.

[b] National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}; the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard. Contact the U.S. Environmental Protection Agency (USEPA) for further clarification and current federal policies.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality deemed necessary by the federal government, with an adequate margin of safety, to protect the public health.

[e] National Primary Standards: The levels of air quality deemed necessary by the federal government to protect the public welfare from any known or anticipated adverse effects to a pollutant.

Source: CARB 2010 and SMAQMD 2010.

Table 3-2. Health Effects of Main Criteria Air Pollutants

Pollutant	Adverse Effects
Ozone (O_3)	People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including: ▪ airway irritation, coughing, and pain when taking a deep breath; ▪ wheezing and breathing difficulties during exercise or outdoor activities; ▪ inflammation, which is much like a sunburn on the skin; ▪ aggravation of asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis; and ▪ permanent lung damage with repeated exposures. Ground-level ozone can have detrimental effects on plants and ecosystems. These effects include: ▪ interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather; ▪ damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, as well as vegetation in national parks and recreation areas; and ▪ reducing forest growth and crop yields, potentially impacting species diversity in ecosystems.
Carbon Monoxide (CO)	Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. ▪ *Cardiovascular Effects*. The health threat from lower levels of CO is most serious for those who suffer from heart disease, like angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. ▪ *Central Nervous System Effects*. Even healthy people can be affected by high levels of CO. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death. ▪ *Smog*. CO contributes to the formation of smog ground-level ozone, which can trigger serious respiratory problems.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particles can be carried over long distances by wind and then settle on ground or water. The effects of this settling include: making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, and affecting the diversity of ecosystems. Particle pollution - especially fine particles - contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: ▪ increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing, for example; ▪ decreased lung function; ▪ aggravated asthma; ▪ development of chronic bronchitis; ▪ irregular heartbeat; ▪ nonfatal heart attacks; and ▪ premature death in people with heart or lung disease.

Table 3-2. Health Effects of Main Criteria Air Pollutants (continued)

Pollutant	Adverse Effects
Nitrogen Dioxide (NO_2)	Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations, and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma. The sum of nitric oxide (NO) and NO_2 is commonly called nitrogen oxides or NO_X. Other oxides of nitrogen including nitrous acid and nitric acid are part of the nitrogen oxide family. While EPA's National Ambient Air Quality Standard (NAAQS) covers this entire family, NO_2 is the component of greatest interest and the indicator for the larger group of nitrogen oxides. Emissions that lead to the formation of NO_2 generally also lead to the formation of other NO_X. Emissions control measures leading to reductions in NO_2 can generally be expected to reduce population exposures to all gaseous NO_X.
Sulfur Dioxide (SO_2)	Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics. EPA's National Ambient Air Quality Standard for SO_2 is designed to protect against exposure to the entire group of sulfur oxides (SO_X). SO_2 is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides (SO_X). Other gaseous sulfur oxides (e.g. SO_3) are found in the atmosphere at concentrations much lower than SO_2. Emissions that lead to high concentrations of SO_2 generally also lead to the formation of other SO_X. Control measures that reduce SO_2 can generally be expected to reduce people's exposures to all gaseous SO_X. This may have the important co-benefit of reducing the formation of fine sulfate particles, which pose significant public health threats.

Source: USEPA 2010.

The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have designated each county within California as either attainment or non-attainment for the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS). Pursuant to the federal Clean Air Act, USEPA has designated the SVAB as serious non-attainment for ozone (O_3), moderate non-attainment for PM_{10}, and nonattainment for $PM_{2.5}$, with respect to the NAAQS. CARB has designated the SVAB as serious non-attainment for O_3, non-attainment for PM_{10}, and non-attainment for $PM_{2.5}$. The SVAB is designated attainment for all remaining federal and state ambient air quality standards (SMAQMD 2010).

Criteria air pollutants are a group of pollutants for which federal or state regulatory agencies have adopted ambient air quality standards. Criteria air pollutants include O_3, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead. Table 3-2 lists the health effects associated with these pollutants. Most of the criteria pollutants are directly emitted. O_3, however, is a secondary pollutant that is formed in the atmosphere by chemical reactions between oxides of nitrogen (NO_x) and reactive organic gases (ROG).

SMAQMD regulates air quality through its permit authority and its planning and review activities over most types of stationary emission sources. SMAQMD is responsible for implementing emissions standards and other requirements of federal and state laws.

3.3.2 Thresholds of Significance

The air quality impacts of the Proposed Project were evaluated based on the SMAQMD CEQA Thresholds of Significance. SMAQMD has adopted the following three types of thresholds (SMAQMD 2009):

- Mass Emission Thresholds
  - Construction (short-term): generate more than 85 pounds per day (lb/day) of NO_x, or
  - Operation (long-term): generate more than 65 pounds per day of either ROG or NO_x.

SMAQMD has not established significance thresholds for construction-related emissions of ROG. Heavy-duty diesel-powered construction equipment emit relatively low levels of ROG, and ROG emissions from other construction phases, such as architectural coatings, are typically not applicable to some development projects or are regulated by SMAQMD rules and regulations (SMAQMD 2009). However, although no significance threshold has been identified, SMAQMD recommends including estimates of ROG emissions from construction as part of an air quality assessment because ROG and NO_x are precursors to O_3 formation.

SMAQMD has not established a mass emission threshold for PM_{10}, but has a substantial contribution threshold to determine whether a project would violate or contribute to a projected violation of the CAAQS for PM_{10}.

- Emission Concentration Threshold
  - CAAQS would be applied as significance criteria to all phases of a project.
- Substantial Contribution Threshold
  - If the project would emit pollutants at a level equal to or greater than 5 percent of the CAAQS, it would be considered to contribute substantially to an existing or projected CAAQS violation.

SMAQMD's *CEQA Guide to Air Quality Assessment* includes screening levels for particulate matter for construction projects (URBEMIS 2007 calculates pounds per day of PM_{10} rather than ug/m^3). These screening levels are based on the maximum actively disturbed area of the project site. In accordance with SMAQMD screening criteria and with implementation of SMAQMD-recommended mitigation measures, projects that would result in the disturbance of less than or equal to approximately 15 acres per day would be considered less than significant. SMAQMD-recommended mitigation measures for construction emissions are listed below (SMAQMD 2009).

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Cover any haul trucks that would be traveling along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

- Construction on all roadways, driveways, sidewalks, and parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the idling time to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the CCR]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

3.3.3 Emissions Modeling Methods

Proposed Project emissions were modeled using the URBEMIS 2007 software (Version 9.2.4) based on the estimated area of disturbance and equipment usage provided by the Proposed Project applicant for each of the major phases of Proposed Project construction, as listed in Table 3-3. For modeling purposes, all equipment identified was assumed to operate simultaneously on any given day. All remaining modeling assumptions were based on default parameters contained in the model for Sacramento County. Model output data for Proposed Project emissions is provided in Appendix B.

Table 3-3. Summary of Construction Requirements

Construction Phase/Activity	Daily Area of Disturbance	Duration	Daily Equipment Required
Wetland Construction			
Initial site preparation	14 Acres	5 Days	2 Tractors 2 Scrapers 2 Water trucks
Wetland excavation	6.2 Acres	12 Days	2 Tractors 2 Scrapers 1 Ripper 2 Water trucks
Final contouring	12.5 Acres	2 Days	2 Tractors 1 Hydroseed truck 2 Water trucks
Burrowing Owl Nest Box Construction	Minimal	6 Days	1 Backhoe
Tree Planting			
Planting acorns/saplings	Minimal	8 Days (years 1–5)	1 Auger (planting) 2 all-terrain vehicles (ATVs) (3 hours/day)
Above-ground irrigation system	Minimal	4 Days (Years 1–5)	2 ATVs (4 hours/day)
Fencing	Minimal	8 Days (year 1) 2 Days (years 2–5)	1 Compressor, (pneumatic post driver)
Long-term maintenance	Minimal	8 Days/Year	2 ATVs 2 Weedeaters

Notes: For modeling purposes equipment identified for each construction phase was assumed to operate simultaneously on any given day. All equipment was assumed to operate an average of 8 hours per day, except where indicated. The model outputs are included in Appendix B.

3.3.4 Answers to Checklist Questions

Question a: A project would be considered to conflict with or obstruct implementation of the regional air quality plans if it would be inconsistent with the emissions inventories contained in the regional air quality plans. Emission inventories are developed based on projected increases in population growth and vehicle miles traveled (VMT) within the region. Project-generated increases in population or VMT could, therefore, potentially conflict with regional air quality attainment plans.

Implementation of the Proposed Project would not result in increased population or related increases in vehicle miles traveled within the region. As a result, implementation of the Proposed Project would not be anticipated to conflict with existing or future air quality planning efforts. The Proposed Project would have a ***less-than-significant impact***.

Question b: Implementation of the Proposed Project would result in short-term (i.e., construction) and long-term (i.e., operational) air quality impacts. Short-term and long-term air quality impacts are discussed in more detail, as follows:

Short-Term Construction

Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but possess the potential to represent a significant air quality impact. The construction of the Proposed Project would result in the temporary generation of emissions resulting from site grading and motor-vehicle exhaust from construction equipment and worker trips, as well as the

movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities.

Short-term construction emissions associated with the Proposed Project are summarized in Table 3-4. As depicted, construction of the Proposed Project would generate maximum daily emissions of approximately 7.14 lbs/day of ROG, 62.75 lbs/day of NO_x, 282.37 lbs/day of PM_{10}, and 60.66 lbs/day of $PM_{2.5}$. Maximum daily emissions of NO_x would be generated during construction of the wetlands, particularly during the excavation phase. Maximum daily emissions of PM would, likewise, occur during construction of the wetlands, particularly during the initial site preparation phase.

As indicated in Table 3-4, emissions of NO_x would not exceed SMAQMD significance threshold of 85 lbs/day. SMAQMD has not established a mass emission threshold for PM_{10}; however, as previously discussed, SMAQMD has developed screening criteria for the evaluation of construction-generated PM_{10} emissions. Accordingly, projects that would result in the daily disturbance of less than or equal to approximately 15 acres/day, would be considered less than significant, provided SMAQMD-recommended control measures have been implemented (refer to Section 3.3.2 of this report for SMAQMD-recommended control measures). As noted in Table 3-3, implementation of the Proposed Project is anticipated to result in a maximum estimated daily disturbance of approximately 14 acres/day.

Table 3-4. Construction-Generated Criteria Air Pollutant Emissions

Construction Phases/Activities	Emissions (lbs/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Wetland construction				
Initial site preparation	5.85	51.44	282.37	60.66
Excavation of wetlands	7.14	62.75	126.25	28.39
Final contouring	2.79	22.93	251.21	53.32
Burrowing owl nest box construction	1.12	8.84	0.51	0.47
Tree Planting				
Acorn/sapling planting	0.90	10.10	0.33	0.31
Irrigation system	0.76	8.59	0.28	0.26
Fencing	0.53	3.10	0.28	0.26
Maximum daily emissions (without mitigation)	7.14	62.75	282.37	60.66
SMAQMD thresholds:	None	85	None	None

Note: Emissions were calculated based on the acreage of disturbance and equipment assumptions noted in Table 3-3. Estimated daily emissions include worker commute trips, based on URBEMIS2007 default assumptions.

Implementation of Mitigation Measure AIR-1, described in Section 3.3.5, would reduce fugitive dust emissions of PM by approximately 50 to 75 percent, depending on the activities conducted. With mitigation, maximum daily construction-generated emissions would be reduced to approximately 32.32 lbs/day of PM10 and 8.43 lbs/day of PM2.5. Based on the Proposed Project's maximum estimated daily disturbance of approximately 14 acres/day and implementation of Mitigation Measure AIR-1, consistent with SMAQMD-recommended control measures, construction-generated emissions would be considered less-than-significant. The Proposed Project would have ***a less-than-significant impact with mitigation incorporated***.

Long-Term Operation

On an annual basis, periodic maintenance would require approximately two employee vehicle trips to the Proposed Project site, approximately 8 days per year. Daily maintenance would require the use of up to four pieces of offroad equipment (e.g., ATVs, landscape trimmers, etc.) approximately 8 hour per day. Based on these assumptions, long-term maintenance activities would result in daily emissions of approximately 1.85 lbs/day of ROG, 20.88 lbs/day of NO_x, 0.67 lbs/day of PM_{10}, and 0.61 lbs/day of $PM_{2.5}$. Long-term operational emissions would not exceed SMAQMD-recommended significance thresholds of 65 lbs/day for NO_x or ROG. In addition, implementation of the Proposed Project would not result in the installation of any stationary sources of emissions. Long-term operation of the Proposed Project would not contribute substantially to localized concentrations of emissions. The Proposed Project would have a ***less-than-significant impact***.

Question c: As noted in Question b above, implementation of the Proposed Project could result in significant increases of airborne particulate matter during initial site-preparation activities. However, Implementation of Mitigation Measure AIR-1 would reduce construction-generated particulate emissions to a less-than-significant level. Long-term operational emissions would not exceed SMAQMD-recommended significance thresholds and would not result in a substantial contribution to localized pollutant concentrations. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question d: Locations where the very young, elderly, and those suffering from certain illnesses or disabilities reside are considered to be "sensitive receptors" to air quality impacts. Examples of sensitive receptors include schools, daycare centers, parks, recreational areas, medical facilities, rest homes, convalescent care facilities, and residences. Land use conflicts can arise when sensitive receptors are located near major sources of air pollutant emissions. The Proposed Project is not located near a residential area. The nearest residential land uses are caretaker dwellings located approximately 0.5 and 0.89 mile northeast and southwest, respectively, of the Proposed Project site. The nearest offsite rural residential dwellings are located in excess of 2 miles to the northwest, west, and south of the site. The Rancho Seco Recreation Area campgrounds are located approximately 0.47 mile west of the Proposed Project site.

As noted in Question b above, implementation of the Proposed Project could result in significant increases of airborne particulate matter during initial site-preparation activities. With implementation of SMAQMD-recommended measures for the control of construction-generated emissions (Mitigation Measure AIR-1), this impact would be considered less than significant. Long-term operational emissions would not exceed SMAQMD-recommended significance thresholds, result in the operation of any major stationary sources of emissions, or result in a substantial increase in vehicle traffic on area roadways. For these reasons and given the distance to the nearest sensitive receptors (i.e., 0.5 mile or greater), implementation of the Proposed Project would not result in a substantial contribution to localized pollutant concentrations. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question e: The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

Construction of the Proposed Project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel exhaust, may be considered

objectionable by some people; however, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. For these reasons and given the distance to the nearest offsite receptors (i.e., 0.5 mile or greater), short-term construction activities would not expose a substantial number of people to frequent odorous emissions.

No major existing stationary sources of odors have been identified in the Proposed Project vicinity. In addition, the Proposed Project would not result in the installation of any equipment or processes that would be considered major odor-emission sources. The Proposed Project would have a ***less-than-significant impact***.

3.3.5 Mitigation

Implementation of the following mitigation measure would ensure that potential impacts on air quality would be reduced to a less-than-significant level.

AIR-1

The following SMAQMD-recommended emissions control measures shall be implemented during construction:

- When in use, water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material to or from the site. Cover any haul trucks that would be traveling along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent paved public roads, when necessary. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 mph.
- Minimize idling time either by shutting equipment off when not in use or reducing idling time to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the CCR]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked and determined to be running in proper condition before it is operated.

In addition to the above SMAQMD-recommended mitigation measures, the following additional mitigation measures shall also be implemented during construction:

- The area of active daily disturbance shall be minimized to the maximum extent practicable and shall not exceed 15 acres per day.
- Stationary equipment (e.g., portable generators) shall use alternative fuels, such as propane or solar, or use electrical power, to the extent practical.
- Construction employees shall be encouraged to carpool to the Proposed Project site.

- In the event that a temporary construction office/trailer is to be installed at the site, the construction office shall be equipped with energy-efficient lighting and appliances.

- Newer or low-emission offroad construction equipment shall be utilized, to the extent practicable. Examples include, but are not limited to, the use of electric-powered equipment or use of diesel-fueled equipment that would comply with USEPA Tier 2 emissions standards (i.e., post-model year 2001 for 300- to 600-horsepower (-HP) engines, and post-model year 2003 for 100- to 300-HP engines), or newer.

3.4 Biological Resources

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
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 CDFG or USFWS?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local or regional habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

The terrain of the Proposed Project site consists of gently rolling slopes with many small collection tributaries that drain runoff from incidental rainfall (Figure 2). The study area ranges in elevation from 160 feet amsl to 289 feet amsl. On the Proposed Project site, the combination of soils, hydrology, and Mediterranean climate (cool, wet winters and hot, dry summers) supports plant species associated with the Sacramento Valley vegetation communities. There are nine general vegetation communities or habitat types, including wetlands, on the Proposed Project site: annual grassland, irrigated pasture, vernal pool, vernal swale, seasonal wetland, seasonal swale, Juncus wetland, intermittent drainage, and open water

(Figure 5). There are natural high-density vernal pool complexes (consisting of vernal pools, vernal swales, and adjacent uplands) throughout the Proposed Project site.

3.4.2 Waters of the U.S., Including Wetlands

In 2007, Area West Environmental, Inc. (AWE) conducted a preliminary wetland delineation that included the Proposed Project site (AWE 2007). On July 17, 2008, the Corps verified 55.661 acres of jurisdictional waters of the U.S. on the Proposed Project site. The 55.661 acres are comprised of proposed preserved and previously restored vernal pool, vernal swale, seasonal wetland, seasonal swale, Juncus wetland, intermittent drainage, agricultural return ditch, and open water habitats (Table 3-5). Figure 5 depicts the location and distribution of waters of the U.S., including wetlands, on the Proposed Project site.

Table 3-5. Summary of Waters of the U.S., Including Wetlands

Potential Waters of the U.S.	Acres
Vernal pool	31.747
Vernal swale	7.320
Seasonal wetland	7.678
Seasonal swale	0.307
Juncus wetland	0.335
Intermittent drainage	3.336
Agricultural return ditch (in irrigated pasture)	0.050
Open water	4.888
Total	**55.661**

3.4.3 Special-Status Species

Special-status species are generally defined as those species assigned a status designation indicating possible risk to the species. These designations are assigned by state and federal resources agencies (e.g., CDFG, USFWS) or by private research or conservation groups (e.g., National Audubon Society, California Native Plant Society [CNPS]). Assignment to a special-status designation is typically based on a declining or potentially declining population locally, regionally, or nationally. To what extent a species or population is at risk usually determines the status designation. The factors that determine risk to a species or population generally fall into one of several categories, such as habitat loss or modification affecting the distribution and abundance of a species; environmental contaminants affecting the reproductive potential of a species; or a variety of mortality factors such as hunting or fishing, interference with human-made objects (e.g., collision, electrocution), invasive species, or toxins.

For purposes of this IS/MND, special-status plant species are generally defined as follows:

- Plants listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants] and various notices in the Federal Register [FR] [proposed species]).
- Plants that are candidates for possible future listing as threatened or endangered under the federal ESA (72 FR 69034-69105, December 6, 2007).

- Plants presumed by the CNPS to be extinct in California (List 1A [CNPS 2010]).
- Plants considered by the CNPS to be "rare, threatened, or endangered" in California (Lists 1A, 1B and 2 [CNPS 2010]).
- Listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 [CNPS 2010]) that may be included on the basis of local significance or recent biological information that suggests they warrant inclusion on Lists 1B or 2.
- Plants listed or candidates for listing as threatened or endangered by the State of California under CESA (14 CCR 670.5).
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).
- Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management) or state and local agencies or jurisdictions.
- Plant species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380).

Special-status wildlife species are generally defined as follows:

- Wildlife species that are listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
- Wildlife species that are candidates for possible future listing as threatened or endangered under the federal ESA (72 FR 69034-69105, December 6, 2007).
- Wildlife species that are listed or proposed for listing under CESA (California Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.).
- Wildlife species that are designated as Species of Special Concern by CDFG.
- Wildlife species that are designated as fully protected under the California Fish and Game Code Section 3511(birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians).
- Wildlife species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380).

Numerous biological surveys were conducted throughout the Proposed Project site from 1993 to 2010. A brief description of the biological surveys and special-status species observed during the surveys is listed in Table 3-6. The specific methods employed for each of these surveys and survey results are described in detail in a Biological Evaluation and Special-Status Species report prepared for the SMUD Nature Preserve Mitigation Bank (on file at SMUD's Headquarters Building in Sacramento) (AWE 2009). The locations of special-status plant and wildlife species previously identified on and adjacent to the Proposed Project site are depicted on Figures 12 and 13.

