City of Oakley
A Place for Families in the Heart of the Delta

East Cypress Corridor Specific Plan - Draft EIR

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TABLE of CONTENTS

Volume 1

Volume 2

Appendices

LIST of FIGURES

Figure

LIST of TABLES

1.0 Introduction, Scope of EIR, and Executive Summary

1.0 INTRODUCTION, SCOPE OF EIR, AND EXECUTIVE SUMMARY

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1.0.1 INTRODUCTION

The East Cypress Corridor Specific Plan Draft Environmental Impact Report (DEIR) is prepared in accordance with the California Environmental Quality Act of 1970 (CEQA) as amended, January 1, 2005. The City of Oakley is the lead agency for the environmental review of the East Cypress Corridor Specific Plan project evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this Draft EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives that reduce environmental effects. The public agency shall consider the information in the Draft EIR along with other information that may be presented to the agency.

1.0.1.1 BRIEF EAST CYPRESS CORRIDOR SPECIFIC PLAN PROJECT DESCRIPTION

Project Location

The East Cypress Corridor Specific Plan site is located in eastern Contra Costa County as shown in Figure 1-1, Regional Location Map. More specifically, the project is located east of the City of Oakley as shown in Figure 1-2, Local Vicinity Map. The project totals approximately 2,546 acres and includes vacant land, agricultural land, single-family homes, commercial use, overhead power lines, natural gas wells, natural gas pipelines, irrigation canals, and the Summer Lake (formerly Cypress Lake and Country Club) project, which is currently under construction. The topography of the project site and the surrounding area is shown in Figure 1-3, USGS Topographic Map. An aerial photograph of the site and the area immediately surrounding the site is shown in Figure 1-4, Aerial Photograph.

East Cypress Corridor Specific Plan

The East Cypress Corridor Specific Plan proposes planned development of mixed-uses for the 2,546-acre site. The project proposes to allow up to 5,609[1] residential units (detached and attached units), 92.6 acres of commercial use (638,600 square feet), 52.6 acres of public schools (2 elementary, one middle), 152.3 acres of man-made lake, 190 acres of open space/easements, 20.5 acres of existing and proposed gas well sites, 122.1 acres of wetlands/dunes, 112.5 acres of flood-control levees (46,100 linear feet), 101.7 acres of parks (neighborhood and community), 5.7 acres of light industrial use (166,356 square feet), 37.3 acres of commercial recreation (162,500 square feet) and a 6-acre beach club. The land use plan is shown in Figure 1-5, East Cypress Corridor Specific Plan Land Use Plan Map.

[1] 150 residential units may replace up to 20 acres of the 40 net acres of the Village Center site, which results in a maximum development of 5,759 residential units.

Planning Areas

The East Cypress Corridor Specific Plan is divided into six Planning Areas (PAs) as shown in Figure 1-6, East Cypress Corridor Specific Plan Planning Areas. PAs 1, 3, and 4 have site-specific plans for their development. The EIR evaluates the development of PAs 1, 3, and 4 at a project level analysis based on the specific development plan proposed for these planning areas. Figures 1-7, 1-8, and 1-9 show the proposed development plans for PAs 1, 3 and 4, respectively.

Planning Area 6 includes property that is developed or not proposed for development at this time, thus no development plans have been prepared and are proposed for any property in PA 6. The EIR evaluates the potential development of the property in PA 6 based on the Oakley General Plan land use designations at a Program level. Planning Area 6 is shown in Figure 1-10. Site specific development plans for the development of property in PA 6 in the future would require additional environmental analysis required by the California Environmental Quality Act (CEQA).

Summer Lake

The East Cypress Corridor Specific Plan includes the previously approved Summer Lake (formerly known as Cypress Lake and Country Club) project that comprises Planning Areas 2 and 5. The project developer of Summer Lake, Shea Homes, proposes changes to PA 2, which is the area north of East Cypress Road. The proposed changes include the elimination of the 18-hole golf course and in its place construct a 20-acre middle school, 113 residential units, 10,000 square feet of commercial use and change 5.7 acres of Delta Recreation to Light Industrial land use. The 113 units proposed for PA 2 are in addition to the 1,330 total units approved for the Summer Lake project (PA 2 and PA 5) by the County in 1993. The Summer Lake development plan currently allows the development of 1,330 residential units with 628 units approved for PA 5 and 702 units for PA 2. The proposed changes to PA 2 would allow the development of an additional 113 residential units for PA 2.

The East Cypress Corridor Specific Plan EIR evaluates the proposed land use changes described above for PA 2 at a program level analysis. Final development plans for PA 2 in the future may require additional environmental analysis pursuant to CEQA. The proposed development plan for PA 2 of the Summer Lake project is shown in Figure 1-11, Proposed Summer Lake. No additional units or any other changes are proposed to PA 5, which is currently under construction. Planning Area 5 is shown in Figure 1-12. Therefore, this EIR does not provide any environmental analysis of the existing development approved by the County for PA 5.

Contra Costa Local Agency Formation Commission (LAFCO) Annexation

The East Cypress Corridor Specific Plan area would require the approval from the Contra Costa Local Agency Formation Commission (LAFCO) to be annexed into the City of Oakley. The project site is located outside the Oakley city limit boundary, but within the sphere of influence of the city. Therefore, the project would require annexation into the City of Oakley. The East Cypress Corridor Specific Plan Final Environmental Impact Report would serve as the required environmental document pursuant to CEQA for the annexation process of the project by LAFCO. The annexation process would include three concurrent boundary reorganization applications covering

the entire 2,546-acres, including annexation to the City of Oakley, Contra Costa Water District, and Diablo Water District.

1.0.1.2 PROJECT BACKGROUND

Prior to the city's incorporation July 1, 1999, Contra Costa County was responsible for planning and land use in Oakley. Such activities were guided by the 1996 Contra Costa County General Plan. Upon incorporation, the City of Oakley adopted the County General Plan as the City's General Plan, as well as the County Zoning Code and other County regulations.

In 2002, the City of Oakley adopted its own General Plan – The Oakley 2020 General Plan. As part of the General Plan, the City prepared an Oakley 2020 General Plan Background Report. An Environmental Impact Report (EIR) for the General Plan was adopted and certified concurrently with the adoption of the Oakley 2020 General Plan. The Background Report is used in this Draft EIR as a source for descriptive text and not for policy or General Plan determinations.

The City of Oakley city limit boundary and its Sphere of Influence (SOI) were originally coterminous. Oakley expressed an interest to expand its SOI beyond the city limit boundary to the area east of the city in two locations: (1) A 155 acre area located southeast of the intersection of East Cypress and Sellers Avenue; and (2) a 2,546 acre area directly east of the eastern portion of the City. These areas are referred in the Oakley General Plan as Expansion Areas. The East Cypress Corridor Specific Plan comprises the 2,546 acre are referred to in the Oakley General Plan as one of the Expansion Areas. The land within the existing City limits along with the land in the Expansion Area constitutes Oakley's General Plan Planning Area. Figure 1-13, Oakley Sphere of Influence, shows the City of Oakley city limit boundary and its sphere of influence. As shown, the project site is within the city's sphere of influence.

The City of Oakley formally submitted an application to the Contra Costa County Local Agency Formation Commission (LAFCO) to include a portion of the Expansion Area in the City's Sphere of Influence. A portion of the 155-acre Expansion Area (88 acres located southeast of the Sellers and East Cypress Road intersection) and the 2,546-acre site (located east of Jersey Island Road, north of the Contra Costa Canal, east of the Delta slough and south of Delta Road) were formally approved for inclusion in the City of Oakley SOI on August 13, 2003.[2]

The application to LAFCO for the annexation of the proposed East Cypress Corridor Specific Plan site into the City of Oakley is pending upon certification of the Final EIR for the East Cypress Corridor Specific Plan and approval of the East Cypress Corridor Specific Plan. The EIR would serve as the environmental document for the annexation request.

1.0.1.3 EXISTING CONDITIONS

The existing conditions on the project site are shown in Figure 1-14, East Cypress Corridor Specific Plan Existing Conditions. As shown, the site has a variety of existing conditions including natural gas wells, overhead electrical lines, sensitive biological resources, etc. that somewhat constrain its

[2] Contra Costa Local Agency Formation Commission, Resolution No. 03-16.

development. These existing conditions have been taken into account as part of the process to plan its development.

1.0.2 PURPOSE OF THE EIR

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues.

CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed East Cypress Corridor Specific Plan, the City has determined that the proposed specific plan, annexation and other related proposals are a *project* within the definition of CEQA, which has the potential for resulting in significant environmental effects.

The EIR is an informational document that apprises decision-makers and the general public of the potential significant environmental effects of a proposed project. An EIR identifies possible means to minimize the significant effects and describes a reasonable range of feasible alternatives to the project. The lead agency for the project is the City of Oakley. As the lead agency, the City is required to consider the information in the EIR along with all other available information in deciding whether to approve the East Cypress Corridor Specific Plan project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts.

1.0.2.1 TYPE OF DOCUMENT

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. The Draft EIR that has been prepared for the East Cypress Corridor Specific Plan is a Program EIR pursuant to CEQA Guidelines §15168 and a Project EIR pursuant to CEQA Guidelines §15161.

Program EIR

A Program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with issuance or rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or; (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.[3]

There are advantages to preparing a Program EIR, which include: (1) provide an occasion for a more exhaustive consideration of effects and alternatives that will be practical in an EIR on an individual action; (2) ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis; (3) avoid duplicative reconsideration of basic policy considerations; (4) allow the lead

[3] California Environmental Quality Act Guidelines §15168 (a).

agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts; (5) allow reduction in paperwork.[4]

The Program EIR can be used with later activities. Subsequent activities in the program must be examined in the light of the Program EIR to determine whether an additional environmental document must be prepared: (1) if a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration; (2) if the agency finds that pursuant to CEQA Guidelines Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required; (3) an agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR, and no new environmental document would be required; (4) where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR; (5) a program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.[5]

The Program EIR can be referenced in conjunction with the development of properties within the specific plan in the future. A Program EIR can be used to simplify the task of preparing environmental documents on later parts of the specific plan. The Program EIR can: (1) provide the basis in an initial study for determining whether the later activity may have any significant effects; (2) be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole; (3) focus an EIR on a subsequent project to permit discussion solely of new effects which had not been considered before.[6]

Finally, using a Program EIR as CEQA compliance for later activities as part of the specific plan must be disclosed. When a law other than CEQA requires public notice when the agency later proposes to carry out or approve an activity within the program and to rely on the Program EIR for CEQA compliance, the notice for the activity shall include a statement that: (1) this activity is within the scope of the program approved earlier, and (2) the Program EIR adequately describes the activity for the purposes of CEQA.[7]

As discussed above, the preparation of a Program EIR for PA's 2 and 6 for the proposed East Cypress Corridor Specific Plan allows the potential impacts of the specific plan and annexation project to be evaluated in as much detail as possible on a larger scale along with evaluating cumulative effects and project alternatives that may not be practical on an individual project basis.

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[4] California Environmental Quality Act Guidelines §15168 (b).

[5] California Environmental Quality Act Guidelines §15168 (c).

[6] California Environmental Quality Act Guidelines §15168 (d).

[7] California Environmental Quality Act Guidelines §15168 (e).

The Program EIR also allows the lead agency, in this case the City of Oakley, to simplify the environmental process for individual projects in the future as allowed by CEQA.

Project EIR

The EIR also serves as a Project level EIR pursuant to CEQA Guidelines Section 15161 for PA's 1, 3 and 4 within the boundary of East Cypress Corridor Specific Plan. Detailed project information is available for the parcels proposed for development by KB Homes, D.R. Horton, and Bethel Island LLC. The EIR evaluates the environmental impacts associated with the development of PA's 1, 3 and 4 to the extent that more detailed project information is available for these planning areas than other areas of the site. The areas that are evaluated at the more detailed project level analysis include PAs 1, 3 and 4 as shown in Figure 1-6.

1.0.3 SUMMER LAKE – PROGRAMMATIC SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

The Summer Lake project (formerly known as Cypress Lake and Country Club) is located entirely within the boundary of the East Cypress Corridor Specific Plan. The Summer Lake project was approved by Contra Costa County in 1993. The first two phases of Summer Lake (PA 5) are currently under construction by Shea Homes. As part of the East Cypress Corridor Specific Plan, Shea Homes is proposing to revise the development plan for the northern area (PA 2) of their approved Cypress Lake project as discussed above. This EIR will, in conjunction with the East Cypress Corridor Specific Plan, evaluate the potential environmental impacts of the proposed changes to the northern portion of the Summer Lake project, which is PA 2. There are no proposed revisions to PA 5. Therefore, the EIR has no discussion or analysis for the existing development plan and current construction of PA 5.

The environmental impact analysis of the proposed changes to PA 2 of Summer Lake is being prepared as a Programmatic Supplemental EIR to the Cypress Lake and Country Club Project Final EIR that was certified in March 1993 (State Clearinghouse SCH#92023048) pursuant to CEQA Guidelines §15163. The Summer Lake Programmatic Supplemental EIR environmental analysis is included within each environmental discipline evaluated for the East Cypress Corridor Specific Plan under separate heading "Summer Lake – Supplemental EIR". All of the mitigation measures that were adopted by Contra Costa County upon the approval of the project continue to apply to the current development of Summer Lake, except as modified in this EIR. The prior EIR is on file with the City of Oakley Planning Department for reference.

1.0.4 EIR PROCESS

The EIR process begins with the decision by the lead agency (City of Oakley) to prepare an EIR, either during a preliminary review of a project or at the conclusion of an initial study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies, and when required, to the State Clearinghouse in the Office of Planning and Research (OPR), which will ensure that responsible State agencies reply within the required time. The State Clearinghouse assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Applicable agencies have 30 days to respond to the NOP, indicating, at a minimum, reasonable

alternatives and mitigation measures they wish to have explored in the Draft EIR and whether the agency will be a responsible agency or a trustee agency for the project.

The City of Oakley prepared three separate Notices of Preparation and Initial Studies for the East Cypress Corridor Specific Plan. The City mailed the first Notice of Preparation to the State Clearinghouse, surrounding cities and other interested parties for a 30-day review period that began September 2, 2004 and ended October 1, 2004. A copy of the Initial Study and Notice of Preparation are included as Appendix A, which is contained in Volume 2 of the Draft EIR. The City received fifteen letters with written comments regarding potential environmental impacts of the project. The agencies/individuals that submitted written comments include:

- State of California, Governor's Office of Planning and Research, State Clearinghouse, Scott Morgan, Project Analyst
- Contra Costa Water District, Jerry Brown, Director of Planning
- Sierra Club, San Francisco Bay Chapter, Mike Daley
- Greenbelt Alliance, David Reid, East Bay Field Representative
- Reclamation District 799, Barbara Burns, District Engineer
- Martin and Koren Logan, Sandmound residents
- Victoria Leydecker, Sandmound resident
- Antioch Unified School District, Timothy Forrester, Director of Facilities Finance
- Ironhouse Sanitary District, Charmin Roundtree-Baaqee, Consulting Engineer, RMC
- Tri Delta Transit, Justin R. Tracy, Intern
- Transamerica Minerals Company, Terry Allred, Vice President and Manager
- Caltrans, District 4, Timothy Sable, District Branch Chief
- Kerry & Associates
- Comcast, Rodney Cherry
- Robert Booher Consulting

The written comments received to the Notice of Preparation by the above parties are provided in Appendix B of Volume 2 of the Draft EIR.