Table 3-6. Special-Status Species Survey Dates and Findings

Survey Dates	Type of Survey	Special-Status Species[a] Observed	Reference
Surveys Conducted Prior to Proposed Project Planning			
April 28 and 30; May 1–7, and 12; and June 3, 11, and 15, 1993	Botanical surveys	Boggs Lake hedge-hyssop, Sacramento Orcutt grass, and legenere	*Special-Status Plant and Wildlife Species Surveys and Habitat Assessments for the Rancho Seco Park Master Plan Project Site* (Jones & Stokes Associates, Inc. 1993a)
February 8–10 and 19, March 5 and 19, and April 3, 1993	Focused invertebrate and amphibian surveys	Vernal pool fairy shrimp and vernal pool tadpole shrimp	*Special-Status Plant and Wildlife Species Surveys and Habitat Assessments for the Rancho Seco Park Master Plan Project Site* (Jones & Stokes Associates, Inc. 1993a)
May 19–21, 1993	Focused special-status terrestrial wildlife surveys	Tricolored blackbird	*Special-Status Plant and Wildlife Species Surveys and Habitat Assessments for the Rancho Seco Park Master Plan Project Site* (Jones & Stokes Associates, Inc. 1993a)
January 17 and 18; February 1, 14, and 27; and March 13, 1995	Protocol-level wet-season invertebrate surveys	Vernal pool fairy shrimp and vernal pool tadpole shrimp	*Biological Assessment for the Rancho Seco Park Master Plan Project* (Jones & Stokes Associates, Inc. 1995)
January–May, 1996	Presence/absence surveys for federally listed large branchiopods	Vernal pool fairy shrimp	*Special-Status Shrimp Survey Results for the Ranch Seco Park/PAWS Project Site* (Jones & Stokes Associates, Inc. 1996)
1998–2002	Wet-season invertebrate and amphibian sampling	Vernal pool tadpole shrimp and California tiger salamander	*Ranch Seco Golf Course Compensatory Wetland Mitigation Monitoring Report* (Davis Environmental Consulting 2002)
Surveys Conducted during Proposed Project Development Planning			
March 9–11 and 15; and May 24, 25, and 27, 2007	Focused wet- and dry-season large branchiopod surveys	Vernal pool fairy shrimp, vernal pool tadpole shrimp, and white-tailed kite	Federally Listed Branchiopod Sampling at the SMUD Nature Preserve (AWE 2008)
April 25, 2007	Aquatic dip-netting surveys for California tiger salamander	California tiger salamander, vernal pool tadpole shrimp, and tricolored blackbird	Jeff Alvarez – April 27, 2007, letter report
April 25 and May 1–3, 2007	Botanical surveys	Lobb's buttercup and legenere	Biological Evaluation and Special-Status Species Surveys for the SMUD Nature Preserve (AWE 2009)
June 12–14, 2007	Special-status bird surveys and owl burrow searches	Northern harrier	Ed Whisler – May 1, 2008, letter report
April 17, 2008	Burrowing owl survey	Potential burrowing owl burrows and golden eagle	Biological Evaluation and Special-Status Species Surveys for the SMUD Nature Preserve (AWE 2009)
April 11, 12, and 16–18; and June 9–12 and 21, 2008	Botanical surveys	Legenere, Boggs Lake hedge-hyssop, and dwarf downingia	Biological Evaluation and Special-Status Species Surveys for the SMUD Nature Preserve (AWE 2009)

Survey Dates	Type of Survey	Special-Status Species[a] Observed	Reference
May 2, and 21, 2009	Tricolored blackbird breeding survey	Tricolored blackbird	Biological Evaluation and Special-Status Species Surveys for the SMUD Nature Preserve (AWE 2009)
June 2, 2009	Tricolored blackbird habitat assessment	Tricolored blackbird	Tricolored Blackbird Occurrence and Habitat Suitability at the SMUD Nature Preserve (Estep 2009)
April 2, 2010	Aquatic dip-net surveys for vernal pool tadpole shrimp	Vernal pool tadpole shrimp, California tiger salamander, bald eagle	Helm Biological Consulting – report in preparation

[a] Special-status species include:

Special-Status Plants

Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
Dwarf downingia (*Downingia pusilla*)
Legenere (*Legenere limosa*)
Lobb's buttercup (*Ranunculus lobbii*)
Sacramento Orcutt grass (*Orcuttia viscida*)

Special-Status Animals

Bald eagle (*Haliaeetus leucocephalus*)
Burrowing owl (*Athene cunicularia*)
California tiger salamander (*Ambystoma californiense*)
Golden eagle (*Aquila chrysaetos*)
Northern harrier (*Circus cyaneus*)
Tricolored blackbird (*Agelaius tricolor*)
Vernal pool fairy shrimp (*Branchinecta lynchi*)
Vernal pool tadpole shrimp (*Lepidurus packardi*)
White-tailed kite (*Elanus leucurus*)

3.4.3.1 Special-Status Plant Species

Based on a review of pertinent literature, observations made during the biological field surveys conducted within the Proposed Project site, and historical records documented in the California Natural Diversity Database (CNDDB) (2010), five special-status plant species—Boggs Lake hedge-hyssop, legenere, Sacramento Orcutt grass, Lobb's aquatic buttercup, and dwarf downingia— are known to occur on the Proposed Project site (Figure 12). In addition, the Proposed Project site occurs within designated critical habitat for Sacramento Orcutt grass (Critical Habitat –Sacramento Unit 3) (71 FR 7117, revised February 10, 2006) (Figure 14). A brief description for Boggs Lake hedge-hyssop, legenere, Sacramento Orcutt grass, Lobb's aquatic buttercup, and dwarf downingia is provided below.

Boggs Lake Hedge-Hyssop is state listed as endangered under CESA and is designated by CNPS as a List 1B.2 species (this designation indicates that the species is rare, but currently is found in sufficient numbers so that extinction is unlikely at this time). Boggs Lake hedge-hyssop is a small annual species found in vernal pools, the margins of reservoirs and lakes, and human-made habitats including stockponds and borrow pits. Boggs Lake hedge-hyssop was found in one vernal pool in the southeastern corner of the Proposed Project site during botanical surveys conducted by AWE in 2008 (Table 3-6) (Figure 12).

Legenere is designated by CNPS as a List 1B.1 species (this designation indicates that there are a limited number of occurrences, the plant is seriously endangered in California, and it is endemic to California). Legenere is an inconspicuous annual species found in vernal pools, vernal marshes, and artificial ponds. Legenere has been identified in three vernal pools and one stockpond on the Proposed Project site during botanical surveys conducted by Jones & Stokes Associates in 1993 and by AWE in 2007 and 2008 (Table 3-6) (Figure 12).

Sacramento Orcutt Grass is state and federally listed as endangered under CESA and ESA and is designated by CNPS as a List 1B.1 species. Sacramento Orcutt grass is a gray-green annual grass species approximately 3 to 5 inches high with one to several stems arising from the plant's base. This species typically occurs in medium to large vernal pools with relatively long inundation periods and is associated with very old alluvial surfaces (also referred to as high terrace landforms), such as historic floodplains of

pre-historic rivers and creeks. Sacramento Orcutt grass was previously identified in two vernal pools in the southeastern corner of the Proposed Project site during botanical surveys conducted by Jones & Stokes Associates in 1993 (Table 3-6) and by others in 1986, 1987, 1995, and 2005 (CNDDB 2010) (Figure 12).

Lobb's Aquatic Buttercup is designated by CNPS as a List 4.2 species (this designation indicates that this species is of limited distribution and fairly endangered in California). Lobb's aquatic buttercup is an aquatic annual that is found mostly in shallow vernal pools and in a variety of habitats including cismontane woodland, North Coast coniferous forest, and valley and foothill grassland. Lobb's aquatic buttercup was found in one vernal pool east of Ranch Seco Lake on the Proposed Project site during botanical surveys conducted by AWE in 2008 (Table 3-6) (Figure 12).

Dwarf Downingia is designated by CNPS as a List 1B.1 species. Dwarf downingia is an annual herb found in vernal pools and playa pools, on margins of vernal lakes, and on other mesic areas within valley and foothill grassland. Dwarf downingia was found in two vernal pools in the southeastern corner of the Proposed Project site during botanical surveys conducted by AWE in 2008 (Table 3-6) (Figure 12).

3.4.3.2 Special-Status Wildlife Species

Based on a review of pertinent literature, observations made during the biological field surveys conducted on the Proposed Project site, and historical records documented in the CNDDB (2010), a total of nine special-status wildlife species—vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, tricolored blackbird, golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*)—have been documented on the Proposed Project site. The Proposed Project site also provides suitable foraging habitat for Swainson's hawks nesting within 10 miles of the site. The Proposed Project site occurs within designated critical habitat for vernal pool fairy shrimp (Unit 14A - 71 FR 7117, revised February 10, 2006), vernal pool tadpole shrimp (Unit 9B - 71 FR 7117, revised February 10, 2006), and California tiger salamander (Unit 3 - 70 FR 49379, August 23, 2005) (Figure 14). A brief description for vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, tricolored blackbird, golden eagle, bald eagle, northern harrier, white-tailed kite, and Swainson's hawk is provided below.

Vernal Pool Fairy Shrimp is federally listed as threatened under the ESA. The vernal pool fairy shrimp is a small (<1 inch long) freshwater crustacean inhabiting ephemeral wetlands. Vernal pool fairy shrimp have been most often observed in vernal pools (79 percent of observations), although they have also been observed in a variety of other natural and artificial habitats, including seasonal wetlands, alkali pools, ephemeral drainages, stockponds, roadside ditches, vernal swales, and rock outcrop vernal pools (Helm 1998). This species has the shortest average maturation period (18 days), and the shortest average number of days to reproduction (39 days), which may explain its ability to survive in some of the most ephemeral of wetland habitats (Helm 1998). Vernal pool fairy shrimp have been documented within vernal pools, vernal swales, and seasonal wetlands throughout the Proposed Project site (Figure 13).

Vernal Pool Tadpole Shrimp is federally listed as threatened under the ESA. This species is a small (<3 inches long) aquatic crustacean inhabiting seasonally inundated wetlands. The vernal pool tadpole shrimp has been observed in stockponds, vernal pools, grass-bottom swales, mud-bottomed pools, and other seasonal wetlands ranging in size from very small (2 meters square) to very large (356,253 meters square) with a variety of depths and volumes of water during the wet cycle (Helm 1998, Helm and Vollmar 2002). This species takes an average of 38 days to mature, and typically reproduces in about 54 days. The overall longevity of the population within a vernal pool is 143 days (as measured from the first hatching to the last death of an individual within a vernal pool) (Helm 1998). Vernal pool tadpole shrimp

have been documented within vernal pools, vernal swales, seasonal wetlands, and open water habitats throughout the Proposed Project site (Figure 13).

California Tiger Salamander is state and federally listed as threatened under the CESA and ESA, respectively. The California tiger salamander is endemic to California and is restricted to vernal pools and seasonal ponds, including many constructed stockponds, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California (69 FR 47212). California tiger salamanders require upland and wetland habitat during different stages of their development. Adult salamanders will breed within the wetland areas, and during the dry season will move into upland areas surrounding wetlands, living within mammal burrows (69 FR 47212). Typical upland habitat includes grassland and oak savannah plant communities (69 FR 47212). Upland habitat must also contain mammal burrows or shrink-swell cracks that provide access for salamanders to underground hibernaculae. California tiger salamander larvae have been observed in 17 vernal pools and one stockpond on the Proposed Project site (Figure 13).

Burrowing Owl is designated as a state species of special concern. Burrowing owls typically occupy the burrows created by California ground squirrels. They forage in grassland and agricultural habitats with low-growing vegetation. In general, three habitat attributes are required for a site to support burrowing owls: (1) open, well-drained terrain; (2) short, sparse vegetation; and most importantly (3) underground burrows. At sites where squirrels or natural burrows are absent, owls may use debris piles or other human-made structures (e.g., culverts, drainage pipes) for cover while dispersing or looking for more suitable habitat. Burrowing owls have been observed during the winter season in four separate locations on the Proposed Project site (Figure 13); however, burrowing owls have not been documented on the Proposed Project site during the breeding season.

Tricolored Blackbird is designated as a state species of special concern. Tricolored blackbirds have three basic requirements for selecting their breeding colony sites: open accessible water; a protected nesting substrate including either flooded, thorny, or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Estep 2009). Preferred nesting areas include freshwater marshes dominated by cattails and bulrushes, willows, blackberries, thistles (*Cirsium* and *Centaurea* spp.), or nettles (*Urtica* sp.) (Estep 2009). On the Proposed Project site, tricolored blackbirds have been identified nesting in willows along the perimeter of a stockpond in the southwestern corner of the site and have been observed in bullrush around the perimeter of a stockpond along the northwestern boundary of the site (Figure 13). Additionally, tricolored blackbirds have been observed nesting within willow trees along the perimeter of Rancho Seco Lake, adjacent to the Proposed Project site (Figure 13).

Northern Harrier is designated as a state species of special concern. Northern harriers roost and nest on the ground where tall grasses provide cover. Northern harriers use habitats such as open wetlands, wet and lightly grazed pastures, freshwater and brackish marshes, dry uplands, upland prairies, wet grasslands, drained marshlands, croplands, shrub-steppe, and riparian woodland (MacWhirter and Bildstein 1996). Northern harriers have been observed foraging in annual grasslands throughout the Proposed Project site.

Swainson's Hawk is state listed as threatened under CESA. Swainson's hawks nest in riparian forests, remnant oak woodlands, isolated trees, and roadside trees. They forage primarily in open agricultural habitats, particularly those that optimize availability of prey (e.g., alfalfa and other hay crops, some row and grain crops), but they also use irrigated pastures and annual grasslands (Estep 1989, England et al. 1997). Swainson's hawks breed in the Central Valley, occurring in California only during the spring and summer breeding season (March through September), and migrate to Mexico and portions of Central and South America during winter (Estep 2009). Swainson's hawks have not been observed on the Proposed Project site during field surveys. The only potential nest trees on the Proposed Project site consist of several eucalyptus trees around a large stockpond in the southwestern corner of the site. Grazed annual

grasslands on the Proposed Project site provide suitable foraging habitat for the species. A total of 27 Swainson's hawk nests have been documented within a 10-mile radius of the Proposed Project site (CNDDB 2010).

Bald Eagle, Golden Eagle, and White-Tailed Kite are designated as fully protected species under the California Fish and Game Code, Section 3511. Bald eagle is also state listed as endangered under CESA. Bald eagle, golden eagle, and white-tailed kite have been observed foraging within the Proposed Project site; however, suitable nesting habitat for these species is not present on the site. Although bald eagle and white-tailed kite were observed as winter visitors, no documented nest sites have been reported within 10 miles of the Proposed Project site (CNDDB 2010). A golden eagle was observed on the Proposed Project site during the summer breeding season and the closest documented nest site was approximately 2.5 miles northeast of the site (CNDDB 2010).

In addition to special-status wildlife species, annual grasslands and a small number of trees on the Proposed Project site provide potential nesting habitat for migratory birds protected under the Migratory Bird Treaty Act and Sections 2800, 3503, and 3503.5 of the CFGC. Ground-nesting migratory birds observed on the Proposed Project site during the breeding season (Generally March 1 through August 15) include western meadowlark (*Sturnella neglecta*) and California horned lark (*Eremophila alpestris actia*). There are very few trees on the Proposed Project site, and these are limited to willow and eucalyptus trees around a large stockpond in the southwestern corner of the site. Additional trees are present adjacent to the Proposed Project site around the perimeter of Rancho Seco Lake, dredge tailing ponds north of Clay East Road, and dredge tailing ponds on Howard Ranch. These trees could provide nesting habitat for special-status and non-special-status migratory birds and raptors.

3.4.4 Answers to Checklist Questions

Question a: Implementation of the Proposed Project will result in ground disturbance associated with wetland construction, burrowing owl nest box installation, acorn/tree planting, and new fence construction. These activities have the potential to result in adverse effects, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by CNPS, CDFG or USFWS. A discussion for special-status plants and special-status wildlife is provided below.

Special-Status Plants

Wetland construction, burrowing owl nest box installation, acorn/tree planting, and new fence construction have been planned in areas that do not support known populations of special-status plants on the Proposed Project site including Boggs Lake hedge-hyssop, legenere, Sacramento Orcutt grass, Lobb's aquatic buttercup, and dwarf downingia (Figure 12). Plant material may be harvested, primarily by use of a vacuum/mowing method, from preserved wetlands on the Proposed Project site and used as inoculum in constructed wetland habitats; however, no materials (inoculum) will be harvested from wetlands supporting known special-status plant populations. Proposed short- and long-term management and monitoring activities on the Proposed Project site will be conducted for the purpose of preservation and enhancement of special-status plants; therefore, implementation of the Proposed Project will not directly affect any known special-status plant populations.

Ground-disturbing activities associated with wetland construction within the 73-acre restoration area will occur approximately 120 feet east of a wetland known to support Lobb's aquatic buttercup. Burrowing owl nest boxes will be installed along the southern boundary of the Proposed Project site approximately 150 from a wetland known to support Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop, and approximately 50 feet from a wetland supporting dwarf downingia. These activities have the

potential to result in indirect effects on wetland habitats supporting special-status plants through increases in sedimentation caused by exposed soil surfaces and degradation of water quality from runoff of petroleum-based products associated with equipment and vehicles used during construction. To avoid and minimize potential indirect effects to nearby wetlands supporting special-status plants, mitigation measures BIO-1 through BIO-8, described in Section 3.4.5, shall be implemented prior to, during, and after ground-disturbing activities associated with Proposed Project construction. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Special-Status Wildlife

Implementation of the Proposed Project has the potential to affect vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, northern harrier, and other ground-nesting migratory birds protected under the MBTA.

Vernal pool tadpole shrimp, vernal pool fairy shrimp, and California tiger salamander are known to occur in wetland habitats throughout the Proposed Project site (Figure 13). Proposed wetlands will be constructed within a 92-acre restoration area in the southeastern portion of the Proposed Project site adjacent to and adjoining existing vernal pools that support suitable or occupied habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. Ground disturbance associated with the connection of restored vernal pools to existing vernal pools or swales will result in disturbance of 0.144 acre of aquatic habitat for these species (Figure 8). This impact will be temporary, and no permanent fill or removal of vegetation or soil from these habitats is anticipated during proposed wetland restoration activities. In addition, restoration activities will occur after wetlands have dried to avoid potential direct effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, and breeding California tiger salamander. Ground disturbance associated with construction of burrowing owl nest boxes, planting acorns/trees, and constructing new fences will be sited in areas that do not support wetlands that are occupied or provide suitable aquatic habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, or breeding California tiger salamander. Although these activities are not likely to result in direct effects to wetland habitats, they have the potential to result in indirect effects to nearby wetland habitats through increases in sedimentation from exposed soil surfaces and degradation of water quality from runoff of petroleum-based products associated with equipment and vehicles used during construction. In addition to impacts to potential aquatic habitat, excavation for purposes of wetland construction, installation of burrowing owl nest boxes, planting acorns/trees, and constructing new fences will occur within upland California tiger salamander habitat and has the potential to unearth aestivating salamanders. To avoid and minimize potential direct and indirect effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander, mitigation measures BIO-1 through BIO-16, described in Section 3.3.5, shall be implemented prior to, during, and after ground-disturbing activities associated with Proposed Project construction. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Burrowing owl, northern harrier, and other ground-nesting migratory birds, such as western meadowlark and California horned lark, are known to occur on the Proposed Project site. Grassland habitat on the Proposed Project site provides suitable nesting and wintering areas for these species. Clearing, grubbing, and excavation within annual grasslands associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing new fences could result in direct effects to nesting burrowing owls, northern harriers, and other ground-nesting migratory birds if these activities occur during the breeding season (generally March 1 through August 15). Ground disturbance during the non-breeding season (August 16 through February 28) could also disturb wintering burrowing owls that are known to occupy underground burrows and culverts on the Proposed Project site (Figure 13). To avoid disturbance of nesting migratory birds and raptors or loss of nests containing eggs or young, mitigation measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-6, BIO-9, BIO-17, and BIO-18, described in Section 3.3.5,

shall be implemented prior to and during ground-disturbing activities. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Bald eagle, golden eagle, white-tailed kite, tricolored blackbird, Swainson's hawk, and other tree-nesting migratory birds and raptors have the potential to nest or forage on or adjacent to the Proposed Project site. Areas proposed for constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing new fences would be within areas that do not support any trees suitable for nesting; however, potential nesting habitat for Swainson's hawk, white-tailed kite, tricolored blackbird, and other tree-nesting migratory birds and raptors is within 0.5-mile of proposed activities. No suitable nesting habitat for bald eagles or golden eagles is within 0.5-mile of the Proposed Project site. Noise associated with construction activities involving heavy equipment operation during the breeding season (generally between March 1 and August 15) could disturb nesting migratory birds and raptors if an active nest is located adjacent to these activities. Any disturbance that causes nest abandonment and subsequent loss of eggs or developing young at active nests located near the Proposed Project site could violate CESA (Swainson's hawk), CFGC Sections 2800, 3503, 3503.5, and 3511, and the MBTA. To avoid disturbance of nesting migratory birds and raptors or loss of nests containing eggs or young, mitigation measures BIO-1, BIO-2, BIO-3, BIO-6, BIO-8, BIO-9, and BIO-18 shall be implemented prior to and during ground-disturbing activities. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

To comply with ESA, any potential direct or indirect effects on Sacramento Orcutt grass, vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander shall be addressed through Section 7 consultation between the Corps (the federal lead agency for the Proposed Project) and USFWS. SMUD shall consult with CDFG to determine whether the Proposed Project is consistent with CESA for potential direct or indirect effects on the state-listed Sacramento Orcutt Grass, Boggs Lake hedge-hyssop, California tiger salamander, and Swainson's hawk. Additional mitigation may be identified as the result of consultation with USFWS and CDFG. If any conflict between the mitigation measures listed below and measures from USFWS and CDFG consultation for state- and federally listed species is identified, SMUD shall implement the measures from USFWS and CDFG consultation.