1.0.5 SECOND NOTICE OF PREPARATION

The project description that was included in the first Notice of Preparation was revised, which prompted the preparation and public review of a second Notice of Preparation. The 30-day public review period for the second Notice of Preparation began December 2, 2004 and ended December 31, 2004. The second Notice of Preparation and Initial Study were mailed to all Responsible Agencies and interested persons that received the first Notice of Preparation. In addition, the second Notice of Preparation was sent to all attendees at the first scoping meeting, described below.

A copy of the second Notice of Preparation and Initial Study are included as Appendix C of Volume 2 of the Draft EIR.

The City received twenty-five letters with written comments regarding potential environmental impacts of the project during the second Notice of Preparation review period. The agencies/individuals that submitted written comments include:

- Contra Costa County Flood Control, Tim Jensen, Associate Engineer
- Sierra Club, San Francisco Bay Chapter, Tim Donahue, Chairman of the Delta Group
- Greenbelt Alliance, David Reid, East Bay Field Representative
- Contra Costa Water District, Mark Seedall, Senior Planner
- Delta Keeper, Bill Jennings, Chairman, California Sport Fishing Protection Alliance
- Maverick Petroleum, Inc., Gary Plotner, Agent for TMC
- East Bay Regional Park District, Linda Chavez, Senior Planner
- Caltrans, District 4, Timothy Sable, District Branch Chief
- California Department of Water Resources, Curt Schmutte, Chief
- Oakley Union Elementary School District, Rick Rogers, Superintendent
- Clark Fratus, resident
- Reclamation District 799, Barbara Burns, District Engineer
- State of California, Governor's Office of Planning and Research, State Clearinghouse, Scott Morgan, Project Analyst
- Ray and Shirley Zurfluh, residents
- East Contra Costa Fire Protection District, Doug Dawson, Fire Chief
- East Contra Costa Fire Protection District, Richard Ryan, Fire Inspector
- California Department of Conservation, Dennis O'Bryant, Acting Assistant Director
- Delta Protection Commission, Margit Aramburu, Executive Director
- Contra Costa County Community Development Department, Patrick Roche, Advance Planning Division
- Sierra Club, San Francisco Bay Chapter, Mike Daley, Chapter Conservation Director
- East Bay Bicycle Coalition, Robert Raburn, Executive Director
- Department of the Army, U.S. Army Engineer District, Sacramento, Corps of Engineers, Michael Finan, Chief, Delta Office
- California Native Plant Society, Jessica Olson
- Delta Pedalers Bicycle Club, Bruce Ohlson

- East Contra Costa Irrigation District, Larry Preston

The written comments received to the second Notice of Preparation by the above parties are provided in Appendix D of Volume 2 of the Draft EIR.

1.0.6 THIRD NOTICE OF PREPARATION

A third Notice of Preparation was prepared for the proposed revisions to the northern portion of the approved Summer Lake project and mailed for a 30-day public review period. The 30-day public review period for the third Notice of Preparation began April 6, 2005 and ended May 5, 2005. The third Notice of Preparation and Initial Study were mailed to all Responsible Agencies and interested persons that received the two previous Notices of Preparation. In addition, the third Notice of Preparation was sent to all attendees at the first two project scoping meetings, described below. A copy of the third Notice of Preparation and Initial Study are included as Appendix E of Volume 2 of the Draft EIR.

The City received seven letters with written comments regarding potential environmental impacts of the project during the third Notice of Preparation review period. The agencies/individuals that submitted written comments include:

- Contra Costa County Flood Control – Tim Jensen, Associate Engineer
- Contra Costa Water District – Mark Seedall, Senior Planner
- California Regional Water Quality Control Board – Christine Palisoc, Environmental Scientist
- Jeff Tamayo, property owner
- Delta Protection Commission – Margit Aramburu, Executive Director
- Caltrans, District 4 – Timothy Sable, District Branch Chief
- Department of Toxic Substances Control, Ken Chiang, Senior Hazardous Substances Scientist

The written comments received to the third Notice of Preparation by the above parties are provided in Appendix F of Volume 2 of the Draft EIR.

1.0.7 SCOPING MEETINGS

The City of Oakley held three public scoping meetings to solicit input from the public at large regarding the potential environmental impacts of the project. The public scoping meetings were held by the City of Oakley on September 16, 2004, December 16, 2004, and April 18, 2005 at the Delta Vista Middle School in Oakley. The people in attendance at the three scoping meetings are listed below:

Scoping Meeting - September 16, 2004

- Barbara Burns, Burns Engineering – representing Reclamation District 799 (RD799).

- Robert A. Booher, Robert A. Booher Consulting - representing several companies that have natural gas wells on the site.
- Harriett Zych, Director of Contra Costa Farm Bureau.
- Evo Baldocchi, local landowner
- Helen Baldocchi, local landowner

Scoping Meeting - December 16, 2004

- Robert A. Booher, Robert A. Booher Consulting.
- Gary Plotner, Maverick Petroleum, Inc.
- Mark Sedall, Contra Costa Water District

Scoping Meeting - April 18, 2005

- LeAnn Wood

1.0.8 EAST CYPRESS CORRIDOR SPECIFIC PLAN DRAFT EIR

The East Cypress Corridor Specific Plan Draft EIR will be circulated for a 45-day public review period pursuant to CEQA Guideline §15105(a). Comments received during the comment period will be addressed in the Final EIR. The Oakley Planning Commission and City Council will review the Draft and Final EIR prior to its certification by the Oakley City Council. Upon any project approval, written findings of fact for each significant environmental impact identified in the EIR will be prepared by the lead agency to:

- Find that the proposed project has been changed to avoid or substantially lessen its significant impacts;
- Determine whether any changes to the proposed project necessary to avoid or substantially lessen any significant impacts are within another agency's jurisdiction, and find that such changes have been or should be adopted by such other agency; and/or
- Find that specific economic, social, or other considerations make infeasible any mitigation measures or project alternatives that will avoid or substantially lessen any significant impacts.

The findings of fact prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA.

The lead agency may prepare a Statement of Overriding Considerations if it elects to proceed with a project that will have unavoidable significant impacts, balancing the benefits of the project against its unavoidable environmental impacts.

1.0.9 SCOPE OF THE DRAFT EIR

State CEQA Guidelines §15126.2(a) states, in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

Pursuant to these guidelines, the scope of this Draft EIR includes specific issues and concerns identified as potentially significant. The Initial Studies prepared for the proposed project also identify several environmental issues that will result in a less-than-significant impact.

Resources identified for study in the Draft EIR include:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology
- Hazards
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services and Utilities
- Transportation/Traffic

1.0.10 ORGANIZATION OF THE DRAFT EIR

The East Cypress Corridor Specific Plan Draft EIR is organized into the following sections:

Chapter 1.0 – Introduction, Scope of EIR, Executive Summary

Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the environmental resources that will be impacted by the project.

Chapter 2.0 – Project Description

Provides a detailed description of the proposed project, including its location, background information, major objectives, and technical characteristics.

Chapter 3.0 – Environmental Setting, Impacts and Mitigation Measures

Contains a project-level analysis of environmental issue areas for those areas of the site for which development plans have been prepared. The properties within the boundary of the specific plan that have preliminary development plans include sites owned or controlled by KB Home, D.R. Horton, and Bethel Island LLC, which are PA's 1, 3 and 4, respectively. The Draft EIR provides a program-level analysis for the remaining areas, PAs' 2 and 6 that do not have preliminary development plans. The subsection for each environmental issue contains an introduction and description of the setting of the project site, identifies impacts and recommends appropriate mitigation measures.

Chapter 4.0 – CEQA Statutorily Required Sections

Provides discussions required by CEQA regarding impacts that will result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 5.0 – Alternatives Analysis

Describes the alternatives to the proposed project, their respective environmental effects, and a determination of the environmentally superior alternative.

Chapter 6.0 – EIR Authors / Persons Consulted

Lists report authors who provided technical assistance in the preparation and review of the Draft EIR.

Chapter 7.0 – References

Provides bibliographic information for all references and resources cited.

Appendices

Volume 2 to the Draft EIR is the Appendices, which is a separate volume (Volume II) to the Draft EIR. The Appendices includes the Initial Studies/NOPs, responses to the Initial Studies and all technical reports / information referenced in the Draft EIR.

1.0.11 DEFINITIONS

The following bold and capitalized terms shall have the following meanings unless the context in which they are used clearly requires otherwise:

"City" means the City of Oakley, California

"County" means the County of Contra Costa, California

"CEQA" means the California Environmental Quality Act, as amended January 1, 2005, §§21000-21178, Public Resources Code, State of California

"CEQA Guidelines" means the Guidelines for California Environmental Quality Act as amended December 1, 2005, §§15000-15387, California Code of Regulations Title 14, Chapter 3

"Draft EIR" means the East Cypress Corridor Specific Plan Draft Environmental Impact Report

"Drilling Ordinance" means the draft Oil and Gas Drilling Chapter of the Zoning Code of the City of Oakley

"General Plan" means the general plan of the City of Oakley, adopted December 16, 2002, and as amended from time to time

"Project Area" means the 2,546-acre East Cypress Corridor Specific Plan

"RD 799" means Reclamation District 799

"State" means the State of California

"Zoning Ordinance" means the zoning ordinance of the City of Oakley in effect at the time of project approval of the East Cypress Corridor Specific Plan and as it may be amended from time to time.

1.0.12 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

Under CEQA, a significant effect on the environment is defined as a substantial or potentially substantial adverse change in any of the physical conditions within the areas affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. For these areas, the Draft EIR discusses the mitigation measures that could be implemented by the City of Oakley to reduce potential adverse impacts to a level that is considered less-than-significant. An impact that remains significant after mitigation is considered an unavoidable adverse impact of the proposed project. The mitigation measures presented in the Draft EIR will form the basis of the Mitigation Monitoring and Reporting Program. Following are the technical environmental issues addressed in this Draft EIR.

Aesthetics

The Draft EIR summarizes existing regional and project-area aesthetic resources and visual settings. Aesthetic resources issues—effects on scenic vistas, trees, historic buildings, scenic highways, existing visual character or quality of the site and its surrounding areas, and light and glare—arising from the development of largely agricultural land are included. The Draft EIR analyzes the existing setting, defines thresholds of significance, identifies impacts, and prescribes mitigation measures.

Agricultural Resources

The Draft EIR summarizes the status of the existing agricultural resources of the site including identification of any Prime or Unique Farmland or Farmland of Statewide Importance on the site. Any conflicts with existing zoning for agricultural use and whether any properties are under a Williamson Act are identified. The analysis further includes a discussion regarding conversion of farmland to non-agricultural uses. Following the setting discussion, this section identifies thresholds of significance applicable to the project. Impacts are measured against the thresholds of significance, and appropriate mitigation measures and monitoring strategies are identified, consistent with the policies of the City of Oakley.

Air Quality

The Air Quality section of the Draft EIR summarizes the regional air quality setting including climate and topography, ambient air quality, and regulatory context. This section discusses the potential effects associated with changes in air quality, exposure of sensitive receptors to substantial pollutant concentrations, cumulative emissions and long-term effects The section analyzes the existing setting with respect to air quality, defines thresholds of significance, identifies impacts, and prescribes mitigation measures and monitoring strategies. The air quality report is contained in Appendix G of Volume 2 of the Draft EIR.

Biological Resources

The East Cypress Corridor Specific Plan Draft EIR describes the setting and details the potential impacts on plant communities, wildlife, and wetlands, giving particular consideration to possible adverse effects on rare, endangered, candidate, sensitive, and special-status species that exist, or may exist, on the project site. The Biological Resources section analyzes the existing biological setting, defines thresholds of significance, identifies impacts, and prescribes mitigation measures and monitoring strategies. The biological resources report is contained in Appendix H of Volume 2 of the Draft EIR.

Cultural Resources

The Cultural Resources section describes the setting and details the potential impacts to historical, archaeological, and paleontological resources that are known to exist on the site. The Draft EIR analyzes the existing setting with respect to possible historical, cultural, and paleontological resources, defines thresholds of significance, identifies impacts, and prescribes mitigation measures and monitoring strategies. The cultural resources report is contained in Appendix I of Volume 2 of the Draft EIR.

Geology

The Geology section of the Draft EIR describes the geological setting and details the potential effects from earthquakes, landslides, liquefaction, peat and expansive soils. This section also identifies any unique geological features within the site and analyzes the existing geological setting,

defines thresholds of significance, identifies impacts, and prescribes mitigation measures and monitoring strategies. The geology report is contained in Appendix J of Volume 2 of the Draft EIR.

Hazards and Hazardous Materials

The Hazards and Hazardous Materials section of the Draft EIR describes the setting from the standpoint of safety issues and details any existing hazardous materials or conditions found on site as well as the potential for any unknown hazardous materials or conditions to be present. The existing setting is analyzed, thresholds of significance are defined, impacts are identified, and mitigation measures and monitoring strategies are prescribed. The hazards report is contained in Appendix J of Volume 2 of the Draft EIR.

Hydrology and Water Quality

The Hydrology and Water Quality section describes the setting and evaluates the project's water characteristics with respect to recharge, surface flows, flooding, and associated quality of water in and around the site. The Hydrology and Water Quality Chapter is largely based on the Hydrology Analysis conducted by Balance Hydrologics, Inc. The Hydrology and Water Quality section analyzes the existing setting, defines thresholds of significance, identifies impacts, and recommends mitigation and monitoring strategies. The hydrology report is contained in Appendix K of Volume 2 of the Draft EIR.

Land Use

The Draft EIR evaluates the consistency of the project with the land uses designated for the site by the City of Oakley 2020 General Plan. The Land Use section further assesses the development of the project in relationship to agricultural lands and the compatibility with adjacent residential and non-residential land uses.

Noise

The Noise section of the Draft EIR analyzes the existing setting, defines thresholds of significance, identifies impacts, and stipulates mitigation measures and monitoring strategies. The noise analysis is based on a report prepared by the consulting firm of Bollard & Brennan. This section describes the setting with respect to regional and local noise characteristics, identifies relevant regulatory information, identifies changes in ambient noise characteristics and the effects on sensitive receptors and potential effects of existing noise source generators. The noise section also analyzes the potential noise impacts of trains on the project that are located approximately two miles west of the site. The noise report is contained in Appendix L of Volume 2 of the Draft EIR.