Question b: The Proposed Project does not support riparian habitat; however, vernal pool grassland occurs throughout the site and is considered a sensitive natural community by CDFG, USFWS, and Sacramento County. CDFG has mapped distinct vernal pool regions throughout California (Keeler-wolf et al. 1998). In 2005, USFWS published the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (Recovery Plan) (USFWS 2005). The current and proposed (draft) Conservation Element of the Sacramento County General Plan (County of Sacramento 1993b, 2009) contains policies regarding vernal pools and vernal pool preserves.

The Proposed Project will preserve existing vernal pool habitat onsite and restore vernal pools within an area of land leveled more than 40 years ago, consistent with the Recovery Plan and the County General Plan. The construction of wetlands within the 92-acre restoration site will result in disturbance of 0.144 acre of vernal pools and vernal swales to connect restored vernal pools to existing vernal pools or swales (Figure 8). This impact will be temporary and no permanent fill or removal of vegetation or soil from these habitats is anticipated during proposed wetland restoration activities. In addition, restoration activities will take place after wetlands have dried to minimize potential direct effects. Ground disturbance associated with constructing burrowing owl nest boxes, planting acorns/trees, and constructing new fences will be sited in areas that do not support vernal pools. Although these activities are not likely to result in direct effects on vernal pool habitats, they have the potential to result in indirect effects on these habitats through increases in sedimentation caused by exposed soil surfaces and degradation of water quality from runoff of petroleum-based products associated with equipment and vehicles used during construction. To avoid and minimize potential indirect effects to vernal pools,

Mitigation Measures BIO-1 through BIO-7 would be implemented prior to, during, and after ground-disturbing activities associated with project construction. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question c: The Proposed Project site supports 55.66 acres of jurisdictional waters of the U.S. field verified by the Corps on July 17, 2008. The 55.66 acres comprise proposed preserved and previously restored vernal pool, vernal swale, seasonal wetland, seasonal swale, Juncus wetland, intermittent drainage, agricultural return ditch, and open water habitats (Table 3-6, Figure 5). In accomplishing the wetland restoration, 0.114 acre of waters of the U.S. will be permanently affected by filling an agricultural return ditch and three artificially created seasonal wetlands within the 73-acre irrigated pasture (Figure 8). Both of these features were artificially created as a result of irrigation.

Temporary effects to approximately 0.144 acre of waters of the U.S. could also result from the following proposed restoration activities: (1) connecting restored vernal pools and swales to existing vernal pools and swales within and adjacent to the wetland restoration site (Figure 8), and (2) collecting dry vegetation material (primarily using a vacuum and/or mower) from preserved pools during the dry season for use as inoculum in the restored/established pools. To avoid and minimize potential indirect effects to wetlands regulated under Section 404 of the CWA, mitigation measures BIO-1 through BIO-7 would be implemented prior to, during, and after ground-disturbing activities associated with project construction. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question d: Implementation of the Proposed Project will preserve and enhance habitats for native, resident, and migratory wildlife. The Proposed Project would not 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 because it does not involve construction of physical barriers. The Proposed Project would have ***no impact***.

Question e: The Proposed Project would be consistent with local and regional policies and ordinances protecting biological resources including, the current and proposed (draft) Conservation Element of the Sacramento County General Plan (County of Sacramento 1993b, 2009) and the Sacramento County Tree Ordinance (County Code, Chapter 19.04). The Proposed Project would have ***no impact***.

Question f: SMUD is currently in the process of preparing an HCP covering SMUD's operations, maintenance, and construction activities within its service area. The HCP includes mitigation strategies for impacts of proposed activities to federally and state-protected species. One of these mitigation strategies is to offset future impacts through preservation and construction of mitigation habitats at the Proposed Project site. As such, the Proposed Project would integrate with the HCP.

The South Sacramento Habitat Conservation Plan (SSHCP) has been prepared and is in the initial stages of environmental review. Once approved, it will contain specific policies and goals for protecting areas of sensitive plant and wildlife habitat and "streamline the permitting activities process for projects that engage in development activities". The SSHCP emphasizes protecting wetland, particularly vernal pool communities, and upland habitats to provide ecologically viable conservation areas.

Wetland restoration, wildlife habitat enhancement, and native oak tree plantings associated with implementation of the Proposed Project is consistent with the provisions of SMUD's proposed HCP and the SSHCP to protect areas of sensitive plant and wildlife habitat; therefore, the Proposed Project would not conflict with any applicable habitat conservation plan or natural community conservation plan. The Proposed Project would have ***no impact***.

3.4.5 Mitigation

Implementation of the following mitigation measures would ensure that potential impacts on sensitive biological resources would be reduced to a less-than-significant level.

BIO-1

Prior to the start of wetland construction, final construction plans/drawings shall be developed that show the limits of the designated work area, approved access routes, and existing sensitive habitats (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes) to be avoided. These areas shall be clearly identified in the field using flags, signs, or fencing (with highly visible markers). Signs or flagging shall be posted every 100 feet and fencing shall consist of 4-foot-high orange construction barrier fencing or sediment fencing. After initial installation, flags, signs, and fencing shall be maintained throughout the construction work period and properly removed when construction is complete.

BIO-2

Prior to the start of any ground-disturbing activities associated with installation of burrowing owl nest boxes, acorn/tree plantings, and fence construction, the designated work zone shall be determined by the contractor and a qualified biologist with the intent of avoiding existing sensitive habitats (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes). The work zone shall be adequately flagged or fenced in the field to limit construction equipment and personnel to the minimum area necessary to perform the proposed work.

BIO-3

Before the start of any construction (including equipment staging), all construction personnel shall participate in environmental awareness training regarding sensitive biological resources present on the Proposed Project site (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes). Environmental awareness training shall be given by a biologist knowledgeable of the special-status species and their habitats known or with potential to occur on the Proposed Project site. The training program shall include information related to species identification, habitat characteristics, areas of avoidance, permit conditions and mitigation measures, and penalties for not complying with applicable state and federal laws. As part of the training, an environmental awareness handout that illustrates the resources to be avoided and summarizes the information provided during the training shall be distributed to all personnel. If new construction personnel are present, the contractor shall ensure that these individuals receive the mandatory training before beginning work. All construction personnel who attend the environmental awareness training shall be required to sign a training log, which shall be maintained by SMUD for 1 year following construction.

BIO-4

All ground-disturbing activities associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing fences shall be restricted to the dry season (generally between May 1 and October 15) to minimize potential direct and indirect effects on adjacent wetlands that provide habitat for special-status plants and wildlife and to avoid migrating adult California tiger salamanders.

BIO-5

All equipment storage, servicing, refueling, staging, and vehicle parking shall be restricted to staging areas. No refueling, storage, servicing, or maintenance of construction equipment shall be conducted

within 50 feet of waters of the U.S., including wetlands. All construction equipment shall be stored overnight within the staging areas.

BIO-6

An agency-approved biologist shall be retained to monitor all ground-disturbing construction activities that occur within the Proposed Project site. The purpose of this monitoring effort is to ensure that special-status wildlife are not inadvertently killed during ground-disturbing activities and that wetlands that provide habitat for special-status plant and wildlife species are not affected. The biological monitor shall have the authority to stop construction activities if any of the approved mitigation measures are not being properly implemented or if activities are observed that may result in adverse effects to special-status species or habitat not covered by applicable project permits.

BIO-7

Upon completion of ground-disturbing activities, disturbed areas shall be reseeded, with either a native seed mix or seeds collected from onsite sources, and mulched. This will reduce the potential for sedimentation in constructed and nearby existing wetlands during the rainy season.

BIO-8

If at any time the agency-approved biologist believes that unauthorized take of a state- or federally listed species (i.e., Sacramento Orcutt grass, Boggs Lake hedge hyssop, vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander) or habitat has occurred, or if California tiger salamander are encountered during construction, all activities shall cease within the immediate area and the USFWS and/or CDFG, as appropriate for the species, shall be contacted for additional guidance. Any person capturing or handling a California tiger salamander shall be approved by USFWS and CDFG.

BIO-9

All food-related garbage shall be placed in tightly sealed containers at the end of each workday to avoid attracting predators. Containers shall be emptied and garbage removed from the construction site at the end of each work week. If sealed containers are not available, garbage shall be removed from the construction site upon completion of daily activities. All garbage removed from the construction site shall be disposed of at an appropriate offsite refuse location.

BIO-10

A preconstruction California tiger salamander survey shall be conducted within 1 week preceding ground-disturbing activities associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing fences. An agency-approved biologist shall inspect the area of proposed ground disturbance to identify and flag all fossorial mammal burrows that could be used by California tiger salamanders. A qualified biologist is any person who has completed at least 4 years of university training in wildlife biology or a related science, or has demonstrated field experience in the identification and life history of federally listed species occurring or with the potential to occur at the Proposed Project site. Resumes of biologists proposed to capture or handle federally listed species during construction shall be submitted to DFG and USFWS for approval no later than 30 days before the start of construction. To the maximum extent possible, flagged burrows shall be avoided. Where avoidance is not feasible, burrows shall be scoped and/or hand excavated to ensure that they are not occupied by California tiger salamanders. If any salamanders are found during the preconstruction survey, the agency-approved biologist shall relocate the salamander(s) to a nearby suitable burrow within the Proposed Project site but outside the construction work area.

BIO-11

Because dusk and dawn are often the times when California tiger salamanders are most actively foraging and dispersing, all construction activities conducted during the juvenile migration period (approximately May to July) should cease 30 minutes before sunset and should not begin less than 30 minutes after sunrise.

BIO-12

If any project development activities require excavation of pits or trenches, these areas shall be closely monitored by a biological monitor for the purpose of clearing, removing, salvaging, or excluding wildlife from the construction area. To minimize mortality in open pits or trenches, egress ramps shall be constructed at either end of the open trench or pit to allow wildlife escape routes. Where feasible, open trenches or pits would be covered at the end of each construction day; where this is not feasible (i.e., extensive or wide-open trenches) trenches would be surveyed prior to the start of construction by a qualified biologist, each morning, to capture and remove any trapped wildlife.

BIO-13

Prior to movement of construction equipment (including vehicles, pipes, storage containers) at the beginning of each workday, an agency-approved biologist (familiar with identification of California tiger salamanders) shall inspect all areas under and surrounding the equipment left onsite overnight. If any California tiger salamanders are observed during these inspections, movement of equipment shall not be allowed until the animal(s) passively leave the staging or work area or are relocated by a qualified biologist.

BIO-14

If necessary, for erosion control or other purposes, netted material shall be tightly woven fiber netting or similar to ensure that California tiger salamanders are not trapped. This limitation shall be communicated to the contractor by specifying special provisions in the bid solicitation package. Coconut coir matting is an acceptable erosion control material. No plastic monofilament matting shall be used for erosion control.

BIO-15

Prior to dewatering any wetlands to remove non-native fish and bullfrogs, a dip-net survey shall be conducted by a qualified biologist to look for California tiger salamander larvae. If California tiger salamander larvae are found within a wetland, dewatering activities shall not be conducted.

BIO-16

Dewatering activities shall occur at the end of the summer season (August through September), when large branchiopods have completed their life cycles and California tiger salamander larvae are likely to have metamorphosed.

BIO-17

Prior to any ground disturbance within annual grassland habitat, a qualified biologist shall conduct a preconstruction survey to locate any burrowing owl burrows within the designated construction area and within a 500-foot-wide buffer around this area. The preconstruction survey shall be conducted in accordance with guidelines provided in CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 1995) and no more than 30 days before the start of construction activities (including grading and

equipment staging). If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected in the survey area, the following measures shall be implemented.

- Occupied burrows shall not be disturbed during the breeding season (generally February 1–August 30).

- When destruction of occupied burrows is unavoidable during the non-breeding season (September 1–January 31), the biologist shall coordinate with CDFG and unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on protected areas on the Proposed Project site. If required, newly created burrows shall be conducted within designated wildlife enhancement areas (Figure 9) and shall follow guidelines established by CDFG.

- If owls must be moved away from the construction area during the non-breeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping. At least 1 week between passive relocation and burrow closure shall occur to allow owls to acclimate to the alternate burrows.

BIO-18

If construction (including equipment staging) associated with implementation of the Proposed Project shall occur during the breeding season for migratory birds and raptors (generally between March 1 and August 30), a qualified biologist shall conduct a preconstruction nesting bird and raptor survey before the onset of construction activities. The preconstruction nesting bird and raptor surveys shall be conducted between March 1 and August 30 within the area proposed for ground disturbance and up to 0.5 mile from proposed construction to ensure that nesting raptors, including Swainson's hawks are not indirectly affected by construction noise. The survey shall be conducted no more than 1 week before the initiation of construction activities. If no active nests are detected during the survey, no additional mitigation is required and construction can proceed. If migratory birds or raptors are found to be nesting in or adjacent to the construction area, a no-disturbance buffer shall be established around the nest to avoid disturbance of the nest site. The buffer shall be maintained around the nest site until the end of the breeding season or until a qualified biologist determines that the young have fledged and are foraging on their own. The extent of these buffers shall be determined by the biologist (coordinating with CDFG) and shall depend on the species identified, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

3.5 Cultural Resources

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

In 2007, Golden Hills Consulting and AWE conducted a cultural resources inventory of the Proposed Project site (Golden Hills Consulting and AWE 2008). The study area for the cultural resources inventory was approximately 1,324 acres, encompassing an area slightly larger than the Proposed Project site. The cultural resources inventory consisted of a records search, written contact with Native American groups and related agencies, and onsite fieldwork. The following discussions are excerpts from the cultural resources inventory report.

The Proposed Project site is located in rolling hills vegetated primarily with naturalized non-native annual grasses. Numerous seasonal swales, ephemeral drainages, vernal pools, and other wetland features occur onsite along with several stockponds. Clay Creek runs through the Proposed Project site and is dammed to create Rancho Seco Lake (outside of the Proposed Project site). There are hiking trails around the lake and in the northeastern portion of the site. Elevations onsite range from 160 feet amsl in the southwestern portion of the site to 289 feet amsl in the northeastern portion of the site. In the northern portion of the site, differences in elevation between hilltops and associated drainages between hills are as much as 60 feet. Elevation of Rancho Seco Lake is maintained at 237 feet amsl by natural flow from Clay Creek and by water from the Folsom South Canal. Livestock graze the Proposed Project site in winter and spring. There are no buildings within the site. A number of well-maintained dirt interior roads are located throughout.

The entire Proposed Project site lies within the ethnographic area once occupied by the Plains Miwok. The Plains Miwok occupied the lower Mokelumne and Cosumnes Rivers and the Sacramento River from Rio Vista to Freeport. Because very few Plains Miwok were alive when ethnographers began working

with Native Americans in the early 1900s, the most comprehensive study of the Miwok was done using Spanish mission records, diaries, and journals. The Miwok were probably not the earliest inhabitants of this area. They are believed to have entered California from the north, sometime around A.D. 500. Before that time, the area may have been occupied by Hokan-speaking peoples.

The examination of ethnographic and archaeological information for the Proposed Project site indicates the possibility of encountering one or more of the following types of prehistoric cultural resources:

- Occupation sites, potentially with housepits;
- Firepits and middens;
- Surface finds of basalt, chert, or obsidian in the form of flakes or artifacts; and
- Food-processing stations, which would include bedrock mortars and single cups in boulders, or mobile grinding stones.

During the historical period (approximately 1850 to the present), the Proposed Project site was part of the Alabama Township, which extended west from the Arroyo Seco Land Grant to the Central Pacific Railroad's Amador Branch Line that ran from Galt to Ione. During the historical period, according to available written information, explorers, fur trappers, and others (e.g., ranchers) settled in the north valley. The immediate impact of these early contacts was the decimation of the native population through the introduction of diseases. By the late 1700s, Spanish explorers seeking potential inland mission sites had entered the Central Valley. In the 1800s, ranching and agriculture flourished. After the discovery of gold in 1848, the influx of people into California changed the subsequent history of the region. The decades following the Gold Rush are marked by Native American displacement, gold mining, agriculture, and commerce. Rail lines were established to transport people and goods more efficiently. Sacramento was the western end of the transcontinental railroad, which was completed in 1869. The railroad helped carry California's agricultural products throughout the country, and further established the Sacramento region as a productive agricultural hub. By the mid to late 1800s, the Central Pacific Railroad owned large portions of land in the Alabama Township. The nearest settlement to the Proposed Project site was Clay Station, which was along the Galt-Ione Amador Branch Line of the railroad system. Clay Station hosted a post office, store, and blacksmith shop by the later 1870s. The Chinese placer mined in the region of the Proposed Project site during the late 1800s.

On February 8, 2007, the North Central Information Center (NCIC) of the California Historical Resources Information System, located at California State University, Sacramento, conducted a records search for the Proposed Project. An additional records search was conducted in November 2007 for a nearby project on SMUD property near the decommissioned Rancho Seco Nuclear Generating Station, which also provided information for the Proposed Project site. Both record searches included the Proposed Project site. The record searches identified five previous studies covering all or portions of the Proposed Project site.

Results of the previous studies reported seven historic sites within or immediately adjacent to the Proposed Project site. The sites include a prehistoric rock quarry, placer mining remains, historic wells, and a prehistoric groundstone location. In addition, three isolate locations have been recorded in the area and the GLO 1866 plat map for T 8N/R 6E shows seven homesteads that were within the Proposed Project site. Two of these would have been inundated when Rancho Seco Lake was constructed. These two homesteads and associated outbuildings are presumably destroyed by the lake. The other five homesteads were located within the Proposed Project site according to the 1866 map. In addition, a

portion of the road from the Cosumnes River to the American River at one time ran through a small area of Section 28, in the western half of the Proposed Project site.

Native American Consultation was conducted in 2007, 2008, and 2009. This effort included a request to the Native American Heritage Commission (NAHC) to check its Sacred Lands file for the Proposed Project vicinity and request a list of Native Americans in the region who might have knowledge of the Proposed Project area, or interest in the Proposed Project. The Sacred Lands file search found no known sacred sites within the study area.

The SHPO was contacted by letter; no response was received. This is generally taken to indicate that no sites of concern are located within the project area. Letters were subsequently sent to all Native American groups and individuals identified by NAHC.

A summary of the responses received is below.

- A telephone message was received from Billie Blue Elliston of the Heritage Cultural Committee of the Ione Band of Miwok Indians in October 2007. Ms. Elliston replied in December 2007 by letter. She requested that the Ione Band of Miwok Indians be kept updated on proposed projects at the Rancho Seco site. In addition, she commented that the Proposed Project site may be within her tribe's ancestral territory and, as such, would be subject to the Native American Graves Protection and Repatriation Act (NAGPRA) because the Ione Band of Miwok Indians is a federally recognized tribe and its burial grounds are subject to protection under this Act. On August 5, 2008, and February 9, 2010, SMUD representatives met with the Heritage Cultural Committee of the Ione Band of Miwok Indians to present the Proposed Project and determine whether there were any concerns about it. No concerns were expressed.

- Randy Yonemura, a Native American representative, requested that another contact letter for the SMUD Nature Preserve Mitigation Bank project be sent to him. This was done on December 27, 2007. Mr. Yonemura's concerns for the proposed projects within the Proposed Project area include protection of water quality and native plant species. He had no particular cultural concerns with regard to the proposed conservation and wetland mitigation bank, but did comment that the Proposed Project site is known to have prehistoric cultural resources.

Onsite fieldwork was conducted on the Proposed Project site. In 1993, Foothill Resources conducted an intensive pedestrian survey was over a majority of the Proposed Project site. There has been minimal ground disturbance onsite since that time; however, there are a large number of seasonal swales and drainages onsite that were potentially high-sensitivity areas and subject to local erosion with the potential to expose cultural resources.