Public Services and Utilities

The Public Services and Utilities sections summarize setting information and identifies the demand for and potential impacts on public services including water supply, stormwater drainage, sewage collection and treatment, solid waste collection and disposal, law enforcement, fire protection, schools, libraries, parks and recreation, electricity, natural gas, and telephone. The anticipated need for new on-and off-site infrastructure facilities is evaluated.

Transportation/Traffic

The Transportation/Traffic section describes existing traffic conditions, traffic conditions resulting from the project, and cumulative traffic conditions as projected for the year 2025. The analysis includes the definition of standards of significance, identification of impacts, and prescription of mitigation measures and monitoring strategies. The Transportation/Traffic section summarizes the existing and planned regional and local transportation network as well as existing and future traffic conditions. Estimated daily and peak hour traffic numbers and the ability of the existing and proposed circulation system, including level of service standards for critical street segments and intersections, are evaluated. The traffic analysis addresses the potential traffic impacts of the project and the increases in volumes and changes in the nature of traffic and circulation patterns, as well as hazards related to street design features. Emergency access, public transit, and bicycle facilities are also discussed. The transportation/traffic report is contained in Appendix M of Volume 2 of the Draft EIR.

Cumulative Impacts

An analysis of the cumulative impacts of the project, in accordance with Section 15130 of the CEQA Guidelines is discussed in Chapter 4.4. Section 15130 (b) states that an adequate cumulative impact discussion in an EIR must contain either 1) a list of past, present, and probable future projects producing related or cumulative impacts, or 2) a summary of projections contained in an adopted general plan or related planning document. A list of cumulative projects in the cities of Oakley and Brentwood as well as Contra Costa County that could, in conjunction with the East Cypress Corridor Specific Plan, have cumulative environmental impacts has been compiled. The cumulative impact section evaluates the impacts that could occur with respect to the development of the proposed project in conjunction with the cumulative projects.

The Draft EIR found that the project in conjunction with the cumulative projects will contribute to and have significant impacts to several environmental disciplines.

1.0.13 SUMMARY OF THE PROJECT ALTERNATIVES

CEQA Section 15126.6 directs that an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which will feasibly attain most of the basic objectives of the project but will avoid or substantially reduce any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The following summarizes the alternatives, which are evaluated in the Draft EIR.

No Project Alternative

The No Project Alternative will allow the site to continue in its existing condition, which includes cattle grazing on much of the site, residential and commercial use, power lines, and natural gas wells. The site will remain in Contra Costa County with this alternative and future development of the site will be under the jurisdiction of the county. Although this alternative will not meet the project objectives, nor be consistent with the Oakley 2020 General Plan, CEQA requires the alternative to be analyzed.

No Development Alternative

This project alternative evaluates no development on the site. Under this alternative the project site would remain in its existing condition and no development would occur on the site for the long-term. None of the improvements proposed for the site including residential use, commercial use, public utilities and facilities, flood control levees, roadways, etc. would be constructed.

Reduced Air Quality Emissions Alternative

The Reduced Air Quality Emissions alternative evaluates the development of a project 30% less intense than the current development plan in an attempt to reduce air quality emissions. The 30% development reduction is across the board with 30% fewer residential units and 30% less commercial use. The development allowed with this alternative includes fewer residences, less commercial square footage, and more open space. This alternative results in an overall reduction in the number of dwelling units and commercial square footage to the East Cypress Corridor Specific Plan. The impacts associated with this project alternative would be less than those identified for the proposed project. While the alternative would have fewer impacts than the proposed project, it would still have unavoidable adverse air quality impacts as well as other impacts that would require mitigation measures similar to the proposed project. This project alternative is inconsistent with the land use designations for the site in the Oakley 2020 General Plan.

Environmentally Superior Alternative

Designating a superior alternative depends largely upon which environmental effects one considers most important. Other factors of importance include urban design, economics, social factors, and fiscal considerations. For this project, the environmentally superior alternative would be the No Project alternative.

Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.2	**AESTHETICS**				
3.2-1	Gas drilling equipment would be visible and have a ***significant*** impact.	S	3.2-1	All drilling equipment less than fifteen feet tall shall be screened from direct view from the surrounding area as approved by the Community Development Director and the screening shall be maintained in place until the drilling equipment is removed from the drill site.	LS
3.2-2	Gas drilling equipment would be visible and have a ***significant*** impact.	S	3.2-2	All drilling equipment shall be painted a camouflage or earthen tone to blend with the surrounding landscape. The Community Development Director shall approve the color of the drilling equipment prior to the issuance of a drilling permit.	LS
3.2-3	Gas drilling equipment would be visible and have a ***significant*** impact.	S	3.2-3	All production wells shall be appropriately screened from direct view as recommended in the Specific Plan and approved by the Community Development Director. The landscape and screening materials shall be maintained as approved for the life of the well.	LS
3.2-4	Nighttime lighting for gas drilling operations can impact light sensitive land uses and have a ***significant*** impact.	S	3.2-4	Lighting for development and for drilling activities shall be limited to that necessary for safety and security purposes and shall be directed away from adjacent properties and road rights-of-way. All flares shall be shielded from adjacent properties and road rights-of-way.	LS
3.2-5	Light and glare by an intermediate school could have a ***significant*** impact.	S	3.2-5	A lighting plan shall be submitted to the City prior to the approval of a school site plan to identify the intensity (foot candle) of light that is projected to extend off-site onto adjacent land uses. The light that extends off-site onto adjacent property shall not exceed one-foot candle.	LS
3.2-6	Light and glare by an intermediate school could have a ***significant*** impact.	S	3.2-6	All exterior lights of the school shall have hoods and/or shielded to avoid excessive light spillage onto adjacent properties.	LS
3.2-7	Light and glare by an intermediate school could have a ***significant*** impact.	S	3.2-7	Flood lighting shall not be allowed on the school campus.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.4 AIR QUALITY			
3.4-1 The operations of the project would have a ***significant adverse*** impact on air quality.	SA	3.4-1 All development shall be required to implement feasible BAAQMD mitigation measures for reducing vehicle emissions from suburban residential projects. The site is suburban in nature with only limited transit service available; feasible mitigation measures to reduce vehicle emissions for a suburban project include: • Provide bicycle lanes, sidewalks and/or paths, connecting project residences to adjacent schools, parks, nearest transit stop and nearby commercial areas. • Provide secure and conveniently placed bicycle parking and storage facilities at parks and other facilities. • Implement feasible travel demand management (TDM) measures. This would include a ride-matching program, coordination with regional ride-sharing organizations, provision of transit information, and provision of shuttle service to major destinations such as the Pittsburg BART station. • Allow only natural gas fireplaces, pellet stoves or EPA-Certified wood-burning fireplaces or stoves in single-family houses. Conventional open-hearth fireplaces should not be permitted. EPA-Certified fireplaces and fireplace inserts are 75 percent effective in reducing emissions from this source. • Construct transit amenities such as bus turnouts/bus bulbs, benches, shelters, etc. • Provide direct, safe, attractive pedestrian access from project land uses to transit stops and adjacent development. Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.	UA