During 2007, the Proposed Project site was surveyed by Golden Hills Consulting staff during numerous occasions throughout the year. The surveys focused on pedestrian examination of those areas considered potentially sensitive, such as in and along waterways as well as adjacent slopes, terraces, and hilltops. These areas were ground surveyed at 1- to 5-meter transects, depending on ground cover. Ground visibility in remaining areas ranged from none to good. Approximately 80 percent of the site is densely covered with annual grasses, effectively allowing poor to no ground visibility. An ATV was used to cover low-sensitivity portions of the site where there was no ground visibility using 20- to 50-meter transects. Low sensitivity areas were considered relatively flat grasslands some distance from a seasonal water source. In those areas with adequate ground visibility, a pedestrian survey was undertaken with a maximum interval of 10-meter transects. Rodent mounds and burrow kickback areas were closely examined for the possible presence of cultural remains, as were those areas with depauperate vegetation. The general topography of the site was scanned by eye for surface abnormalities such as depressions that

were not vernal pools. Several locations were subsurface sampled to a depth of up to 3 inches. During the 2007 inventory, two previously recorded prehistoric and five historic sites were relocated and mapped, and two historic sites, the crumbled foundation of a small building and placer mining tailings, were mapped.

3.5.2 Answers to Checklist Questions

Question a: In considering the significance of a historic property, its eligibility for inclusion into either the California State Register of Historic Places (SRHP), or the National Register of Historic Places (NRHP) must be considered. These eligibility criteria are developed from CFR, Title 36, Part 60 of the NHPA of 1966. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

(a) are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) are associated with the lives of persons significant in our past; or

(c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) have yielded, or may be likely to yield, information important in prehistory or history.

Previously recorded features found within the Proposed Project site have been evaluated for inclusion into either the California SRHP or NRHP, and were found to be not eligible. Isolates are not eligible for inclusion into either the California SRHP or NRHP. One of the potential properties identified in the 2007 Cultural Resources Inventory is significantly degraded and does not satisfy any of the criteria for inclusion, particularly because there is no clear historical association with the activities of Chinese placer miners. The other potential historic remains identified during the 2007 Cultural Resources Inventory do not satisfy any of the significance criteria for the NRHP; therefore, no further documentation is required beyond the recordation contained in the Cultural Resources Inventory report (Golden Hills Consulting and Area West Environmental, Inc. 2008). Because neither the isolates nor the other recorded features are eligible for inclusion into either the California SRHP or NRPH, implementation of the Proposed Project would not result in a substantial adverse change in the significance of a historic resource. The Proposed Project would have ***no impact***.

Question b: The scope of the Proposed Project is to establish, enhance, and/or restore wetlands and enhance habitat for special-status plants and wildlife species for inclusion in a mitigation bank. To further enhance native habitat at the Proposed Project site and provide future mitigation credits for impacts to native oak trees, SMUD may plant oaks within an approximately 280-acre area located primarily in the northern portion of the Proposed Project site.

The location and densities of proposed wetland habitats within a 92-acre restoration area located along the eastern boundary of the Proposed Project site were developed based on a review of 1957 historical aerial photographs. Locations of proposed wetlands are designed to mimic the location of wetlands observed on the 1957 photographs and to connect, as they did historically, to existing, functioning wetlands where practical. In addition, earth mounds would be created to install burrowing owl nest boxes in several upland areas throughout the Proposed Project site to attract burrowing owls to nest, a management plan

will be developed to reduce non-native bullfrog and fish populations onsite, and oak trees will be planted in the northern portion of the Proposed Project site. Very limited ground disturbance is anticipated for the preservation aspect of the Proposed Project, although some degree of ground disturbance is anticipated for the enhancement, establishment, and restoration of habitats. Typically, this type of disturbance results in excavation, generally limited to within the first 2 feet of the soil surface.

There is a significant potential for unearthing worked lithic materials during any excavation on the Proposed Project site. Given the number of prehistoric lithic materials located during cultural resources inventories on the Proposed Project site, the presence of metates and pestles located in streambeds over the years, and the location of a prehistoric quarry area, there is a significant potential for not only additional isolates, but also of actual prehistoric sites, possibly habitation areas, to be discovered during any subsurface excavations.

Subsurface excavations could result in a substantial adverse change to the significance of an archaeological resource. Mitigation Measures CUL-1 through CUL-4, described in Section 3.5.3, would address this potential impact and reduce it to a less-than-significant level by either avoiding areas with the most potential for uncovering prehistoric cultural resources, or by assessing and preserving any potential resources encountered during excavations; therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question c: Portions of the Proposed Project site have been subject to disturbance and previous excavations. No paleontological resources are known to occur in the immediate vicinity of the Proposed Project site or were found during previous excavations. The Proposed Project would have ***no impact***.

Question d: No human remains have been previously encountered in the vicinity of the Proposed Project site; however, buried human remains could be encountered during excavations associated with the Proposed Project. In the event that human remains are discovered during project construction, Mitigation Measure CUL-4 shall be implemented. With implementation of Mitigation Measure CUL-4, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

3.5.3 Mitigation

Implementation of the following mitigation measures would ensure that potentially significant impacts to prehistoric resources or human remains are reduced to a less-than-significant level.

CUL-1

The northern portion of the Proposed Project site holds the most potential for uncovering prehistoric cultural resources. If possible, soil disturbance in this area should be avoided. If avoidance is not possible, a qualified archaeologist must be present during any ground disturbance or excavation. This area includes that portion of the Proposed Project site north of latitude 38° 20’ 37.00” N or UTM 424560 N (Zone 10). This east-west line would occur approximately just north of the onsite reservoir that exists roughly 1,000 feet northwest of the lake and approximately 2,000 feet southeast of the ranch buildings adjacent to the northwest portion of the Proposed Project site.

CUL-2

Prior to working onsite, individuals who are involved in soil moving and handling must attend environmental-awareness training provided by a qualified professional archaeologist. This training would provide information on the types and extent of cultural resources that may be located onsite. Individuals conducting any excavation or other substantial subsurface disturbance activities onsite shall also attend the environmental-awareness training.

CUL-3

Should any evidence of prehistoric or historic cultural resources be discovered during excavation or other substantial subsurface disturbance activities, all work should immediately cease, and a qualified archaeologist must be consulted to assess the significance of the cultural materials.

CUL-4

If human remains are discovered during excavation or other substantial subsurface disturbance activities, all work must immediately cease and the local coroner must be contacted. Should the remains prove to be of cultural significance, the Native American Heritage Commission in Sacramento, California, must be contacted with additional notification going to the most likely descendants, the Ione Band of Miwok Indians located in Ione, California.

3.6 Geology and Soils

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

3.6.1 Environmental Setting

The Proposed Project is located on lands within unincorporated Sacramento County. This area is located within the Great Valley geomorphic province of California. It is bounded on the north by the Klamath and Cascade Ranges, on the south by the Tehachapi Range, on the east by the Sierra Nevada Mountains, and on the west by the Coast Ranges.

Existing topography on the Proposed Project site generally consists of rolling hills. Areas of concentrated vernal pools occur primarily on flatter ridgetop areas. An irrigated pasture is located on one of these ridgetops within leveled terrain in the eastern portion of the Proposed Project site.

LANDFORMS AND SOIL

The Proposed Project site is located on two distinct landforms: Laguna Formation and Mehrten Foundation. Based on the Sacramento County Soil Survey (U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] [formerly Soil Conservation Service] 1993, USDA NRCS 2010), these geologic formations support five soil map units (Table 3-7 and Figure 15).

Table 3-7. Geologic Formation and Associated Soil Map Units

Soil Map Unit	Geologic Formation
125 – Corning complex, 0–8% slopes	Laguna
126 – Corning-Redding complex, 8–30% slopes	Laguna
156 – Hadselville–Pentz complex, 2–30% slopes	Mehrten
198 – Redding gravelly loam, 0–8% slopes	Laguna
247 – Open Water	Not applicable

Source: USDA NRCS 1993.

The Laguna Formation is the oldest landform in the Sacramento Valley resulting from alluvial deposition on the east side of the Sacramento Valley. This formation originated 2–3 million years ago during the uplift of the Sierra Nevada. Deposition of this alluvium resulted from erosion, stream channel downcutting, and glaciations following the Sierra Nevada uplift. Later volcanic ashfall weathered and its minerals washed down through the soil profile to cement the lower layers into a duripan (hardpan). The Redding and Corning soil series are the two series associated with the Laguna Formation. Redding predominates on the lower slopes and Corning predominates on the high, broad portions of the terrace, which has the densest network of vernal pools and swales (Jones & Stokes Associates, Inc. 1993b).

The Mehrten Formation is the second oldest landform in the Sacramento Valley after the Laguna Formation. This formation resulted from volcanic ashfall and mudflows rather than deposition of alluvium as occurred with the Laguna Formation. On the Proposed Project site, this formation has mound–intermound topography. Two soil series are associated with the Mehrten formation on the Proposed Project site: the Pentz series located on the mounds and the Hadselville series located in the intermounds.

SEISMIC HAZARDS

A preliminary geotechnical investigation was prepared for the portion of the Proposed Project site where wetland construction is proposed (geotechnical study area) (Soil Search Engineering 2008, 2010). The 2008 geotechnical report concluded that there is no evidence to indicate any likelihood for shallow ground rupture from faulting in the geotechnical study area; however, historical earthquake records indicate a potential for strong earthquake shaking throughout the region, and future earthquake shaking should be anticipated at the Proposed Project site. Potentially active faults that could result in ground motion at the site include the Foothills shear zone, Sutter's Butte faults, Willows fault, Dunnigan fault, Coast Range thrust zone, Big Bend fault zone, Camel's Peak fault, Melones-Dogwood Peak faults, and Hawkins Valley faults. (Soil Search Engineering 2008.)

3.6.2 Answers to Checklist Questions

Question ai: The Proposed Project site does not overlie any known faults and is not within or near an Alquist-Priolo special-studies zone; therefore it is unlikely that the Proposed Project would expose people or structures to potential substantial adverse effects from the rupture of a known earthquake fault. The Proposed Project would have a ***less-than-significant impact***.

Questions aii and aiii: Although the site lies within the Great Valley part of California that is considered to be seismically stable, earthquake activity in neighboring regions, namely the Sierra Nevada and the San Francisco Bay Area, could affect the Proposed Project site with ground shaking, liquefaction, and lateral spreading. Secondary geologic hazards, such as liquefaction, seismic settlement, and landsliding, are a result of ground shaking. The site does not lie within a Special Studies Zone as defined by the State Geologist, and there is no evidence to indicate any likelihood for shallow ground rupture from faulting. In addition, the liquefaction potential for the Proposed Project site is expected to be low (Soil Search Engineering 2008). No buildings are proposed as part of the Proposed Project. Exposure of people or structures to potential substantial adverse effects from rupture of a known fault, strong seismic ground shaking, or seismic-related ground failure are not expected; therefore the Proposed Project would have a ***less-than-significant impact***.

Question aiv: Elevations on the Proposed Project site range from 160 feet amsl in the southwestern portion of the site to 289 feet amsl in the northeastern portion of the site (Figure 2). Differences in elevation between hilltops and associated drainages between hills are as much as 60 feet in the northern portion of the site. The area proposed for wetland construction is located in the southeastern portion of the Proposed Project site where the topography is relatively flat. The side slopes of the restored vernal pools would not exceed the slopes observed in adjacent existing natural pools (approximately 8 percent). Burrowing owl nest boxes would be installed throughout the Proposed Project site on relatively level topography. Tree planting would involve very small planting holes on slopes in the northern portion of the Proposed Project site that are not expected to destabilize the slopes. Overall, proposed restoration/enhancement areas would not be subject to potential landslides; therefore, the Proposed Project would not expose people or structures to potential substantial adverse effects from landslides. The Proposed Project would have ***no impact***.

Question b: The Proposed Project includes constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing new fences. These activities will expose soil that could result in accelerated erosion. Implementation of Mitigation Measures GEO-1 and GEO-2, described in Section 3.6.3, would reduce potential construction erosion impacts to a less-than-significant level because soils will be stabilized following construction. Because potential topsoil loss and potential accelerated soil erosion would be minimized through soil stabilization measures, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question c: The Proposed Project site is not within a seismically active area and the potential for lateral spreading, landsliding, liquefaction, or earthquake-induced settlement is therefore considered to be low (Soil Search Engineering 2008). As discussed above for Question a, there is no evidence to indicate any likelihood of shallow ground rupture from faulting, and the liquefaction potential for the Proposed Project site is expected to be low (Soil Search Engineering 2008); therefore, the Proposed Project would have a ***less-than-significant impact***.

Question d: The surface soils encountered during the geotechnical investigation generally consisted of brown silty, clayey sand with gravel and cobbles. The geotechnical investigation states that the surface soils generally have a low plasticity and expansion potential (Soil Search Engineering 2010). The Proposed Project would not construct any buildings, and would be limited to aboveground irrigation

piping and therefore would not result in substantial risks to life or property. The Proposed Project would have a ***less-than-significant impact***.

Question e: No individual septic tanks or alternative wastewater disposal systems would be used for wastewater removal; therefore, the Proposed Project would have ***no impact***.

3.6.3 Mitigation

Implementation of the following mitigation measures would ensure that potential erosion impacts are reduced to a less-than-significant level.

GEO-1

Before any ground-disturbing activities, SMUD shall prepare and implement a SWPPP (as required under SWRCB's General Construction Permit Order 2009-0009-DWQ, which will go into effect July 1, 2010) that includes erosion control measures and construction waste containment measures to ensure that waters of the U.S., including wetlands, and the State are protected during and after project construction. The SWPPP shall include site design measures to minimize offsite storm water runoff that might otherwise affect surrounding habitats.

The SWPPP shall be prepared with the following objectives: (a) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the project; (b) to identify best management practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the site during construction; (c) to outline and provide guidance for BMPs monitoring; (d) to identify project discharge points and receiving waters; (e) to address post-construction BMPs implementation and monitoring; and (f) to address sedimentation, siltation, turbidity, and non-visually detectable pollutant monitoring, and outline a sampling and analysis strategy.

SMUD shall implement the SWPPP including all BMPs and perform inspections of all BMPs. Before October 15, all upland exposed soil shall be seeded and mulched.

GEO-2

Excavated and stored construction materials and soil stockpiles shall be staged in stable upland areas.

3.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.7.1 Environmental Setting

To fully understand global climate change it is important to recognize the naturally occurring "greenhouse effect" and define the greenhouse gases that contribute to this phenomenon. The temperature on Earth is regulated by this greenhouse effect, which is so named because the Earth's atmosphere acts like a greenhouse, warming the planet in much the same way that an ordinary greenhouse warms the air inside its glass walls. Similar to glass, the gases in the atmosphere let in light yet prevent heat from escaping.

Greenhouse gases are naturally occurring gases, such as water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) that absorb heat radiated from the Earth's surface. Greenhouse gases—carbon dioxide, methane, nitrous oxide, and others—are transparent to certain wavelengths of the Sun's radiant energy, allowing them to penetrate deep into the atmosphere or all the way to Earth's surface. Clouds, ice caps, and particles in the air reflect about 30 percent of this radiation, but oceans and land masses absorb the rest (70 percent of the radiation received from the Sun) before releasing it back toward space as infrared radiation. GHG and clouds effectively prevent some of the infrared radiation from escaping; they trap the heat near Earth's surface where it warms the lower atmosphere.

In addition to natural sources, human activities exert a major and growing influence on climate by changing the composition of the atmosphere and modifying the land surface. Particularly, the increased consumption of fossil fuels (natural gas, coal, gasoline, etc.) has substantially increased atmospheric levels of greenhouse gases. Measured atmospheric levels of certain greenhouse gases such as carbon dioxide, methane, and nitrous oxide have risen substantially in recent decades. This increase in atmospheric levels of greenhouse gases unnaturally enhances the greenhouse effect by trapping more infrared radiation as it rebounds from the Earth's surface, thereby trapping more heat near the Earth's surface. Most of the warming in recent decades is most likely the result of human activities.

3.7.1.1 Global Implications of Climate Change

According to climate models, an enhanced greenhouse effect will generate new patterns of microclimate and will have significant impacts on the economy, environment, and transportation infrastructure and operations due to increased temperatures, intensity of storms, sea level rise, and changes in precipitation.

Impacts may include flooding of tunnels, coastal highways, runways, and railways; buckling of highways and railroad tracks, submersion of dock facilities, and a shift in geographic location for plants (including both agricultural and native plants) and animals to areas that are now cooler. Such prospects will have strategic security as well as transportation implications. Climate change affects public health and the environment. Increased smog and emissions, respiratory disease, reduction in the state's water supply, extensive coastal damage, and changes in vegetation and crop patterns have been identified as effects of climate change. The impacts of climate change are broad ranging and interact with economic dynamics, giving rise to many complex policy problems.

3.7.1.2 California Implications of Climate Change

The U.S. has the highest emissions of greenhouse gases of any nation on Earth. In California, more than half of the fossil fuel emissions of CO_2 are related in some way to transportation. Fossil fuel combustion accounts for 98 percent of CO_2 emissions.

While the evidence for climate change is overwhelming, it is impossible to predict exactly how it will affect California's ecosystems and economy in the future. As the average temperature of the Earth increases, weather is affected and rainfall patterns are projected to change. Droughts and flashfloods are likely to become more frequent and intense and mountain snowcaps would continue to shrink. Climate change and the resulting rise in sea level are likely to increase the threat to buildings, roads, and infrastructure. Agricultural patterns will change as crops and productivity shift along with the climate change. The location of suitable habitat for special-status plants and animals will shift along with the local temperatures and rainfall patterns. In addition, increased temperatures would be anticipated to result in degraded air quality, an increase in the number of weather-related deaths, and a possible increase in infectious diseases. Higher temperatures would also contribute to increased smog, which is damaging to plants and humans. Climate change also affects forests in ways that increase fire hazards and make forests more susceptible to pests and diseases.

One area of considerable concern is the effect of climate change on California's water supply. During winter, high in the Sierra Nevada, snow accumulates in a deep pack, preserving much of California's water supply in "cold storage" for the hot, dry summer; however, if winter temperatures are higher, more precipitation will fall as rain, decreasing the size of the snowpack. Heavier rainfall in winter could bring increased flooding. Less spring runoff from a smaller snowpack will reduce the amount of water available for hydroelectric power production and agricultural irrigation. Throughout the 20th century, annual April to July runoff in the Sierra Nevada has decreased, with water runoff declining by about 10 percent over the last 100 years.

Another predicted outcome of climate change, a rise in sea level, is already being seen in California, with a 3- to 8-inch rise in the last century. This can lead to serious consequences for the large populations living along California's coast. Sea level rise and storm surges can lead to flooding of low-lying property, loss of coastal wetlands, erosion of cliffs and beaches, saltwater contamination of drinking water, and damage to roads and bridges. As noted earlier, higher temperatures also cause an increase in harmful air emissions. High temperatures, strong sunlight, and a stable air mass are ideal for formation of ground-level ozone, the most health-damaging constituent of smog. As the temperature rises and air quality diminishes, heat-related health problems would be anticipated to increase. While carbon dioxide is emitted in the largest quantity, other greenhouse gases such as methane, nitrous oxide, and hydrofluorocarbons, also contribute to climate change.

3.7.1.3 Regulations for Greenhouse Gas Emissions

The following state and federal regulations have been adopted to regulate greenhouse gas emissions.

Senate Bill 1771 - Greenhouse Gas Emission Reductions: Climate Change

Senate Bill (SB) 1771, chaptered in September 2000, specified the creation of the nonprofit organization, the California Climate Action Registry (Registry). The Registry helps various California entities to establish GHG emissions baselines. In addition, the Registry enables participating entities to voluntarily record their annual GHG emissions inventories.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires California Air Resources Board (CARB) to develop and adopt the nation's first greenhouse gas emission standards for automobiles. The legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in the state. It cited several risks that California faces from climate change, including reduction in the state's water supply, increased air pollution from higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water energy, and insurance prices. In addition, the legislature stated that technological solutions to reduce greenhouse gas emissions would stimulate the California economy and provide jobs.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emissions targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multiagency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a Climate Action Team (CAT) made up of members from various state agencies and commissions. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - the California Climate Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide greenhouse gas emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on greenhouse gas emissions that will be phased in beginning in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide greenhouse gas emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address greenhouse gas emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle greenhouse gas emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on greenhouse gas emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in green house gas emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions (CAPCOA 2008).

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a greenhouse gas emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Senate Bill 97 - CEQA: Greenhouse Gas Emissions

Senate Bill 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions, as required by Senate Bill 97. Those recommended amendments were developed to provide guidance to public agencies regarding the analysis and mitigation of greenhouse gas emissions and the effects of greenhouse gas emissions in draft CEQA documents. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

3.7.2 Thresholds of Significance

At the present time, there are no federal, state, or locally adopted thresholds for the evaluation of project-generated short-term or long-term greenhouse gas emissions and/or contribution to global climate change. Public agencies, including CARB, and various air districts within California, are in the process of developing thresholds to be used for the determination of the significance of project-generated GHG emissions. The basis used for the development and implementation of these proposed draft thresholds varies, including the application of tiered analyses, incorporation of performance-based standards, and/or quantifiable thresholds. The following policies are considered for evaluating the significance of greenhouse gas emissions.

California Air Resources Board

On October 24, 2008, the CARB released its *Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. A key aspect of CARB's recommended approach recognizes that different greenhouse gas thresholds of significance may apply to different types of projects, referred to as sector-specific thresholds. Two primary reasons that sector-specific thresholds are appropriate are: (1) some sectors contribute more substantially to the problem; therefore, they should have a greater obligation for emissions reductions, and, (2) looking forward, there are differing levels of emissions reductions expected from different sectors to meet California's climate objectives. CARB also believes that different types of thresholds, both quantitative and qualitative, as well as the application of performance-based standards,

can apply to different sectors. For the industrial sector, CARB's proposed threshold consists of a quantitative threshold of 7,000 metric tons of CO_2 equivalent per year ($MTCO_2e$/year) for operational emissions (excluding transportation), and performance standards for construction and transportation emissions. CARB has indicated that a similar approach to establish a greenhouse gas significance threshold is under development for other sectors, including residential and commercial developments (San Joaquin Valley Air Pollution Control District 2009).

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) recommends that CEQA environmental documents include a discussion of anticipated greenhouse gas emissions during both the construction and operation phases of the project. This recommendation is consistent with comments made by the previous and current California Attorney Generals on Land Use projects undergoing CEQA review. SMAQMD has not proposed quantitative greenhouse gas emissions thresholds. (San Joaquin Valley Air Pollution Control District 2009)

For purposes of this analysis, Proposed Project-generated greenhouse gas emissions would be considered significant if: (1) the project generated greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or (2) project-generated greenhouse gas emissions would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gas.

3.7.3 Greenhouse Gas Emissions Modeling Methods

Estimated greenhouse gas emissions attributable to the Proposed Project were calculated using the URBEMIS2007 computer program. Emissions were calculated for short-term construction and long-term operational activities based on estimated area of disturbance and equipment usage provided by the Proposed Project for each of the major phases of construction, as listed in Table 3-3. Emissions were converted to CO_2-equivalent units of measure, expressed in metric tons ($MTCO_2e$/year). Model output data for greenhouse gas emissions for the Proposed Project is provided in Appendix C.

3.7.4 Answers to Checklist Questions

Question a: Implementation of the Proposed Project would contribute to increases of greenhouse gas emissions that are associated with global climate change. Estimated greenhouse gas emissions attributable to the Proposed Project would be primarily associated with increases of CO_2 from mobile sources during the short-term construction and long-term operation of the Proposed Project. Short-term construction and long-term operational emissions are discussed in more detail below.

Short-Term Construction

During construction of the Proposed Project, greenhouse gases would be emitted from the operation of construction equipment and from worker and material transport vehicles. Emissions during construction were estimated using the URBEMIS 2007 model. Construction-generated greenhouse gas emissions are summarized in Table 3-8.

Table 3-8. Construction-Generated Greenhouse Gas Emissions

Project Year	Annual Emissions (MTCO2e/year)
Year 1	6.12
Year 2	0.79
Year 3	0.79
Year 4	0.79
Year 5	0.79

Note: Emissions were calculated using the URBERMIS 2007 computer program and construction information listed in Table 3-3.

As indicated in Table 3-8, construction of the Proposed Project would generate total annual emissions of approximately 6.12 MTCO2e during the initial year of wetland construction. Greenhouse gas emissions would decrease in subsequent construction years (i.e., wildlife enhancements, tree planting, and fencing) to approximately 0.79 MTCO2e. These construction-generated emissions are temporary and short-term.

SMAQMD does not have quantitative significance thresholds for construction, rather, SMAQMD provides guidance on best management practices in Chapter 6 of the CEQA Guide (SMAQMD 2009).

Implementation of Mitigation Measure AIR-1 (identified above under Section 3.3.5) would effectively reduce green house gas emissions during construction. Therefore, greenhouse gas emissions associated with short-term construction would not result in a significant impact on the environment. In addition, implementation of the GHG reduction measures would be anticipated to result in further reductions in greenhouse gas emissions from the Proposed Project. The Proposed Project would have a less-than significant impact.

Long-Term Operation

On an annual basis, periodic maintenance would require approximately two employee vehicle trips to the Proposed Project site, approximately 8 days per year (Table 3-3). Daily maintenance would require the use of up to four pieces of equipment (e.g., trucks, ATVs, landscape trimmers, etc.) approximately 8 hour per day. Based on these assumptions, long-term maintenance activities would result in annual emissions of approximately 1.18 $MTCO_2e$ associated with the operation of motor vehicles and landscape equipment. These long-term operational emissions would not exceed 7,000 $MTCO_2e$/year, which is currently the CARB's proposed quantitative threshold for operational emissions (excluding transportation) and performance standards for construction and transportation emissions. Therefore, greenhouse gas emissions associated with long-term operation would not result in a significant impact on the environment. The Proposed Project would have ***a less-than significant impact***.

Question b: As discussed in Question a, implementation of the Proposed Project would not exceed 7,000 $MTCO_2e$/year, which is currently CARB's proposed greenhouse gas emissions significance threshold. Therefore, greenhouse gas emissions associated with the Proposed Project is consistent with applicable policies and regulations adopted for the purpose of reducing the emissions of greenhouse gases. The Proposed Project would have ***no impact***.

3.7.5 Mitigation

Implementation of Mitigation Measure AIR-1 described in Section 3.3.5 would ensure that potential impacts associated with greenhouse gas emissions are reduced to a less-than-significant level.

3.8 Hazards and Hazardous Materials

		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
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?	☐	☒	☐	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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, create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan, or where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an 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?	☐	☒	☐	☐

3.8.1 Environmental Setting

The Proposed Project site occurs within annual grassland habitat with occasional drainages bisecting the rolling hills. Firebreaks are present around the outer perimeter of Rancho Seco Lake and border the northern, eastern, and southern outer boundaries of the site.

The decommissioned Rancho Seco Nuclear Generating Station is located immediately west of the Proposed Project. SMUD began operation of the Rancho Seco Nuclear Generating Station in 1974. SMUD permanently terminated nuclear power operations at these facilities on June 7, 1989, and began decommissioning activities in February 1997. On June 30, 2000, NRC issued Materials License SNM-2510 for the Independent Spent Fuel Storage Installation (ISFSI), which authorizes SMUD to store spent fuel in the ISFSI. SMUD completed transferring all of the spent fuel on August 21, 2002. On June 8, 2009, SMUD requested the release of a majority of the Rancho Seco Nuclear Generating Station site from the NRC 10 CFR Part 50 license DPR-54. The area requested for release included the entire licensed site, except for a 1-acre area associated with the IOSB and the ISFSI. The request stated that the area to be released was "not impacted" by the reactor operation as detailed in the License Termination Plan which was approved by NRC. NRC granted this request on September 25, 2009, and released the area for unrestricted use (Nuclear Regulatory Commission 2009). This facility is also a designated USEPA Resource Conservation and Recovery Act (RCRA) site, under the category of a Large Quantity Generator of hazardous waste.

A Phase I Environmental Site Assessment (Phase I) was prepared for the Proposed Project (Burleson Consulting, Inc. 2010). This report is available for review and is on file at SMUD's Headquarters Building in Sacramento. The Phase I included interviews with SMUD employees with significant knowledge of the Proposed Project site, a reconnaissance site visit, a historical review of aerial photographs and topographic maps, and a review of available applicable regulatory information. The purpose of the Phase I was to identify the presence or likely presence of any hazardous substances or petroleum products that indicate an existing release, past release, or threat of release of these substances.

During reactor operation at the Rancho Seco Nuclear Generating Station, several areas within the industrial facility, including the Spent Fuel Building, were affected with low concentrations of radionuclides, which could migrate into soils, surface water, or groundwater. Contaminated soils beneath the former spent-fuel pool cooler pad were excavated and an investigation was performed in 2004 down to about 25 feet below the ground surface; the investigation did not detect concentrations of spent fuel pool liquid. All areas within the facility potentially contaminated by radionuclides have been characterized and inventoried. Groundwater monitoring wells have been installed throughout the facility to monitor for contaminants and their potential migration. Phase I reviewed the hydrology, groundwater, topography, and radiological study data regarding the potential contamination and found that background levels for radiation and global fallout onsite are similar to that of background levels 5 miles away. In addition, because the Proposed Project is topographically higher than the Rancho Seco Nuclear Power Plant, it was not affected by operation or decommissioning of the plant. (Burleson Consulting, Inc. 2010.)

Historically, several drainages, tributaries to Rancho Seco Lake, were mined for gold. Phase I identified two areas of potential concern. Both are associated with the potential use of mercury during historical placer mining for gold along tributaries to Rancho Seco Lake (Burleson Consulting, Inc. 2010).

3.8.2 Answers to Checklist Questions

Questions a and b: Construction equipment and vehicles containing petroleum products would be onsite during construction of wetlands, installation of burrowing owl nest boxes, planting acorns/trees, and

construction of new fences. Construction equipment would be refueled and stored overnight at the designated offsite staging area or within the wetland construction area using portable fuel tanks. The risk of accidental release of fuel during refueling is minimal. During construction activities, there could be minor spills of fuel or oils/lubricants from ruptured fuel or hydraulic lines on construction equipment; therefore, the Proposed Project has the potential to create a significant hazard to the public or the environment through the routine transport or use of hazardous materials. Mitigation Measure HAZ-1, described in Section 3.8.3, shall be implemented to address accidental spills during construction. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Ground disturbance associated with construction activities could expose mercury in areas where mining historically occurred. If present, the translocation of mercury and construction staff's exposure to it has potential to create a significant hazard to the public or the environment. Mitigation Measure HAZ-2, described in Section 3.8.3, would be implemented to ensure that areas of soil that may potentially contain mercury would not be exposed. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question c: The Proposed Project site is not located within 0.25 mile of an existing school. Several public and private schools are situated in the surrounding communities of Ione, Herald, and Plymouth, between 7 and 9 miles from the site therefore, the Proposed Project would not involve handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. The Proposed Project would have ***no impact***.

Question d: The Proposed Project site is not located on a property associated with a hazardous site listed under Government Code Section 65962.5, also known as the Cortese List (State of California, Department of Toxic Substances Control 2010); therefore, the Proposed Project would not increase the hazard to the public associated with a hazardous site listed under Government Code Section 65962.5. The Proposed Project would have ***no impact***.

Question e: The Proposed Project is not located within 2 miles of a public airport. The Proposed Project site is approximately 12 miles north of the Lodi Airport in Acampo, California; therefore, implementation of the Proposed Project would not result in a safety hazard for people who would work in the area because of the location of the airport. The Proposed Project would have ***no impact***.

Question f: The Proposed Project is not located within 2 miles of a private airport; however, several ranches within a 10-mile radius have aircraft landing strips. Implementation of the Proposed Project would not result in a safety hazard for people who would work on the Proposed Project site. The Proposed Project would have ***no impact***.

Question g: Implementation of the Proposed Project would have no effect on emergency evacuation plans for the surrounding area or the decommissioned Rancho Seco Nuclear Generating Station. The surrounding area is primarily agricultural and the Proposed Project site is not critical to local emergency response evacuations. Traffic associated with Proposed Project construction and operation would not significantly affect emergency access to or from the facility. The Proposed Project would have ***no impact***.

Question h: The risk of wildfires in the vicinity of the Proposed Project is moderate because of the presence of vast open land. The Proposed Project includes elements that have risk of fire associated with them. The use of heavy equipment associated with constructing wetlands, installing burrowing owl nest boxes, and planting acorns/trees within annual grassland areas could create sparks that have the potential to ignite dry vegetation. In addition, concentration of substantial amounts of fuel (e.g., equipment fuel tanks) will be present on the Proposed Project site during construction. This fuels could be ignited during

equipment operation or from smoking in the vicinity of fuel tanks. SMUD maintains firebreaks surrounding its property and within the Proposed Project site and firebreaks are present around Rancho Seco Lake and along the perimeter of the northern, eastern, and southern site boundaries, which would reduce the spread of a wildfire. The Proposed Project has the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Mitigation Measure HAZ-3, described in Section 3.8.3, would be implemented to minimize the potential for accidental fires during construction; therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

3.8.3 Mitigation

Implementation of the following mitigation measures would ensure that potential impacts associated with hazardous materials are reduced to a less-than-significant level.

HAZ-1

Inspect equipment containing hazardous materials daily for signs of spills or leakage. A spill response kit shall be kept on the construction site at all times and shall include oil absorbent materials (i.e., pads, pillows, and socks) and disposable bags. If an accidental release of petroleum fuel occurs during refueling or a spill occurs during construction of the Proposed Project, the release shall be cleaned up immediately and hazardous materials shall be removed from the site, disposed of at an approved hazardous materials acceptance facility, and reported in accordance with SMUD Environmental Management Procedure EM 2-08.

HAZ-2

No soil disturbance shall occur within 100 feet of placer mine features.

HAZ-3

No smoking in open areas or near fuel tanks shall occur, spark arrestors will be present on equipment, and fire extinguishers will be onsite at all times during construction.

3.9 Hydrology and Water Quality

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
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 preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
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 that would result in substantial erosion or siltation on- or offsite?	☐	☒	☐	☐
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 that would result in flooding on- or offsite?	☐	☐	☐	☒
e) Create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 Environmental Setting

The Proposed Project site is located within the Lower Cosumnes-Lower Mokelumne watershed. The terrain of the Proposed Project site consists of rolling gentle slopes with many small collection tributaries that drain runoff from incidental rainfall. The Proposed Project site ranges in elevation from 160 to 289 feet amsl. All surface water on the Proposed Project site drains, eventually, to Hadselville Creek; most drains generally to the north-northwest to Hadselville Creek by way of five small onsite tributaries. A small portion of the Proposed Project site, including Rancho Seco Lake (just offsite), drains to Clay Creek, which is also a tributary to Hadselville Creek. Hadselville Creek drains into Laguna Creek, which conveys flow westerly to the Cosumnes River and then into the Mokelumne River.

The Proposed Project site and vicinity have not historically been prone to flooding and are not likely to flood even under heavy rainfall (SMUD 1991). The Proposed Project is not located within a Federal Emergency Management Agency (FEMA) designated 100-year flood zone (Floodsource 2010).

Rancho Seco Lake, which is surrounded by the Proposed Project site, but not included in it, has a tributary area of approximately 1,000 acres in the upper reaches of Clay Creek. The lake covers an area of approximately 160 acres and has a minimum storage capacity of 2,850 acre-feet. The flow in Clay Creek, which was an ephemeral stream before construction of Rancho Seco Lake, is dominated, downstream of the Proposed Project site, by water discharge from the decommissioned Nuclear Generating Station. Water transfers from the Folsom South Canal to a seasonal unnamed creek, that is a tributary of Clay Creek, through the decommissioned Rancho Seco Nuclear Generating Station averages 6,000 gallons per minute (gpm) of water flow on a continual basis. Water transfers from the Folsom South Canal are directed to the Cosumnes Power Plant, decommissioned Rancho Seco Nuclear Generating Station, and Rancho Seco Lake. (Gacke 2010.)

Water from the Folsom South Canal and then from Rancho Seco Lake can used for fire suppression through existing fire hydrants.

The Proposed Project site is underlain by the Laguna and Mehrten formations. The Mehrten Formation is known to yield large volumes of water to wells (URS 2006a); however, the Mehrten Formation in the vicinity of the Proposed Project site consists predominantly of siltstones and claystones that are likely to have lower hydraulic conductivity than the typical Mehrten Formation (URS 2006a).

Water quality of streams on the Proposed Project site is considered good because of the lack of urban activities or other potential sources of pollution. Groundwater quality on the Proposed Project site is generally good and is within federal and state limits. Groundwater contamination of the Mehrten Formation aquifer in the vicinity of the Proposed Project site is unlikely because of the lack of urbanization and low soil permeability, and because the finer grained materials above the formation would effectively prevent substantial migration of contaminants. (SMUD 1991, URS 2006a.)

Groundwater in the Proposed Project region generally flows to the west, toward Galt (URS 2006a). For at least 40 years, the pumping of municipal and agricultural wells in the Galt area has caused a groundwater depression. Groundwater levels in the Cosumnes Subbasin have declined since the mid-1960s (URS2006a). Groundwater is primarily recharged by the infiltration of surface water along the active channels of streams, such as the Cosumnes River, Dry Creek, and Mokelumne River, as well as deep percolation of irrigation water (URS 2006a). The City of Galt, which provides water through the operation of six wells distributed throughout the city, is expected to remove more groundwater as the population in the area increases (URS 2006a). Some recharge also occurs from the direct infiltration of precipitation (limited by low annual rainfall of 18 inches, high evapotranspiration rate of 50 inches per

year, and moderate-to-low permeability of surface soil of 0.07 to 0.08 inch per hour, and deep water table) (URS 2006a).

No free groundwater was encountered below the existing ground elevation in the exploratory test pits during trenching for the subsurface investigation completed for the Proposed Project in November 2008. All test pits were backfilled immediately after trenching and may not have been left open for a period of time sufficient to establish equilibrium groundwater conditions. In addition, fluctuations in the groundwater level could occur because of change in seasons, variations in rainfall, and other factors (Soil Search Engineering 2008).

3.9.2 Answers to Checklist Questions

Question a: The Proposed Project includes ground disturbance associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing new fences that will expose soil and could result in accelerated erosion. Erosion within the construction area could affect water quality of nearby water bodies by increasing sedimentation. The Proposed Project could also result in the degradation of water quality from runoff of petroleum-based products associated with equipment and vehicles used during construction. Implementation of Mitigation Measures GEO-1, GEO-2, and GEO-3 (identified above under Section 3.6.3) would reduce potential construction-related impacts on water quality and ensure that the Proposed Project does not violate any water quality standards or waste discharge requirements (WDR); therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question b: The Proposed Project would not utilize groundwater; therefore, it would not deplete groundwater supplies or interfere with groundwater recharge. The Proposed Project would have ***no impact***.

Question c: Wetland construction design includes creation of small basins (i.e., vernal pools) that will intercept direct rainfall and will slow the flow of water across the wetlands construction area. Although these changes in the drainage pattern of the site are minor, the Proposed Project, including wetland construction, wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the Proposed Project site, will result in ground disturbance that will expose soil and could result in accelerated erosion. Implementation of Mitigation Measures GEO-1 and GEO-2 (identified above under Section 3.6.3) would reduce potential construction erosion impacts to a less-than-significant level because soils will be stabilized following construction; therefore, the Proposed Project would not cause substantial erosion or siltation on- or offsite. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question d: Wetland construction design includes creation of small basins (i.e., vernal pools) that will intercept direct rainfall and will also slow the flow of water across the wetlands construction area. These changes in the drainage pattern of the site are minor and will not increase the rate or amount of surface runoff. Wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the Proposed Project site would also have no effect on the rate or amount of surface runoff; therefore, the Proposed Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite. The Proposed Project would have ***no impact***.

Question e: Wetland construction, wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the

Proposed Project site would not increase existing runoff and would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems. The Proposed Project would not provide substantial additional sources of polluted runoff. The Proposed Project would have ***no impact***.

Question f: During construction associated with wetlands restoration, wildlife habitat enhancement, acorn/tree planting, and fencing improvements, accidental spills of potentially harmful materials could wash into and pollute nearby surface waters. Materials that could potentially spill, leak, or contaminate the construction area include oil, grease, gasoline, diesel, transmission fluid, and other petroleum-based substances. Potential impacts as a result of accidental spills are discussed in Section 3.8, Hazards and Hazardous Materials. Mitigation Measure HAZ-1 (identified above under Section 3.8.3) would be implemented to ensure construction-related spills are properly cleaned up. In addition, Mitigation Measure GEO-1 (identified above under Section 3.6.3) would be implemented during construction to ensure that Proposed Project construction would not affect water quality in surface waters in the vicinity of the construction area; therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question g: The Proposed Project site is not located within a federally designated 100-year flood hazard area. The construction of housing is not a part of the Proposed Project; therefore, Proposed Project implementation would not result in housing being constructed within a federally designated 100-year flood hazard area. The Proposed Project would have ***no impact***.

Question h: The Proposed Project site is not within a federally designated 100-year flood hazard area and no structures would be constructed as part of the Proposed Project; therefore, the Proposed Project will not place structures, which would impede or redirect floodflows, within a 100-year flood hazard area. The Proposed Project would have ***no impact***.