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.4-2 The operations of the project would have a ***significant adverse*** impact on air quality.	SA	3.4-2. All commercial uses shall apply Transportation System Management measures as feasible to reduce trips. Appropriate strategies include: • Provide physical improvements, such as sidewalk improvements, landscaping and bicycle parking that would act as incentives for pedestrian and bicycle modes of travel. • Connect site with regional bikeway/pedestrian trail system. • Provide transit information kiosks. • Implement feasible travel demand management (TDM) measures. This would include a ride-matching program, guaranteed ride home programs, coordination with regional ridesharing organizations and transit incentives program. • Provide showers and lockers for employees bicycling or walking to work. • Provide secure and conveniently located bicycle parking and storage for workers and patrons. • Provide electric vehicle charging facilities. • Provide preferential parking for Low Emission Vehicles (LEVs). • Specialty equipment (utility carts, forklifts, etc.) shall be electrically, CNG or propane powered. Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.	UA
3.4-3 Summer Lake would have ***unavoidable adverse*** air emission impacts.	UA	3.4-3 See Mitigation Measures 3.4.1 and 3.4.2 above.	UA
3.4-4 The man-made lakes could emit odors and have a ***potentially significant*** impact.	PS	3.4-4 The project developer of Planning Areas 1, 3 and 4 shall submit lake management plans to the City for approval prior to the issuance of a grading permit for the lake. The lake management plan shall include lake design	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
				criteria, pollutant control, operations, mosquito control program, a list and description of all chemicals that would be used, and a lake maintenance program to control and minimize lake odors.	
3.4-5	The man-made lakes could emit odors and have a ***potentially significant*** impact.	PS	3.4-5	The City of Oakley shall maintain all man-made lakes in PAs 1, 3 and 4 in compliance with an approved lake management plan.	LS
3.4-6	The lake proposed for PA 2 would have a ***potentially significant*** odor impact.	PS	3.4-6	The project developer shall submit lake management plans to the City for approval prior to the issuance of a grading permit for the lake. The lake management plan shall include lake design criteria, pollutant control, operations, mosquito control program, a list and description of all chemicals that would be used, and a lake maintenance program to control and minimize lake odors.	LS
3.4-7	The lake proposed for PA 2 would have a ***potentially significant*** odor impact.	PS	3.4-7	A homeowners association or the City of Oakley shall maintain the man-made lake in compliance with an approved lake management plan.	LS
3.4-8	The lake proposed for PA 2 would have a ***potentially significant*** odor impact.	PS	3.4-8	All projects in the light industrial area of PA 2 that emit odors shall install and maintain in proper working order the mechanical equipment necessary to eliminate odors from extending off-site	LS
3.4-9	Uses allowed in the light industrial area in PA 2 could generate Toxic Air Contaminants and have a ***significant*** impact to residents.	S	3.4-9	All uses in the light industrial area that would emit TACs shall obtain appropriate permits from the Bay Area Air Quality Management District. District regulations and procedures require that risks from new sources of TACs shall be below District thresholds before a permit from BAAQMD to operate or construct will be granted.	LS
3.4-10	Construction dust is considered a ***significant*** impact.	S	3.4-10	The following measures shall be implemented for PA's 1, 3, 4, and 6 to reduce PM_{10} air emissions during project grading and construction. • All active construction areas shall be watered at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		• All trucks hauling soil, sand, and other loose materials shall be covered or required to maintain at least 2 feet of freeboard; • All unpaved access roads, parking areas, and staging areas at construction sites shall be paved or water applied three times daily, or a non-toxic soil stabilizer applied until the areas are developed or landscaped per final construction plans; • All paved access roads, parking areas, and staging areas at construction sites shall be swept daily (preferably with water sweepers). Water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality; • All adjacent public streets shall be swept daily (preferably with water sweepers) if visible soil material is carried onto the street. • A non-toxic soil stabilizer shall be applied to all inactive construction areas and maintained until the construction area is developed based on construction plans. • All exposed stockpiles of dirt, sand, etc. shall be enclosed, covered, watered twice daily, or a non-toxic soil binder applied to minimize dust. • The traffic speeds on all unpaved roads shall be limited to a maximum of 15 mph. • Sandbags or other erosion control measures shall be installed and maintained to prevent silt runoff to public roadways. • All disturbed areas shall be planted with vegetation as quickly as possible and the vegetation maintained in good condition until such area is developed. • Wheel washers shall be installed for all exiting trucks, or the tires or tracks of all trucks and equipment leaving the site shall be washed. • Excavation and grading activity shall be suspended when winds (instantaneous gusts) exceed 25 mph.	