Question i: Wetland construction will occur east, upslope, and upstream of Rancho Seco Lake, which is dammed on the west side. The wetland construction design includes minimal gradient changes within a leveled, irrigated pasture. The wetland design will route water into three swale systems: one to the south and two to the west side of the irrigated pasture. Each of these swales drains toward Rancho Seco Lake. The changes in topography proposed to construct wetlands include creation of small basins (i.e., vernal pools) that will intercept direct rainfall and also slow the flow of water across the wetland construction area; therefore, no additional flows and no increase in flow rates are expected into Rancho Seco Lake. Wetland construction would have no effect on levees or dams and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. Wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the Proposed Project site would also have no effect on levees or dams and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. The Proposed Project would have ***no impact***.

Question j: It is unlikely that people, structures, or land in the Proposed Project vicinity would be exposed to a seiche, tsunami, or mudflow. Historical earthquake records indicate a potential for strong earthquake shaking throughout the region, and future earthquake shaking should be anticipated at the Proposed Project site (Soil Search Engineering 2008). Rancho Seco Lake is the only large water body near the Proposed Project site. Reservoirs are sometimes subject to seiches during earthquakes; however, the Proposed Project would not increase this potential or increase the risk to people or structures from seiches, tsunamis, or mudflow. The Proposed Project would have ***no impact***.

3.9.3 Mitigation

Implementation of Mitigation Measures GEO-1 and GEO-2 described in Section 3.6.3 and Mitigation Measure HAZ-1 described in Section 3.8.3 would ensure that potential impacts to hydrology and water quality are reduced to a less-than-significant level.

3.10 Land Use and Planning

		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
X. LAND USE AND PLANNING – Would the project:					
a)	Physically 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?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 Environmental Setting

The Proposed Project includes portions of APN 140-0050-008-0000, 140-0050-011-0000, 140-0500-013-0000, 140-0500-024-0000, 140-0060-013-0000, 140-0060-011-0000. All of these parcels are zoned Permanent Agriculture, 80-acre minimum (Figure 3). The 1993 Sacramento County General Plan identifies the land use of these parcels as Public/Utilities (Figure 4) and the General Plan Land Use Diagrams also show this area as a Reserve Conservation Area.

SMUD is in the process of preparing an HCP covering its operations, maintenance, and construction activities within its service area. The HCP includes mitigation strategies for impacts of proposed activities on federally and state-protected species. One of these mitigation strategies is to offset future activity impacts through preservation and construction of mitigation habitats at the Proposed Project site. As such, SMUD will coordinate with the USFWS and CDFG to integrate the Proposed Project with the HCP.

The SSHCP has been prepared and is in the initial stages of environmental review. Once approved, it will contain specific policies and goals for protecting areas of sensitive plant and wildlife habitat, and streamline the permitting activities process for projects that engage in development activities. The SSHCP emphasizes protecting wetland, particularly vernal pool communities, and upland habitats to provide ecologically viable conservation areas. The geographic scope of the SSHCP includes U.S. Highway 50 to the north, Interstate 5 to the west, the Sacramento County line with El Dorado and Amador Counties to the east, and San Joaquin County to the south.

3.10.2 Answers to Checklist Questions

Question a: The Proposed Project would be constructed within an area of undeveloped land that serves as a nature preserve. There are no communities or travel corridors within or through the Proposed Project site. Therefore, the Proposed Project would not divide an established community. The Proposed Project would have ***no impact***.

Question b: Implementation of the Proposed Project would not conflict with the Sacramento County General Plan or the Sacramento County Zoning Code. The Proposed Project site is not within any Special Planning Areas identified by Sacramento County. The Proposed Project site would continue under the current land uses (grazing and habitat preserve); therefore, it would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Proposed Project adopted for the purpose of avoiding or mitigating an environmental effect. The Proposed Project would have ***no impact***.

Question c: Wetland restoration, wildlife habitat enhancement, and native oak tree plantings associated with implementation of the Proposed Project is consistent with the goals and objectives of SMUD's proposed HCP and the SSHCP to protect areas of sensitive plant and wildlife habitat; therefore, the Proposed Project would not conflict with any applicable HCP or natural community conservation plan. The Proposed Project would have ***no impact***.

3.10.3 Mitigation

The Proposed Project would have no significant impacts associated with land use and planning; therefore, no mitigation is required.

3.11 Mineral Resources

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XI. MINERAL RESOURCES – Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.11.1 Environmental Setting

Mineral resources in Sacramento County include natural gas, petroleum, sand, gravel, clay, gold, silver, peat, topsoil, and lignite. The principal resources that are in production are aggregate (sand and gravel) and natural gas (County of Sacramento 2009a).

The California Division of Mines and Geology has classified lands according to the potential presence of mineral resources. Areas with potential subsurface minerals are delineated into Mineral Resource Zones to indicate the presence of minerals. The Proposed Project site is not located in a State Aggregate Resource Area (County of Sacramento 2006a) or in an area of known mineral resources (County of Sacramento 2006b). The Proposed Project is located outside of the production/consumption region boundary.

A review of the title report for the Proposed Project site identified two oil and gas exploration leases that encompass the Proposed Project site and surrounding lands. These leases were recorded in 1934 and 1935. Although these leases have been recorded, historical petroleum exploration efforts in the general area have not been successful and did not result in information that would encourage future exploration efforts (Burleson Consulting, Inc. 2009).

3.11.2 Answers to Checklist Questions

Question a: According to Sacramento County, the Proposed Project site does not occur within an area of known mineral resources or within a State Aggregate Resource Area (County of Sacramento 2006a and 2006b). Therefore, implementation of the Proposed Project would not result in the loss of availability of a known mineral resource; therefore, there would be ***no impact***.

Question b: According to Sacramento County, the Proposed Project site does not occur within an area of known mineral resources or within a State Aggregate Resource Area (County of Sacramento 2006a and

2006b). Therefore, implementation of the Proposed Project would not result in the loss of availability of a locally important mineral resource recovery site; therefore, there would be ***no impact***.

3.11.3 Mitigation

The Proposed Project would have no significant impacts on mineral resources; therefore, no mitigation is required.

3.12 Noise

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XII. NOISE – Would the project result in:				
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?				
Construction noise?	☐	☒	☐	☐
Operation noise?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.12.1 Environmental Setting

The Proposed Project is located in the southeastern portion of Sacramento County. The Proposed Project site and immediate surroundings consist of rolling grassy hills, limited treed areas, vineyards, Rancho Seco Lake and recreation area, rural residences, the Cosumnes Power Plant, and the decommissioned Rancho Seco Nuclear Generating Station facilities. Nearby development consists of rural ranchettes with various types of outbuildings supporting residential and agricultural purposes.

3.12.1.1 Noise-Sensitive Land Uses

Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects, as well as uses where quiet surroundings is an essential element of their intended purpose.

Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other noise-sensitive land uses include hospitals, convalescent facilities, parks, hotels, churches, libraries, and other uses where low interior noise levels are essential.

The Proposed Project is not located near a residential area. The nearest residential land uses are caretaker dwellings located approximately 0.5 and 0.89 mile northeast and southwest, respectively, of the Proposed Project site. The nearest offsite rural residential dwellings to the proposed wetland restoration area are located in excess of 2 miles to the northwest, west, and south of the site. The Rancho Seco Recreation Area campgrounds are located approximately 0.47 mile west of the Proposed Project site.

3.12.1.2 Ambient Noise Environment

The Proposed Project site is located in a rural, largely undeveloped area. No major stationary or transportation noise sources were identified in the Proposed Project area. Existing noise levels at the site are influenced by vehicle traffic on area roadways and activities conducted at the Rancho Seco Recreation Area. To a lesser extent, nearby agricultural activities, CPP power plant activities, and decommissioning activities conducted at the decommissioned Nuclear Generating Station, which is located approximately 2.7 miles west of the site, also contribute to the ambient noise environment.

3.12.2 Ambient Noise Modeling Methods

A combination of existing literature, noise-level measurements, and application of accepted noise prediction and sound propagation algorithms were used to predict changes in ambient noise levels resulting from construction of the Proposed Project. Predicted construction noise levels were calculated for the loudest construction phases and resultant noise levels at nearby noise-sensitive receptors were estimated assuming an average noise attenuation rate of 6 decibels (dB) per doubling of distance from the construction site. Implementation of the Proposed Project would not result in the installation or operation of any equipment or activities that would be considered a major source of noise or ground borne vibration. As a result, long-term noise and ground borne vibration impacts, as well as increased exposure to aircraft noise levels, were qualitatively assessed. Model output data for ambient noise levels resulting from the Proposed Project is provided in Appendix D.

3.12.3 Answers to Checklist Questions

Questions a: Noise generated by the Proposed Project would occur during short-term construction and long-term operation. Noise-related impacts associated with short-term construction and long-term operations of the Proposed Project are discussed separately below.

Short-term Increases in Ambient Noise Levels

Construction noise typically occurs intermittently and varies depending on the nature or phase (e.g., demolition/land clearing, grading, and excavation) of construction. Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Although noise ranges were found to be similar for all construction phases, the initial site preparation and grading phases tend to involve the most equipment resulting in slightly higher average-hourly noise levels. Assuming two pieces of heavy equipment (i.e., scrapers, tractors) operating simultaneously, predicted average-hourly noise levels at 100 feet from the construction area during initial wetlands construction would be approximately 78 dBA L_{eq}. Noise levels associated with burrowing owl nest box installation, tree planting, and fence construction would be substantially less.

The Proposed Project is not located near a residential area. The nearest residential land uses are caretaker dwellings located approximately 0.5 and 0.89 mile northeast and southwest, respectively, of the site and within the SMUD-owned Rancho Seco Property. With respect to the wetland construction area, the nearest offsite rural residential dwellings are located in excess of 2 miles to the northwest, west, and south of the Proposed Project site. The Rancho Seco Recreation Area campgrounds are located approximately 0.47 mile west of the site. Assuming a maximum construction noise level of 78 dBA L_{eq} at 100 feet, predicted noise levels at the nearest caretaker residence would be approximately 45 dBA L_{eq}. Predicted noise levels at the nearest offsite rural residential dwelling would be approximately 36 dBA L_{eq}. Predicted construction-generated noise levels at the nearby campground would be approximately 49 dBA L_{eq}. For these nearby noise-sensitive land uses, activities occurring during the more noise-sensitive evening and nighttime hours are of particular concern. Construction activities occurring during the more noise-sensitive nighttime hours may result in increased levels of annoyance and potential sleep disruption to nearby occupants. Implementation of Mitigation Measures NOISE-1 and NOISE-2, described in Section 3.12.4 would prohibit noise-generating activities from occurring during the more noise-sensitive periods of the day and would reduce short-term noise impacts on nearby residential land uses. Construction activities occurring during the daytime hours are exempt from County noise standards. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Long-term Increases in Ambient Noise Levels

The operation of the Proposed Project would result in an average of approximately two employee vehicle trips per day, approximately 8 days per year (Table 3-3). Long-term operation of the Proposed Project would not result in a doubling of vehicle traffic on area roadways. Typically, a doubling of vehicle traffic is required before a noticeable increase (i.e., 3 dBA or greater) would occur. In addition, implementation of the Proposed Project would not result in the installation or operation of any major stationary sources of noise. The Proposed Project would have a ***less-than-significant impact***.

Question b: Ground vibration spreads through the ground and diminishes in strength with distance. The effects of ground vibration can vary from no perceptible effects at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. For most structures, a peak particle velocity (ppv) threshold of 0.5 inch per second (in/sec) is sufficient to avoid structure damage, with the exception of fragile historic structures or ruins. At the request of the USEPA, the Committee of Hearing, Bio-Acoustics, and Bio-Mechanics (CHABA) has developed guidelines for safe vibration limits for ruins and ancient and/or historic buildings. For fragile structures, CHABA recommends a maximum limit of 0.25 inch per second ppv. For the protection of fragile, historic, and residential structures, the California Department of Transportation (Caltrans) recommends a more conservative threshold of 0.2 inch per second ppv. This same threshold would represent the level at which vibrations would be potentially annoying to people in buildings (FTA 2006, Caltrans 2002a).

Long-term operational activities associated with the Proposed Project would not involve the use of any equipment or processes that would result in potentially significant levels of ground vibration. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Ground borne vibration levels associated with construction equipment are summarized in Table 3-9.

Table 3-9. Representative Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 25 Feet (in/sec ppv)
Large tractors	0.089
Loaded trucks	0.076
Small tractors	0.003

Source: Caltrans 2004, FTA 2006

Construction activities associated with the proposed improvements would most likely require the use of various tractors and trucks, which would generate ground-vibration levels of less than 0.09 inch per second ppv at 25 feet (Table 3-9). The nearest offsite structures would be located in excess of 2,600 feet from onsite construction activities. Because ground-vibration levels diminish in strength with increased distance from the source, predicted vibration levels at the nearest offsite structures would not be anticipated to exceed even the most conservative threshold of 0.2 inch per second ppv. Therefore, implementation of the Proposed Project would not result in the installation or operation of any equipment that would be considered a major source of ground borne vibration. The Proposed Project would have a ***less-than-significant impact***.

Question c: As discussed above for Question a, implementation of the Proposed Project would not result in a substantial permanent increase in stationary or transportation-source noise levels associated with long-term operation. The Proposed Project would have a ***less-than-significant impact***.

Question d: As discussed above for Question a, implementation of the Proposed Project may result in a substantial temporary increase in ambient noise levels in the project vicinity associated with short-term construction activities. Implementation of Mitigation Measures NOISE-1 and NOISE-2 would prohibit noise-generating activities from occurring during the more noise-sensitive periods of the day and would reduce short-term noise impacts on nearby residential land uses. Therefore, the Proposed Project would minimize short-term noise impacts on occupants of nearby residential dwellings. The Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question e: The Proposed Project is not included within an airport land use plan and is not located within 2 miles of a public airport; therefore, the Proposed Project would have ***no impact***.

Question f: The Proposed Project is not located within the vicinity of a private airstrip. The nearest private airstrip (Boeckmann Ranch) is located approximately 6 miles from the Proposed Project site. The Proposed Project is not within the vicinity of a private airstrip, and as such would not expose people residing or working in the area to excessive noise. The Proposed Project would have ***no impact***.

3.12.4 Mitigation

Implementation of the following mitigation measures would ensure that short-term increases in ambient noise levels associated with the Proposed Project are reduced to a less-than-significant level.

NOISE-1

Noise-generating construction operations shall be limited to between the hours of 6 a.m. and 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday.

NOISE-2

Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.

3.13 Population and Housing

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIII. POPULATION AND HOUSING – Would the project:				
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 Environmental Setting

According to the U.S. Census Bureau, the 2009 population of Sacramento County was estimated to be 1,400,949 (U.S. Census Bureau 2010). The Proposed Project site is located near Galt and the community of Herald. The estimated population of Galt in July 2008 was 24,026 (City-data.com 2008). No census data is available for Herald. The closest residence consists of a single-family home occupied by SMUD's land manager for the Rancho Seco property located adjacent to the northwest boundary of the Proposed Project site. Several additional ranchette-style homes occur 0.16 mile to the north, 0.4 mile to the west, and 1.9 miles to the south of the Proposed Project site.

3.13.2 Answers to Checklist Questions

Question a: Implementation of the Proposed Project and establishment of a mitigation bank would allow for the sale of mitigation credits for biological resources impacts associated with planned and permitted development within the service area approved by local, state, and federal regulatory agencies. The Proposed Project will not construct any new roads. Proposed infrastructure is limited to aboveground irrigation lines; therefore, the Proposed Project would not induce additional population growth in the nearby communities either directly or indirectly. The Proposed Project would have ***no impact***.

Questions b and c: The Proposed Project site does not support existing housing and no additional housing would be constructed. Implementation of the Proposed Project would not displace any housing or people; therefore, the construction of replacement housing would not be necessary. The Proposed Project would have ***no impact***.

3.13.3 Mitigation

The Proposed Project would have no significant impacts on population or housing; therefore, no mitigation is required.

3.14 Public Services

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XIV. PUBLIC SERVICES				
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?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.14.1 Environmental Setting

The County of Sacramento does not have its own fire department. Individual fire districts serve the unincorporated area of Sacramento County. The Proposed Project site is located within the jurisdiction of the Herald Fire Protection District and the California Department of Forestry and Fire Protection (CAL FIRE). The Sacramento County Sheriff provides police protection in the county. The closest Sacramento Sheriff's office is located at the Wilton Service Center located in Wilton.

3.14.2 Answers to Checklist Questions

Question a: Wetland construction, wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the Proposed Project site would not 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 to maintain acceptable service ratios, response times, or other performance objectives for public services such as fire protection, police protection, schools, parks, and other public facilities. Because the Proposed

Project would not alter existing land uses on the Proposed Project site and would not increase public use within or adjacent to the Proposed Project site, there would be no increase in demand for law enforcement or fire protection services. The Proposed Project would have ***no impact***.

3.14.3 Mitigation

The Proposed Project would have no significant impacts on public services; therefore, no mitigation is required.

3.15 Recreation

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV. RECREATION				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.15.1 Environmental Setting

The closest public park is the SMUD Rancho Seco Recreation Area, which includes Rancho Seco Lake. The Recreation area is located on 400 acres of SMUD's Rancho Seco property and is situated in the central portion of the Proposed Project site but outside the Proposed Project site boundaries (Figure 4). Public facilities associated with the recreation area were constructed by SMUD in 1972 and managed by the County until 1992, when a budget shortfall resulted in SMUD assuming operations and management responsibilities. Permitted recreational uses include boating, fishing, swimming, picnicking, and camping.

The Howard Ranch Nature Trail, a 7-mile-long trail that extends through SMUD's Rancho Seco property (Figure 4) and the adjoining Howard Ranch, is located both within and adjacent to the Proposed Project site. Within the Proposed Project site, the Howard Ranch Nature Trail extends for approximately 0.62 mile from the eastern boundary of the site, through a vernal pool and grassland landscape, until it reaches the Proposed Project site boundary at the westernmost portion of Rancho Seco Lake.

The Amanda Blake Memorial Wildlife Refuge is located on SMUD's Rancho Seco property (leased by PAWS), adjacent to the Rancho Seco Recreational Area and the Proposed Project site (Figure 4). The refuge is located on a 75-acre grassy compound that houses exotic, rescued animals including oryx, eland, fallow deer, giraffe, zebra, ostrich, and emu. The refuge is operated and managed by PAWS and includes a museum and observation platforms to view the animals.

3.15.2 Answers to Checklist Questions

Questions a and b: Wetland construction, wildlife habitat enhancement, acorn/tree planting, new fence construction, and the monitoring and management of preserved and restored/established habitats on the Proposed Project site would not increase the use of existing recreational facilities, including the Rancho

Seco Recreation Area, Howard Ranch Nature Trail, or Amanda Blake Memorial Wildlife Refuge, such that substantial physical deterioration of these facilities would occur or be accelerated. Establishment of the Proposed Project site as a mitigation bank does not permit additional recreational uses beyond those already allowed on the existing Howard Ranch Nature Trail (walking/jogging is the only permitted use); therefore, the Proposed Project would not increase the use of existing recreational facilities, construct new recreational facilities, or require the expansion of existing recreational facilities that might have an adverse physical effect on the environment. The proposed Project would have ***no impact***.

3.15.3 Mitigation

The Proposed Project would have no significant impacts on recreation; therefore, no mitigation is required.

3.16 Transportation/Traffic

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC – Would the project:				
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?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.16.1 Environmental Setting

Access to the Proposed Project site would be from Twin Cities Road (SR 104) to Rancho Seco Road. Unnamed access roads at the Rancho Seco site may also be used to access the Proposed Project site. No traffic improvements are planned for the area in conjunction with the Proposed Project.

Caltrans establishes what is considered reasonable level-of-service (LOS) performance standards that apply to specific state routes. Caltrans endeavors to maintain a target LOS at the transition between LOS

C & D on state highways (Caltrans 2002b). LOS C indicates vehicles are delayed between 50 and 65 percent of the time with speeds between 45 and 50 miles per hour. LOS D indicates vehicles are delayed between 65 and 80 percent of the time with speeds between 40 and 45 miles per hour. The standard for rural collectors as specified in the Circulation Element of the Sacramento County General Plan is LOS D (policy CI-22 in the current circulation element and policy C1-7 in the draft circulation element) (County of Sacramento 1993c, 2009b). Twin Cities Road, at the roadway segment nearest the Proposed Project site, operates at LOS D (Caltrans 2007).

3.16.2 Answers to Checklist Questions

Question a: A maximum of 15 construction/monitoring personnel for a period of up to 30 days in the first year of mitigation bank development would be present on the Proposed Project site (Table 2-2). This number would substantially decrease in subsequent years (Table 2-2). The increase in traffic from construction and monitoring personnel is considered negligible and would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. The Proposed Project would have ***no impact***.

Question b: As indicated for Question a, traffic generated by Proposed Project construction and operation would be minor. The LOS of Twin Cities Road would not be affected by the minor level of traffic that would be generated by the Proposed Project. The Proposed Project would not result in the exceedance of LOS standard for any roadway. The Proposed Project would have ***no impact***.

Question c: Project implementation (construction and operation) would not result in the construction of permanent structures and would have no effect on air traffic patterns and existing air traffic safety. The Proposed Project would have ***no impact***.