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.4-11	The Summer Lake project would have a ***potentially significant*** impact to PM_{10} dust emissions.	PS	3.4-11	The following measures shall be implemented: • The traffic speeds on all unpaved roads shall be limited to a maximum of 15 mph. • Sandbags or other erosion control measures shall be installed and maintained to prevent silt runoff to public roadways. • Wheel washers shall be installed for all exiting trucks, or the tires or tracks of all trucks and equipment leaving the site shall be washed.	LS
3.5	**BIOLOGICAL RESOURCES**				
3.5-1.	Implementation of the proposed project may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.5-1	To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to waters of the United States or jurisdictional waters of the State of California within the project.	LS
3.5-2	Implementation of the proposed project may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.5-2	A Section 404 permit for fill of jurisdictional wetlands and a Section 10 permit for fill of tidal waters shall be sought and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the USACE "no-net-loss" policy and the USACE Regulatory Guidance Letter No. 02-2 establishing policies and guidance on appropriate mitigation for impacts to jurisdictional waters. Mitigation for impacts to both federal and state jurisdictional waters shall be addressed using these guidelines. Mitigation shall be implemented at a watershed scale and shall be compatible with adjacent land uses. This may include the preservation of vegetated buffers that clearly benefit functions of the aquatic ecosystem to be preserved, enhanced and/or avoided. The Mitigation and Monitoring Plan would take a watershed approach and account for the regional requirements of sensitive species and habitats. Mitigation will be reviewed by USACE on a case-by-case basis and take into account the use of vegetated buffers as well as the functions of the preserved/avoided/created and enhanced habitat. A functional assessment of	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
				the existing wetlands, waters, and habitats shall be compared with a functional assessment of the proposed mitigation to ensure no overall net loss to habitat functions.	
3.5-3	Implementation of the proposed project may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.5-3	Mitigation shall include creation of wetlands at a minimum 1:1 ratio. If a greater mitigation ratio is necessary, preservation/enhancement would count towards mitigation. For purposes of this document "on-site mitigation" refers to the entire project site. Creation opportunities within the avoided wetland and dune habitat area on the northern portion of PA 1, designated for preservation and mitigation for project impacts, shall be evaluated for hydrology and topography suitable to support creation of wetlands. Preservation/enhancement of wetland habitat shall also be evaluated within the designated wetland and dune habitat area. Public access to this area shall be limited and it shall be managed for the purpose of habitat mitigation according to the Mitigation and Monitoring Plan (MMP) described below. Accomplishment of the wetland creation, preservation, and enhancement on site shall be given first priority. If the total wetland creation, preservation, and enhancement acreage cannot be accomplished within the designated open space area, second priority shall be given to creation and preservation at an off-site location within the City of Oakley that will be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside the City of Oakley. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP). Off-site mitigation habitat shall be presented for approval to the City of Oakley, USACE, RWQCB and CDFG.	LS
3.5-4	Implementation of the proposed project may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.5-4	If, in accordance with the above mitigation measure, the applicant implements onsite or offsite mitigation, a Mitigation and Monitoring Plan (MMP) shall be prepared that provides guidance on managing and monitoring the mitigation habitat to ensure its long-term viability. The MMP shall include elements and standards deemed appropriate and acceptable by the applicable approving	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
				agency or agencies (e.g., City of Oakley, USACE, RWQCB, and/or CDFG). Such MMP shall be prepared prior to development plan or tentative map approval.	
3.5-5	If areas are state and/or federally jurisdictional wetlands or waters, the proposed project could have a ***potentially significant*** impact.	PS	3.5-5	As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for property in PAs 2 and 6, a formal jurisdictional determination conducted according to USACE guidelines (Environmental Laboratory 1987) shall be completed by a qualified biologist and submitted to the USACE for verification and to assess potential impacts. If waters of the U.S. and/or State are present, **Mitigation Measures 3.5-1-4** shall be implemented as outlined above.	LS
3.5-6	The removal of riparian areas could have a ***potentially significant*** impact.	PS	3.5-6	Implementation of **Mitigation Measures 3.5-3 and 3.5-4** above shall include riparian habitat compensation at a minimum of a 1:1 ratio.	LS
3.5-7	Great Valley riparian forest/willow scrub could be removed from PAs 2 and 6 and have a ***potentially significant*** impact.	PS	3.5-7	As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for PAs 2 and 6, Great Valley riparian forest/willow scrub shall be delineated by a qualified biologist to assess potential impacts.	LS
3.5-8	Great Valley riparian forest/willow scrub could be removed from PAs 2 and 6 and have a ***potentially significant*** impact.	PS	3.5-8	To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to Great Valley riparian forest/willow scrub. If avoidance is not feasible, **Mitigation Measures 3.5-3 and 3.5-4** shall be implemented as described above and shall include riparian habitat compensation at a minimum ration of 1:1.	LS
3.5-9	The project would result in the loss of approximately 10 acres of alkali meadow and could have a ***potentially significant*** impact.	PS	3.5-9	Implementation of **Mitigation Measures 3.5-3 and 3.5-4** above shall include alkali meadow and grassland habitat compensation at a 1:1 ratio.	LS
3.5-10	The removal of alkali meadow could have a ***potentially significant*** impact.	PS	3.5-10	As part of any future development plan or rezoning review process and prior to development plan or Tentative Map approval for PAs 2 and 6, alkali meadow and grassland shall be delineated by a qualified biologist to assess potential impacts.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.5-11 The project could have a ***potentially significant*** impact to alkali meadows.		3.5-11 To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to alkali meadow and grassland. If avoidance is not feasible, **Mitigation Measures 3.5-3 and 3.5-4** shall be implemented as described above and shall include alkali meadow and grassland compensation at a minimum of a 1:1 ratio.	
3.5-12 The removal of heritage or protected trees as defined by the Contra Costa County Ordinances described above could have a ***potentially significant*** impact.	PS	3.5-12 Avoidance of heritage or protected trees as defined by the Contra Costa County Ordinances shall be exercised to the greatest extent practicable. 3.5-13 Where removal is determined to be necessary, tree removal shall be mitigated at a minimum 3:1 ratio or other ratio acceptable to the City of Oakley. The City of Oakley is currently developing a Heritage Tree Protection Ordinance. If this ordinance is adopted prior to tree removal approval, the City of Oakley may require mitigation for loss of trees as stipulated in the adopted ordinance. The mitigation trees shall be established with appropriate maintenance to ensure long-term self-sustaining survivorship. A performance standard of 80% of the established mitigation trees shall be met after 5 years. The mitigation trees shall not be dependent upon significant maintenance measures within the last 2 years of monitoring, including supplemental irrigation and staking. 3.5-14 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for PA 2 and 6, a certified arborist shall conduct a tree survey to determine if protected or heritage trees are present within the area proposed for development. 3.5-15 If protected or heritage trees are found on site, mitigation measures 3.5-12 and 3.5.-13 shall be implemented as outlined above.	LS
3.5-12 Given the presence of two CNPS List plant species on site, the project could have a ***potentially significant*** impact.	PS	3.5-16 Areas supporting the special-status plant species shall be avoided 3.5-17 If an area containing a special-status plant species cannot be avoided, mitigation shall occur as follows: 1. Permanently preserve, through use of a conservation easement or other similar method, an equal amount of acreage, either within the project area or off-site, that contains the plant; or	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		2. Harvest the plants to be lost, and relocate them to another suitable and equal sized area either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method; or 3. Harvest seeds from the plants to be lost, or use seeds from another appropriate source, and seed an equal amount of area suitable for growing the plant either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method. 4. These mitigation measures shall be completed by a qualified biologist with experience working with the species included in the mitigation. 5. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status plant species. This mitigation measure shall be coordinated with the Mitigation Monitoring Plan in **Mitigation Measure 3.5-4**. 3.5-18 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a habitat assessment shall be conducted by a qualified biologist to determine if potential habitat for special-status plant species is present. 3.5-19 If suitable habitat is found, surveys for special-status plants shall be conducted during the appropriate blooming period for each target species by a qualified biologist. At least one season of surveys shall be conducted for all areas supporting potential habitat when the target species are detectable in the field. If special-status plant species are not found, no further mitigation is required.	
3.5-13 Special-status insect species have the potential to exist on the site and if present the project could have a ***potentially significant*** impact.	PS	3.5-22 Focused surveys shall be conducted for a sufficient duration of time, to be determined by the entomologist, to determine presence or demonstrate absence of the species. If special-status insect species are not found, no further mitigation is required. 3.5-23 If endemic dune inhabiting special-status insects are documented, occupied	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		habitat as well as other highly suitable habitat that is part of dune complexes in the vicinity of where the species is found shall be avoided to the extent feasible. If avoidance is not feasible, suitable habitat shall be preserved at a 1:1 ratio at a location approved by the City and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable sand dune and mound habitat on PAs 1, 3, and 4. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status insect species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).	
3.5-14 There remains a potential for the vernal pool fairy shrimp to occur within aquatic features on PA 6. If this species is present within PA 6, the project could have a ***potentially significant*** impact.	PS	3.5-26 As part of any future development plan for PA 6 or rezoning review process and prior to development plan or tentative map approval, a qualified biologist shall conduct a habitat assessment for vernal pool branchiopods. 3.5-27 If suitable habitat is identified within PA 6, wet season surveys for vernal pool branchiopods shall be conducted prior to initiation of construction activities for one winter survey period according to USFWS protocol (1996) by a qualified biologist. If federally protected vernal pool branchiopods are not found during the wet season survey and it is deemed necessary by the qualified biologist to continue surveying, one additional dry or wet season survey shall be conducted according to USFWS protocol (1996) by a qualified biologist. If federally protected vernal pool branchiopods are not found after completion of protocol-level wet and dry or two wet season surveys, then no further mitigation is required. If federally protected vernal pool branchiopods are found during either survey then the following mitigation measures shall be implemented. 3.5-28 If the vernal pool fairy shrimp is found to occur during protocol surveys on one or more properties, the properties that are connected biologically and hydrologically (via ground or surface water) shall also be considered as potentially	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		occupied habitat. Assessment of presence or absence would be determined on a property-by-property basis, taking into account connectivity of the wetland areas. Project impacts shall be evaluated and mitigation shall be based on an analysis of the following: 1. Connectivity of aquatic habitats (both ground and surface water) 2. Habitat quality measured as potential to support listed shrimp species 3. Potential for cyst (egg) dispersal 4. Adjacent land uses, current and anticipated, and resulting effects on the hydrology of aquatic habitats 5. Threats and encroachment on populations of listed species, including edge effects and associated buffers, and habitat fragmentation. 3.5-29 If the vernal pool fairy shrimp is found within the boundary of the Specific Plan, impacts to occupied or potentially occupied aquatic habitats and an associated upland buffer, to be determined according to the criteria above, shall be avoided to the extent feasible. If avoidance is not feasible, aquatic habitat and the amount of watershed associated with the preserved pools necessary to sustain the existing hydrology of the pool habitat shall be replaced at a 1:1 ratio at a location approved by the City and USFWS. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of aquatic habitat. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status vernal pool species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in MM 3.5-4. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP). Take authorization shall	