Question d: Project implementation (construction and operation) would not construct any new roadways or result in incompatible uses on existing roads. The Proposed Project would have ***no impact***.

Question e: As indicated for Question a, traffic associated with Proposed Project construction would not significantly affect existing traffic-circulation patterns; therefore, the Proposed Project would not affect emergency access to any residences or agricultural properties in the Proposed Project vicinity. The Proposed Project would have ***no impact***.

Question f: The Proposed Project does not include elements that would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. The Proposed Project would have ***no impact***.

3.16.3 Mitigation

The Proposed Project would have no significant impacts on transportation and traffic; therefore, no mitigation is required.

3.17 Utilities and Service Systems

	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

3.17.1 Environmental Setting

Existing utility infrastructure on the Proposed Project site includes an active 12-kilovolt (kV) pole line maintained by SMUD and an underground telephone cable line maintained by AT&T that extends from the western boundary of the Proposed Project site eastward along Clay East Road and a dirt access road/firebreak along the Proposed Project boundary until it reaches the north end of PAWS. PG&E operates a 230-kV electrical transmission line that extends north along the eastern boundary of the southwestern portion of the Proposed Project site and continues westward just south of the existing pole and telephone lines along Clay East Road (described above). An underground water line is also present

on the Proposed Project site to deliver water to Rancho Seco Lake from the decommissioned Rancho Seco Nuclear Generating Station (water originates from the Folsom South Canal). From Rancho Seco Lake, this underground pipeline extends westward along an existing access road/firebreak to Clay East Road, where it continues northwest off the Proposed Project site until it reaches the decommissioned Rancho Seco Nuclear Generating Station.

The Proposed Project site supports two inoperable groundwater wells—one is located along the eastern boundary of the Proposed Project site adjacent to the wetland restoration site and the other is located along the western boundary of the Proposed Project site just south of Clay East Road. There is no water supplied to the Proposed Project site.

No other utilities or service-system facilities are present on the Proposed Project site. Adjacent to the site, the Rancho Seco Recreation Area provides drinking water (supplied by two groundwater wells); industrial, recreation, and irrigation water (Rancho Seco Lake supplied by the Folsom South Canal); restroom facilities; and trash collection/removal. Waste Management of Sacramento under the authority of Sacramento Regional Solid Waste Authority (a joint powers authority of the County and the Cities of Sacramento and Citrus Heights) picks up and disposes of solid waste from the recreation area.

3.17.2 Answers to Checklist Questions

Questions a and e: The Proposed Project site does not support wastewater facilities or require wastewater treatment services and none will be constructed as part of the Proposed Project. Existing restroom facilities are present on SMUD's adjacent Rancho Seco Recreation Area and are used by trail users on the Howard Ranch Nature Trail that crosses through the Proposed Project site. Establishment of the Proposed Project site as a mitigation bank is not expected to increase use. A temporary portable restroom (i.e., "port-O-let") may be used during construction associated with mitigation bank development or existing facilities within the recreation area will be used. A maximum of 15 construction/monitoring personnel for a period of up to 30 days in the first year of mitigation bank development would be present on the Proposed Project site (Table 2-2). This number would substantially decrease in subsequent years (Table 2-2). SMUD provides wastewater treatment for the Rancho Seco recreational area within their property boundary, adjacent to the Proposed Project site. The occasional use of restroom facilities within the recreation area by construction and monitoring personnel would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. Additionally, SMUD has adequate capacity to serve the existing and Proposed Project's projected demand. Therefore, the Proposed Project will not affect the existing wastewater treatment facility. The Proposed Project would have ***no impact***.

Questions b and d: No new wastewater facilities and no increase in demand of current wastewater treatment services are required for the Proposed Project as stated above for Questions a and e; therefore, no significant environmental effects would occur from construction of new, or expansion of existing, wastewater facilities.

Implementation of the Proposed Project would require the use of water, which would be used for dust control and to promote plant growth within disturbed areas, during and immediately after construction of wetlands and burrowing owl nest boxes. Short-term irrigation, for a period of approximately 7 years, would also be required to establish oak tree plantings on the Proposed Project site. Long-term management of the mitigation bank will not require water unless remedial actions result in ground disturbance, in which case water may be used for dust control. The Proposed Project's short-term demand for water resources would be met by pulling water from Rancho Seco Lake. During construction activities, a water truck would extract water from existing fire hydrants located within the adjacent

Rancho Seco Recreation Area and deliver the water to the construction areas. Water is supplied to the fire hydrants from Rancho Seco Lake. An aboveground irrigation system that would obtain water directly from Rancho Seco Lake would provide irrigation to the acorn/tree plantings.

Projected water demand for the Proposed Project is estimated to be approximately 30,000 gallons per day for 19 days of wetlands construction grading and a maximum of 35,280 gallons annually for the first 7 years of oak plantings. Table 2-3 provides a breakdown of water needs for years 1 through 7. Rancho Seco Lake is expected to have sufficient water available to serve the Proposed Project from its existing entitlement. SMUD obtained a License for Diversion and Use of Water from the State Water Resources Control Board (SWRCB) on September 17, 1981 (permit #16171). This permit allows up to 833 acre-feet (271,434,240 gallons) of water per year to be taken (by direct diversion and collection to storage) from Hadselville Creek for purposes of filling Rancho Seco Lake for industrial and recreational uses. Water use for the Proposed Project would be consistent with permitted uses under the existing license. The amount of water proposed to be taken from Rancho Seco Lake for the Proposed Project would be minimal compared with the amount of water allocated under the existing SWRCB permit and would not affect the water elevation in Rancho Seco Lake. Because water demand for the Proposed Project would be met by an existing water source (Rancho Seco Lake) and under an existing water entitlement, no new water facilities or expansion of existing water facilities and no new or expanded water entitlements would be required for implementation of the Proposed Project. The Proposed Project would have ***no impact***.

Question c: Most land on the Proposed Project site drains generally to the north-northwest to Hadselville Creek by way of five small onsite tributaries. A small portion of the Proposed Project site, including the adjacent Rancho Seco Lake, drains to Clay Creek, which is also a tributary to Hadselville Creek. Hadselville Creek drains into Laguna Creek, which conveys flow westerly to the Cosumnes River and then into the Mokelumne River. No new storm water drainage facilities or expansion of existing facilities that could cause significant environmental effects would be required as part of the Proposed Project. The Proposed Project would have ***no impact***.

Question f: Construction of wetlands, installation of burrowing owl nest boxes, planting acorns/trees, construction of new fences, and short-term and long-term monitoring associated with the Proposed Project could generate a small amount of solid waste from materials (i.e., food wrappers) brought onsite by construction/monitoring personnel and from the removal of existing materials replaced or unearthed during construction (i.e., old fence posts, barbed wire, old culverts, concrete). Food wrappers and small debris items can be disposed of within existing trash receptacles located on the adjacent Rancho Seco Recreation Area. Large debris items would either be scrapped or taken to the local landfill (Kiefer Landfill) by the construction contractor. Solid waste disposal needs for the Proposed Project are expected to be minimal. The Kiefer Landfill has sufficient permitted capacity to accommodate the Proposed Project's solid waste disposal needs. The Proposed Project would have a ***less-than-significant impact***.

Question g: Solid waste generated from the Proposed Project would be disposed of at the local Sacramento County Kiefer Landfill, which complies with federal, state, and local statutes and regulations pertaining to solid waste. The Proposed Project would have ***no impact***.

3.17.3 Mitigation

The Proposed Project will have no significant impacts on utilities and service systems; therefore, no mitigation is required.

3.18 Mandatory Findings of Significance

		Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE:					
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?	☐	☒	☐	☐
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 he effects of probable future projects)?	☐	☒	☐	☐
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.18.1 Answers to Checklist Questions

Question a: Implementation of the Proposed Project would have potentially significant impacts on air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, hazards and hazardous materials, and noise during construction of wetlands, installation of burrowing owl nest boxes, planting acorns/trees, and construction of fences. These construction-related impacts, however, would be short term (during the first 7 years following agency approval) and would be minimized through the implementation of mitigation measures described in this chapter, thereby reducing potential impacts to a less-than-significant level. The Proposed Project would preserve, restore, and establish wetlands and special-status wildlife and plant habitats through establishment of an approximately 1,132-acre mitigation bank. Establishment of a mitigation bank will ensure that the Proposed Project site will be protected and maintained in a natural state in perpetuity. Implementation of mitigation measures during bank development activities and the short-term and long-term monitoring/management of the established bank (as presented in Chapter 2) would ensure that the Proposed Project does not 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. Therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question b: Section 15064(h)(1) of CEQA Guidelines states that when assessing whether a cumulative effect requires preparation of an EIR, the lead agency shall consider whether the cumulative impact is significant and the incremental effects of the project are cumulatively considerable. An EIR is not required if the project's effects are not cumulatively considerable. The lead agency may determine that a project's incremental contribution would be less-than-cumulatively considerable when one or more of the following occur: 1) the contribution would be rendered less-than-cumulatively considerable through implementation of mitigation measures; 2) the project would comply with the requirements of a previously approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the project's cumulative effects; and/or 3) the project's incremental effects would be so small that the environmental conditions would be essentially the same regardless of whether the project is implemented. As discussed for Question a, the potentially significant impacts that could be caused by the Proposed Project are short term (restricted to the bank development period) and would be reduced to a less-than-significant level through implementation of mitigation measures. In addition, the magnitude of the impacts (described in this chapter) and the relative size of the areas to be affected is so small that the environmental conditions would be essentially the same regardless of the Proposed Project; therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

Question c: The Proposed Project would not directly or indirectly cause substantial adverse effects on human beings. Air quality would be the only resource through which the Proposed Project could have an effect on human beings; however, all construction-related impacts on air quality would be mitigated to a less-than-significant level and would therefore avoid causing substantial adverse effects on human beings. For all other resource areas, the Proposed Project would either have no significant impacts, or, for impacts that would not affect human beings, the Proposed Project would have less-than-significant impacts with mitigation incorporated; therefore, the Proposed Project would have a ***less-than-significant impact with mitigation incorporated***.

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Appendix A. Mitigation Monitoring Plan

SMUD Nature Preserve Mitigation Bank

Mitigation Monitoring Plan

Prepared for:

Sacramento Municipal Utility District
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June 2010

MITIGATION MONITORING PLAN

Introduction

The Sacramento Municipal Utility District (SMUD) included a series of mitigation measures in the Initial Study/Mitigated Negative Declaration (IS/MND) for the SMUD Nature Preserve Mitigation Bank (also referred to as the "Proposed Project") to minimize potential environmental impacts during project construction and operation. Those measures are incorporated into this Mitigation Monitoring Plan and are listed in Table 1.

This mitigation monitoring plan will be used by SMUD to ensure that each mitigation measure, adopted as a condition of project approval, is implemented. This monitoring plan meets the requirements of the California Environmental Quality Act, Guidelines Section 14074(d), as amended, which mandates preparation of monitoring provisions for the implementation of mitigation assigned as part of project approval or adoption.

Mitigation Implementation and Monitoring

SMUD will be responsible for monitoring the implementation of mitigation measures designed to minimize impacts associated with the proposed project. While SMUD has ultimate responsibility for ensuring implementation, others have been assigned the responsibility of actually implementing the mitigation. SMUD will retain the primary responsibility for ensuring that the proposed project meets the requirements of this mitigation plan and other permit conditions imposed by participating regulatory agencies.

SMUD will designate specific personnel who will be responsible for monitoring implementation of the mitigation that will occur during project construction. The designated personnel will be responsible for submitting all documentation and reports to SMUD on a timely basis and in a manner necessary for demonstrating compliance with mitigation requirements. SMUD will ensure that the designated personnel have authority to require implementation of mitigation requirements and will be capable of terminating project construction activities found to be inconsistent with mitigation objectives or project approval conditions.

SMUD will be responsible for demonstrating compliance with other agency permit conditions to the appropriate regulatory agency. SMUD will also be responsible for ensuring that its construction personnel understand their responsibilities for adhering to the performance requirements of the mitigation plan and other contractual requirements related to the implementation of mitigation as part of project construction.

In addition to the prescribed mitigation measures, Table 1 lists the corresponding monitoring and reporting requirement, and the party responsible for ensuring implementation of the mitigation measure and monitoring effort.

Mitigation Enforcement

SMUD will be responsible for enforcing all mitigation measures. If alternative measures are identified that would be equally effective in mitigating the identified impacts, implementation of these alternative measures will not occur until agreed upon by SMUD.

Table 1. Mitigation Monitoring for the SMUD Nature Preserve Mitigation Bank Project

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
Air Quality and Greenhouse Gas			
AIR-1 The following SMAQMD-recommended emissions control measures shall be implemented during construction: ▪ When in use, water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads. ▪ Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material to or from the site. Cover any haul trucks that would be traveling along freeways or major roadways. ▪ Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent paved public roads, when necessary. Use of dry power sweeping is prohibited. ▪ Limit vehicle speeds on unpaved roads to 15 mph. ▪ Minimize idling time either by shutting equipment off when not in use or reducing idling time to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the CCR]). Provide clear signage that posts this requirement for workers at the entrances to the site. ▪ Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked and determined to be running in proper condition before it is operated. In addition to the above SMAQMD-recommended mitigation measures, the following additional mitigation measures shall also be implemented during construction: ▪ The area of active daily disturbance shall be minimized to the maximum extent practicable and shall not exceed 15 acres per day. ▪ Stationary equipment (e.g., portable generators) shall use alternative fuels, such as propane or solar, or use electrical power, to the extent practical. ▪ Construction employees shall be encouraged to carpool to the Proposed Project site.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
AIR-1 (continued) ▪ In the event that a temporary construction office/trailer is to be installed at the site, the construction office shall be equipped with energy-efficient lighting and appliances. ▪ Newer or low-emission offroad construction equipment shall be utilized, to the extent practicable. Examples include, but are not limited to, the use of electric-powered equipment or use of diesel-fueled equipment that would comply with USEPA Tier 2 emissions standards (i.e., post-model year 2001 for 300- to 600-horsepower (-HP) engines, and post-model year 2003 for 100- to 300-HP engines), or newer.			
Biology			
BIO-1 Prior to the start of wetland construction, final construction plans/drawings shall be developed that show the limits of the designated work area, approved access routes, and existing sensitive habitats (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes) to be avoided. These areas shall be clearly identified in the field using flags, signs, or fencing (with highly visible markers). Signs or flagging shall be posted every 100 feet and fencing shall consist of 4-foot-high orange construction barrier fencing or sediment fencing. After initial installation, flags, signs, and fencing shall be maintained throughout the construction work period and properly removed when construction is complete.	During design phase, prior to the start of construction activities, and ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-2 Prior to the start of any ground-disturbing activities associated with installation of burrowing owl nest boxes, acorn/tree plantings, and fence construction, the designated work zone shall be determined by the contractor and a qualified biologist with the intent of avoiding existing sensitive habitats (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes). The work zone shall be adequately flagged or fenced in the field to limit construction equipment and personnel to the minimum area necessary to perform the proposed work.	Prior to the start of construction activities and ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
BIO-3 Before the start of any construction (including equipment staging), all construction personnel shall participate in environmental awareness training regarding sensitive biological resources present on the Proposed Project site (i.e., special-status plant and wildlife occurrences, wetlands, active bird nests, and burrow complexes). Environmental awareness training shall be given by a biologist knowledgeable of the special-status species and their habitats known or with potential to occur on the Proposed Project site. The training program shall include information related to species identification, habitat characteristics, areas of avoidance, permit conditions and mitigation measures, and penalties for not complying with applicable state and federal laws. As part of the training, an environmental awareness handout that illustrates the resources to be avoided and summarizes the information provided during the training shall be distributed to all personnel. If new construction personnel are present, the contractor shall ensure that these individuals receive the mandatory training before beginning work. All construction personnel who attend the environmental awareness training shall be required to sign a training log, which shall be maintained by SMUD for 1 year following construction.	Prior to the start of construction activities and ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-4 All ground-disturbing activities associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing fences shall be restricted to the dry season (generally between May 1 and October 15) to minimize potential direct and indirect effects on adjacent wetlands that provide habitat for special-status plants and wildlife and to avoid migrating adult California tiger salamanders.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-5 All equipment storage, servicing, refueling, staging, and vehicle parking shall be restricted to staging areas. No refueling, storage, servicing, or maintenance of construction equipment shall be conducted within 50 feet of waters of the U.S., including wetlands. All construction equipment shall be stored overnight within the staging areas.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-6 An agency-approved biologist shall be retained to monitor all ground-disturbing construction activities that occur within the Proposed Project site. The purpose of this monitoring effort is to ensure that special-status wildlife are not inadvertently killed during ground-disturbing activities and that wetlands that provide habitat for special-status plant and wildlife species are not affected. The biological monitor shall have the authority to stop construction activities if any of the approved mitigation measures are not being properly implemented or if activities are observed that may result in adverse effects to special-status species or habitat not covered by applicable project permits.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
BIO-7 Upon completion of ground-disturbing activities, disturbed areas shall be reseeded, with either a native seed mix or seeds collected from onsite sources, and mulched. This will reduce the potential for sedimentation in constructed and nearby existing wetlands during the rainy season.	Upon completion of ground disturbing activities	Ongoing throughout the construction period	Biologist and SMUD
BIO-8 If at any time the agency-approved biologist believes that unauthorized take of a state- or federally listed species (i.e., Sacramento Orcutt grass, Boggs Lake hedge hyssop, vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander) or habitat has occurred, or if California tiger salamander are encountered during construction, all activities shall cease within the immediate area and the USFWS and/or CDFG, as appropriate for the species, shall be contacted for additional guidance. Any person capturing or handling a California tiger salamander shall be approved by USFWS and CDFG.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-9 All food-related garbage shall be placed in tightly sealed containers at the end of each workday to avoid attracting predators. Containers shall be emptied and garbage removed from the construction site at the end of each work week. If sealed containers are not available, garbage shall be removed from the construction site upon completion of daily activities. All garbage removed from the construction site shall be disposed of at an appropriate offsite refuse location.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-10 A preconstruction California tiger salamander survey shall be conducted within 1 week preceding ground-disturbing activities associated with constructing wetlands, installing burrowing owl nest boxes, planting acorns/trees, and constructing fences. An agency-approved biologist shall inspect the area of proposed ground disturbance to identify and flag all fossorial mammal burrows that could be used by California tiger salamanders. A qualified biologist is any person who has completed at least 4 years of university training in wildlife biology or a related science, or has demonstrated field experience in the identification and life history of federally listed species occurring or with the potential to occur at the Proposed Project site. Resumes of biologists proposed to capture or handle federally listed species during construction shall be submitted to DFG and USFWS for approval no later than 30 days before the start of construction. To the maximum extent possible, flagged burrows shall be avoided. Where avoidance is not feasible, burrows shall be scoped and/or hand excavated to ensure that they are not occupied by California tiger salamanders. If any salamanders are found during the preconstruction survey, the agency-approved biologist shall relocate the salamander(s) to a nearby suitable burrow within the Proposed Project site but outside the construction work area.	Obtain approval for biologists within 30 days from start of construction and conduct survey within one week before the start of construction	Prior to construction	Biologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
BIO-11 Because dusk and dawn are often the times when California tiger salamanders are most actively foraging and dispersing, all construction activities conducted during the juvenile migration period (approximately May to July) should cease 30 minutes before sunset and should not begin less than 30 minutes after sunrise.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-12 If any project development activities require excavation of pits or trenches, these areas shall be closely monitored by a biological monitor for the purpose of clearing, removing, salvaging, or excluding wildlife from the construction area. To minimize mortality in open pits or trenches, egress ramps shall be constructed at either end of the open trench or pit to allow wildlife escape routes. Where feasible, open trenches or pits would be covered at the end of each construction day; where this is not feasible (i.e., extensive or wide-open trenches) trenches would be surveyed prior to the start of construction by a qualified biologist, each morning, to capture and remove any trapped wildlife.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-13 Prior to movement of construction equipment (including vehicles, pipes, storage containers) at the beginning of each workday, an agency-approved biologist (familiar with identification of California tiger salamanders) shall inspect all areas under and surrounding the equipment left onsite overnight. If any California tiger salamanders are observed during these inspections, movement of equipment shall not be allowed until the animal(s) passively leave the staging or work area or are relocated by a qualified biologist.	Ongoing throughout the construction period	Ongoing throughout the construction period	Biologist and SMUD
BIO-14 If necessary, for erosion control or other purposes, netted material shall be tightly woven fiber netting or similar to ensure that California tiger salamanders are not trapped. This limitation shall be communicated to the contractor by specifying special provisions in the bid solicitation package. Coconut coir matting is an acceptable erosion control material. No plastic monofilament matting shall be used for erosion control.	Ongoing throughout the construction period and during implementation of storm water monitoring	Ongoing throughout the construction period	Biologist and SMUD
BIO-15 Prior to dewatering any wetlands to remove non-native fish and bullfrogs, a dip-net survey shall be conducted by a qualified biologist to look for California tiger salamander larvae. If California tiger salamander larvae are found within a wetland, dewatering activities shall not be conducted.	Prior to dewatering activities for habitat enhancement	Ongoing throughout the construction period	Biologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
BIO-16 Dewatering activities shall occur at the end of the summer season (August through September), when large branchiopods have completed their life cycles and California tiger salamander larvae are likely to have metamorphosed.	During dewatering activities	Ongoing throughout the construction period	Biologist and SMUD
BIO-17 Prior to any ground disturbance within annual grassland habitat, a qualified biologist shall conduct a preconstruction survey to locate any burrowing owl burrows within the designated construction area and within a 500-foot-wide buffer around this area. The preconstruction survey shall be conducted in accordance with guidelines provided in CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 1995) and no more than 30 days before the start of construction activities (including grading and equipment staging). If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected in the survey area, the following measures shall be implemented. ▪ Occupied burrows shall not be disturbed during the breeding season (generally February 1–August 30). ▪ When destruction of occupied burrows is unavoidable during the non-breeding season (September 1–January 31), the biologist shall coordinate with CDFG and unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on protected areas on the Proposed Project site. If required, newly created burrows shall be conducted within designated wildlife enhancement areas (Figure 9) and shall follow guidelines established by CDFG. ▪ If owls must be moved away from the construction area during the non-breeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping. At least 1 week between passive relocation and burrow closure shall occur to allow owls to acclimate to the alternate burrows.	Prior to the start of construction activities and during any ground disturbance	During burrowing owl breeding season	Biologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
BIO-18 If construction (including equipment staging) associated with implementation of the Proposed Project shall occur during the breeding season for migratory birds and raptors (generally between March 1 and August 30), a qualified biologist shall conduct a preconstruction nesting bird and raptor survey before the onset of construction activities. The preconstruction nesting bird and raptor surveys shall be conducted between March 1 and August 30 within the area proposed for ground disturbance and up to 0.5 mile from proposed construction to ensure that nesting raptors, including Swainson's hawks are not indirectly affected by construction noise. The survey shall be conducted no more than 1 week before the initiation of construction activities. If no active nests are detected during the survey, no additional mitigation is required and construction can proceed. If migratory birds or raptors are found to be nesting in or adjacent to the construction area, a no-disturbance buffer shall be established around the nest to avoid disturbance of the nest site. The buffer shall be maintained around the nest site until the end of the breeding season or until a qualified biologist determines that the young have fledged and are foraging on their own. The extent of these buffers shall be determined by the biologist (coordinating with CDFG) and shall depend on the species identified, level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.	Prior to the start of construction activities planned between March 1 and August 30	Once between March 1 and August 31	Biologist and SMUD
Cultural Resources			
CUL-1 The northern portion of the Proposed Project site holds the most potential for uncovering prehistoric cultural resources. If possible, soil disturbance in this area should be avoided. If avoidance is not possible, a qualified archaeologist must be present during any ground disturbance or excavation. This area includes that portion of the Proposed Project site north of latitude 38° 20' 37.00" N or UTM 424560 N (Zone 10). This east-west line would occur approximately just north of the onsite reservoir that exists roughly 1,000 feet northwest of the lake and approximately 2,000 feet southeast of the ranch buildings adjacent to the northwest portion of the Proposed Project site.	During design and ongoing throughout the construction period	Ongoing throughout the construction period	Archaeologist and SMUD
CUL-2 Prior to working onsite, individuals who are involved in soil moving and handling must attend environmental-awareness training provided by a qualified professional archaeologist. This training would provide information on the types and extent of cultural resources that may be located onsite. Individuals conducting any excavation or other substantial subsurface disturbance activities onsite shall also attend the environmental-awareness training.	Prior to the start of construction activities	Ongoing throughout the construction period	Archaeologist and SMUD

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
CUL-3 Should any evidence of prehistoric or historic cultural resources be discovered during excavation or other substantial subsurface disturbance activities, all work should immediately cease, and a qualified archaeologist must be consulted to assess the significance of the cultural materials.	Ongoing throughout the construction period	Ongoing throughout the construction period	Archaeologist and SMUD
CUL-4 If human remains are discovered during excavation or other substantial subsurface disturbance activities, all work must immediately cease and the local coroner must be contacted. Should the remains prove to be of cultural significance, the Native American Heritage Commission in Sacramento, California, must be contacted with additional notification going to the most likely descendants, the Ione Band of Miwok Indians located in Ione, California.	Ongoing throughout the construction period	Ongoing throughout the construction period	Archaeologist and SMUD
Geology, Soils, Hydrology, and Water Quality			
GEO-1 Before any ground-disturbing activities, SMUD shall prepare and implement a SWPPP (as required under SWRCB's General Construction Permit Order 2009-0009-DWQ, which will go into effect July 1, 2010) that includes erosion control measures and construction waste containment measures to ensure that waters of the U.S., including wetlands, and the State are protected during and after project construction. The SWPPP shall include site design measures to minimize offsite storm water runoff that might otherwise affect surrounding habitats. The SWPPP shall be prepared with the following objectives: (a) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the project; (b) to identify best management practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the site during construction; (c) to outline and provide guidance for BMPs monitoring; (d) to identify project discharge points and receiving waters; (e) to address post-construction BMPs implementation and monitoring; and (f) to address sedimentation, siltation, turbidity, and non-visually detectable pollutant monitoring, and outline a sampling and analysis strategy. SMUD shall implement the SWPPP including all BMPs and perform inspections of all BMPs. Before October 15, all upland exposed soil shall be seeded and mulched.	During design phase and ongoing throughout the construction period until site is stabilized	Ongoing throughout the construction period until site is stabilized	SMUD
GEO-2 Excavated and stored construction materials and soil stockpiles shall be staged in stable upland areas.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD and biologist

Mitigation Measure	Implementation Duration	Monitoring Duration	Responsibility
Hazards and Hazardous Materials			
HAZ-1 Inspect equipment containing hazardous materials daily for signs of spills or leakage. A spill response kit shall be kept on the construction site at all times and shall include oil absorbent materials (i.e., pads, pillows, and socks) and disposable bags. If an accidental release of petroleum fuel occurs during refueling or a spill occurs during construction of the Proposed Project, the release shall be cleaned up immediately and hazardous materials shall be removed from the site, disposed of at an approved hazardous materials acceptance facility, and reported in accordance with SMUD Environmental Management Procedure EM 2-08.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD
HAZ-2 No soil disturbance shall occur within 100 feet of placer mine features.	Ongoing throughout the construction period	Ongoing throughout the construction period	Archaeologist and SMUD
HAZ-3 No smoking in open areas or near fuel tanks shall occur, spark arrestors will be present on equipment, and fire extinguishers will be onsite at all times during construction.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD
Noise			
NOISE-1 Noise-generating construction operations shall be limited to between the hours of 6 a.m. and 8 p.m., Monday through Friday, and 7 a.m. to 8 p.m. on Saturday and Sunday.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD
NOISE-2 Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.	Ongoing throughout the construction period	Ongoing throughout the construction period	SMUD

Appendix B. Air Quality Modeling Data

5/28/2010 9:04:36 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\SMUD NaturePreserve.urb924

Project Name: SMUD Nature Preserve Construction-Wetland Construction

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	7.14	62.75	30.17	0.00	280.01	2.84	282.37	58.48	2.61	60.66	6,035.07
2010 TOTALS (lbs/day mitigated)	7.14	62.75	30.17	0.00	29.96	2.84	32.32	6.26	2.61	8.43	6,035.07

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

5/28/2010 9:04:36 AM

Time Slice 7/5/2010-7/9/2010 Active Days: 5	5.85	51.44	23.75	0.00	**280.01**	2.37	**282.37**	**58.48**	2.18	**60.66**	5,072.96
Mass Grading 07/05/2010-07/09/2010	5.85	51.44	23.75	0.00	280.01	2.37	282.37	58.48	2.18	60.66	5,072.96
Mass Grading Dust	0.00	0.00	0.00	0.00	280.00	0.00	280.00	58.48	0.00	58.48	0.00
Mass Grading Off Road Diesel	5.81	51.37	22.14	0.00	0.00	2.36	2.36	0.00	2.17	2.17	4,905.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.07	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	167.48
Time Slice 7/12/2010-7/27/2010 Active Days: 12	**7.14**	**62.75**	**30.17**	**0.00**	123.41	**2.84**	126.25	25.77	**2.61**	28.39	**6,035.07**
Fine Grading 07/12/2010-07/27/2010	7.14	62.75	30.17	0.00	123.41	2.84	126.25	25.77	2.61	28.39	6,035.07
Fine Grading Dust	0.00	0.00	0.00	0.00	123.40	0.00	123.40	25.77	0.00	25.77	0.00
Fine Grading Off Road Diesel	7.09	62.67	28.29	0.00	0.00	2.84	2.84	0.00	2.61	2.61	5,839.68
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	195.39
Time Slice 7/28/2010-7/29/2010 Active Days: 2	2.79	22.93	10.13	0.00	250.01	1.20	251.21	52.21	1.11	53.32	2,414.15
Fine Grading 07/28/2010-07/29/2010	2.79	22.93	10.13	0.00	250.01	1.20	251.21	52.21	1.11	53.32	2,414.15
Fine Grading Dust	0.00	0.00	0.00	0.00	250.00	0.00	250.00	52.21	0.00	52.21	0.00
Fine Grading Off Road Diesel	2.75	22.87	8.78	0.00	0.00	1.20	1.20	0.00	1.10	1.10	2,274.59
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.56

Time Slice 7/30/2010-8/4/2010 Active Days: 4	1.12	8.84	4.23	0.00	0.00	0.51	0.51	0.00	0.47	0.47	923.18
Fine Grading 07/30/2010-08/04/2010	1.12	8.84	4.23	0.00	0.00	0.51	0.51	0.00	0.47	0.47	923.18
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.11	8.82	3.69	0.00	0.00	0.51	0.51	0.00	0.47	0.47	867.35
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.02	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.83

Phase Assumptions

Phase: Fine Grading 7/12/2010 - 7/27/2010 - Wetland Excavation

Total Acres Disturbed: 74

Maximum Daily Acreage Disturbed: 6.17

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 7/28/2010 - 7/29/2010 - Wetland Contouring

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 12.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 7/30/2010 - 8/4/2010 - Burrowing Owl Nest Box Const

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 7/5/2010 - 7/9/2010 - Initial Site Prep

Total Acres Disturbed: 70

Maximum Daily Acreage Disturbed: 14

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 7/5/2010-7/9/2010 Active Days: 5	5.85	51.44	23.75	0.00	29.96	2.37	32.32	6.26	2.18	8.43	5,072.96
Mass Grading 07/05/2010-07/09/2010	5.85	51.44	23.75	0.00	29.96	2.37	32.32	6.26	2.18	8.43	5,072.96
Mass Grading Dust	0.00	0.00	0.00	0.00	29.95	0.00	29.95	6.25	0.00	6.25	0.00
Mass Grading Off Road Diesel	5.81	51.37	22.14	0.00	0.00	2.36	2.36	0.00	2.17	2.17	4,905.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.07	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	167.48
Time Slice 7/12/2010-7/27/2010 Active Days: 12	**7.14**	**62.75**	**30.17**	**0.00**	13.21	**2.84**	16.05	2.76	**2.61**	5.37	**6,035.07**
Fine Grading 07/12/2010-07/27/2010	7.14	62.75	30.17	0.00	13.21	2.84	16.05	2.76	2.61	5.37	6,035.07
Fine Grading Dust	0.00	0.00	0.00	0.00	13.20	0.00	13.20	2.76	0.00	2.76	0.00
Fine Grading Off Road Diesel	7.09	62.67	28.29	0.00	0.00	2.84	2.84	0.00	2.61	2.61	5,839.68
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.88	0.00	0.01	0.00	0.01	0.00	0.00	0.01	195.39
Time Slice 7/28/2010-7/29/2010 Active Days: 2	2.79	22.93	10.13	0.00	26.75	1.20	27.95	5.59	1.11	6.69	2,414.15
Fine Grading 07/28/2010-07/29/2010	2.79	22.93	10.13	0.00	26.75	1.20	27.95	5.59	1.11	6.69	2,414.15
Fine Grading Dust	0.00	0.00	0.00	0.00	26.74	0.00	26.74	5.58	0.00	5.58	0.00
Fine Grading Off Road Diesel	2.75	22.87	8.78	0.00	0.00	1.20	1.20	0.00	1.10	1.10	2,274.59
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.56

Time Slice 7/30/2010-8/4/2010 Active Days: 4	1.12	8.84	4.23	0.00	0.00	0.51	0.51	0.00	0.47	0.47	923.18
Fine Grading 07/30/2010-08/04/2010	1.12	8.84	4.23	0.00	0.00	0.51	0.51	0.00	0.47	0.47	923.18
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.11	8.82	3.69	0.00	0.00	0.51	0.51	0.00	0.47	0.47	867.35
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.02	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.83

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 7/12/2010 - 7/27/2010 - Wetland Excavation

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Fine Grading 7/28/2010 - 7/29/2010 - Wetland Contouring

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 7/5/2010 - 7/9/2010 - Initial Site Prep

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\SMUD NaturePreserve HabitatFencing.urb924

Project Name: SMUD Nature Preserve Construction-Installation of Fencing and Trees

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	0.90	10.10	3.88	0.00	0.00	0.33	0.33	0.00	0.30	0.31	1,373.96

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 8/6/2010-8/17/2010 Active Days: 8	0.53	3.10	2.01	0.00	0.00	0.28	0.28	0.00	0.26	0.26	272.70
Fine Grading 08/06/2010-08/17/2010	0.53	3.10	2.01	0.00	0.00	0.28	0.28	0.00	0.26	0.26	272.70
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.52	3.09	1.74	0.00	0.00	0.28	0.28	0.00	0.26	0.26	244.79
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.91

Time Slice 8/23/2010-9/1/2010 Active Days: 8	**0.90**	**10.10**	**3.88**	**0.00**	**0.00**	**0.33**	**0.33**	**0.00**	**0.30**	**0.31**	**1,373.96**
Fine Grading 08/23/2010-09/01/2010	0.90	10.10	3.88	0.00	0.00	0.33	0.33	0.00	0.30	0.31	1,373.96
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.88	10.06	3.07	0.00	0.00	0.33	0.33	0.00	0.30	0.30	1,290.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.81	0.00	0.00	0.00	0.01	0.00	0.00	0.00	83.74
Time Slice 9/2/2010-12/7/2010 Active Days: 69	0.76	8.59	3.15	0.00	0.00	0.28	0.28	0.00	0.26	0.26	1,153.89
Fine Grading 09/02/2010-12/07/2010	0.76	8.59	3.15	0.00	0.00	0.28	0.28	0.00	0.26	0.26	1,153.89
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.75	8.56	2.62	0.00	0.00	0.28	0.28	0.00	0.26	0.26	1,098.06
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.02	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.83

Phase Assumptions

Phase: Fine Grading 8/6/2010 - 8/17/2010 - Fencing

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

Phase: Fine Grading 8/23/2010 - 9/1/2010 - Planting

Total Acres Disturbed: 0

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Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

3 Other Equipment (190 hp) operating at a 0.62 load factor for 4.7 hours per day

Phase: Fine Grading 9/2/2010 - 12/7/2010 - Irrigation System

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Other Equipment (190 hp) operating at a 0.62 load factor for 6 hours per day

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\KURT\AppData\Roaming\Urbemis\Version9a\Projects\SMUD NaturePreserve Maintenance.urb924

Project Name: SMUD Nature Preserve Construction-Long-term Maintenance

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	1.85	20.88	7.55	0.00	0.00	0.67	0.67	0.00	0.61	0.61	3,039.89

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-1/7/2011 Active Days: 5	**1.85**	**20.88**	**7.55**	**0.00**	**0.00**	**0.67**	**0.67**	**0.00**	**0.61**	**0.61**	**3,039.89**
Fine Grading 01/03/2011-01/07/2011	1.85	20.88	7.55	0.00	0.00	0.67	0.67	0.00	0.61	0.61	3,039.89
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.83	20.84	6.56	0.00	0.00	0.66	0.66	0.00	0.61	0.61	2,928.17
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	0.99	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.73

Phase Assumptions

Phase: Fine Grading 1/3/2011 - 1/7/2011 - Long Term Maintenance

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

Appendix C. Greenhouse Gas Emissions Modeling Data

GHG EMISSIONS

MODELING ASSUMPTIONS

Construction Phase/Activity	Daily Area of Disturbance	Duration (Days)	Equipment Required	Phase/Year	
Wetland Construction					
Initial Site Preparation	14 Acres	5	2 Tractors	Const Year 1	
			2 Scrapers		
			2 Water Trucks		
Wetland Excavation	6.2 Acres	12	2 Tractors	Const Year 1	
			2 Scrapers		
			1 Ripper		
			2 Water Trucks		
Final Contouring	12.5 Acres	2	2 Tractors	Const Year 1	
			1 Hydroseed		
			2 Water Trucks		
Burrowing Owl Nest Box Construction	Minimal	6	1 Backhoe	Const Year 1	
Fencing	Minimal	8	1 Compressor	8 Days for Const Year 1	
		2	1 Compressor	2 Days for Const Year 2-5	
Tree Planting					
Planting Acorns/Saplings	Minimal	8	1 Auger	Const Year 1-5	
			2 ATVs (3 hours/day)		
Irrigation System	Minimal	4	2 ATVs (4 hours/day)	Const Year 1-5	
Long-Term Maintenance	Minimal	8	2 ATVs	Operational	
			2 Weedeaters		

Construction-Generated Greenhouse Gas Emissions

	Construction Year 1			Construction Year 2			Construction Year 3			Construction Year 4		
Construction Phases/Activities	**Days/Year**	**lbs/day**	**MTCO2e/year**	**Days/Year**	**lbs/day**	**MTCO2e/year**	**Days/Year**	**lbs/day**	**MTCO2e/year**	**Days/Year**	**lbs/day**	**MTCO2e/year**
Wetland Construction												
Initial Site Preparation	5	5072.96	1.23	0	5072.96	0.00	0	5072.96	0.00	0	5072.96	0.00
Excavation of Wetlands	12	6035.07	3.52	0	6035.07	0.00	0	6035.07	0.00	0	6035.07	0.00
Final Contouring	2	2414.15	0.23	0	2414.15	0.00	0	2414.15	0.00	0	2414.15	0.00
Burrowing Owl Nest Box Construction	6	923.18	0.27	0	923.18	0.00	0	923.18	0.00	0	923.18	0.00
Fencing	8	272.70	0.11	2	272.70	0.03	2	272.70	0.03	2	272.70	0.03
Planting	8	1373.96	0.53	8	1373.96	0.53	8	1373.96	0.53	8	1373.96	0.53
Irrigation System	4	1153.89	0.22	4	1153.89	0.22	4	1153.89	0.22	4	1153.89	0.22
Maintenance	0	0.00	0.00	0		0.00	0		0.00	0		0.00
Total Annual Emissions:			6.12			0.79			0.79			0.79

Construction Phases/Activities	Construction Year 5			Long-term Operational			Carbon Sequestration		
	Days/Year	lbs/day	MTCO2e/year	Days/Year	lbs/day	MTCO2e/year			
Wetland Construction							Seedling to Standard Age:		6 Years
Initial Site Preparation	0	5072.96	0.00	0	5072.96	0.00	Total Trees Planted:		3,920
Excavation of Wetlands	0	6035.07	0.00	0	6035.07	0.00	Avg Planting/Yr:		784
Final Contouring	0	2414.15	0.00	0	2414.15	0.00	Tree Type:		Hardwood
Burrowing Owl Nest Box Construction	0	923.18	0.00	0	923.18	0.00	Growth Rate:		Medium
Fencing	2	272.70	0.03	0	272.70	0.00			
Planting	8	1373.96	0.53	0	1373.96	0.00			
Irrigation System	4	1153.89	0.22	0	1153.89	0.00	**Sequestration (Total MTCO2e/Yr)**		
Maintenance	0		0.00	8	3039.89	1.18	2015	2020	2025
Total Annual Emissions:			0.79			1.18	2.16	64.62	176.14

Appendix D. Noise Modeling Data

PREDICTED NOISE LEVELS

RECEPTOR	DISTANCE (MILES)
CARETAKER RESIDENCE	0.89
RURAL RESIDENCE	1.7
CAMPGROUND	0.47

EQUIPMENT	SPEC LMAX
SCRAPER	85
SCRAPER	85

RESULTS	LMAX	LEQ
CARETAKER RESIDENCE	45.5	44.6
RURAL RESIDENCE	39.9	35.9
CAMPGROUND	50.5	49.6

*Modeling assumes the two loudest pieces of equipment used during the construction phases.