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		be obtained from the USFWS if federally-listed vernal pool branchiopods are present on site. 3.5-30 If presence of the vernal pool fairy shrimp is confirmed during protocol surveys, the uppermost layer of soil in seasonally inundated habitat may contain cysts of listed crustaceans as well as seeds of vernal pool plants. Therefore, before these wetlands are filled, the top layer of soil shall be made available prior to the start of project grading to any vernal pool creation bank that requests it, with USFWS approval, for inoculating newly created pools. Soil stockpiled for this purpose should be shielded from rain with a water-proof cover to ensure that it remains completely dry.	
3.5-15 Special-status vernal pool branchiopods midvalley fairy shrimp and California linderiella and curved-foot hygrotus diving beetle could occur in PAs 2 and 6 and the project could have a ***potentially significant*** impact, if present.	PS	3.5-31 A qualified entomologist shall conduct a focused survey for curved foot hygrotus diving beetle at the appropriate time of year. If curved foot hygrotus diving beetles are not found after completion of seasonal surveys, then no further mitigation is required. 3.5-32 If the curved foot hygrotus diving beetle is found on PAs 1, 3, or 4, occupied aquatic habitat shall be avoided to the extent feasible. If avoidance is not feasible, it shall be replaced at a 1:1 ratio at a location approved by the City. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable aquatic habitat on the PAs 1, 3, and 4. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).	LS
3.5-16 Construction, water withdrawals from, and outfalls into the sloughs for the project could have a ***potentially significant*** impact to potential special-status fish species	PS	3.5-35 All water intake features or systems from Dutch Slough, Sandmound Slough or Rock Slough including siphons, flood gates, or pumps shall have USFWS and NOAA Fisheries approved fish screens installed. Any stormwater outfalls shall employ water pumping best management practices. 3.5-36 Consultation with the CDFG, NOAA Fisheries, and USFWS shall be requested	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		in conjunction with USACE Section 404 and CDFG Streambed Alteration Agreement permitting to determine appropriate measures to avoid and mitigate impacts to special-status fish species. As part of the consultation process, a Biological Assessment and Essential Fish Habitat Assessment shall be prepared by a fisheries biologist that evaluates: proposed construction plans (including any vegetation removal); design details for pumps, siphons, outfalls, and/or flood gates; rip-rap or other bank protection measures; and stormwater flow regime (including flow rates, timing and temperature). 3.5-37 A Mitigation Plan shall be prepared that includes measures to avoid take of special-status fish during construction activities (which may include, if necessary, placement of coffer dams and preparation of a Fish Rescue Plan for in-water work) and post construction water withdrawal activities. To ensure compliance and implementation of the Mitigation Plan, a qualified biologist shall be present during construction and pumping activities associated with construction.	
3.5-17 If the Silvery legless lizard is present, the project could have a ***potentially significant*** impact.	PS	3.5-39 A pre-construction survey for silvery legless lizards shall be conducted within interior dune and Sand mound habitat and submitted to the City of Oakley for their review and approval prior to the issuance of grading permits. If silvery legless lizards are not found, no further mitigation is required. If they are found **Mitigation Measure 3.5-40** shall be implemented. 3.5-40 If silvery legless lizards are found, occupied habitat as well as other highly suitable habitat shall be avoided to the maximum extent feasible. If avoidance is not feasible, it shall be replaced at a 1:1 ratio at a location approved by the City and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable sand dune and mound habitat on the PAs 1, 3 and 4. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated wetland and dune habitat area, designated for preservation and mitigation for project impacts on PA 1, second priority shall be given to habitat preservation at an off-site location within the Oakley city limits that shall be acquired and preserved in perpetuity. Third priority shall be given to another off-	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		site location outside of the Oakley city limits. Public access to this area shall be limited and it shall be managed for the purpose of habitat mitigation. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).	
3.5-18 If the Giant garter snake is present, the project could have a ***potentially significant*** impact.	PS	3.5-43 A habitat assessment shall be conducted by a qualified biologist to develop focused survey methods and a trap array design that will result in the highest probability of detection of giant garter snakes. Focused trapping and visual surveys approved by the USFWS shall then be conducted for the giant garter snake. A qualified biologist shall conduct these surveys during the spring for optimal detection. If giant garter snake is not found during spring protocol surveys, fall surveys are not required. If the giant garter snake is not found during protocol surveys, no habitat mitigation shall be required. 3.5-44 If the giant garter snake is found to occur during protocol surveys within the boundary of the project site mitigation shall be required for PAs 1, 2, 3, 4, and 6. If giant garter snake is found within the boundary of the site, impacts (as defined above) to aquatic habitats plus a 200-foot buffer of such habitat shall be avoided to the extent feasible. If avoidance is not feasible, aquatic habitat and upland habitat within 200 feet of aquatic habitat shall be replaced at a 1:1 ratio at a location approved by the City, USFWS, and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of aquatic and upland habitat. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated open space area located on the northwest portion of PA 1, second priority shall be given to	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		habitat preservation at an off-site location within the Oakley city limits that shall be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside of the Oakley city limits. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP). 3.5-45 Regardless of the results of focused surveys, the Applicant shall request that the USACE initiate consultation with the Service as part of 404 impacts, and the following measures shall be implemented to avoid potential take of individual garter snakes during construction: 1. A qualified biologist shall provide project contractors and construction crews with a worker-awareness program before initiating any work within aquatic habitats or adjacent upland habitats that are appropriate for giant garter snakes. This program shall be used to describe the species, its habits and habitats, its legal status and required protection, all applicable mitigation measures, and conditions of any state or federal permits as they relate to giant garter snake. Proof of this instruction shall be submitted to the City within 24 hours of completion of the initial worker-awareness program. 2. 24-hours prior to construction activities, the project area shall be surveyed for giant garter snake. Survey of the project area shall be repeated at the start of each construction season and/or if a lapse in construction activity of two weeks or greater has occurred. If a giant garter snake is encountered during construction, activities shall not begin until the USFWS has been consulted and the corrective measures required by the USFWS have been completed or the USFWS has determined that the snake will not be harmed. 3. After pre-construction surveys are completed, animal exclusion fencing shall	

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		be installed around all construction sites adjacent to aquatic habitats	
3.5-19 Loss of habitat and potential loss of individuals and nests of the Western pond turtle, if present could have a ***potentially significant*** impact.	PS	3.5-47 A qualified biologist shall conduct pre-construction surveys for western pond turtles in all construction areas identified as potential nesting or dispersal habitat located within 1000 feet of potential aquatic habitat 48 hours prior to initiation of construction activities. If a western pond turtle is found during pre-construction surveys, it shall be relocated by a qualified biologist with permission from CDFG as necessary to a location deemed suitable by the biologist and CDFG (i.e., at a location which is a sufficient distance from construction activities). This survey shall include looking for turtle nests within the construction area. If a nest is found within the construction area, construction shall not take place within 100 feet of the nest until the turtles have hatched and have left the nest or can be safely relocated with assistance from CDFG. 3.5-48 Because attempting to locate pond turtle nests would not necessarily result in detection, after completion of pre-construction surveys, and relocation as necessary, exclusion fencing shall be placed around all construction sites adjacent to aquatic habitats to eliminate the possibility of nest establishment in uplands adjacent to aquatic areas. 3.5-49 If construction activities occur in aquatic areas where turtles have been identified during pre-construction or other surveys, a biological monitor shall be present during disturbance of those aquatic habitats. If a turtle is found, it shall be relocated as necessary to a location deemed suitable by the biologist and CDFG (i.e., at a location which is a sufficient distance from construction activities). 3.5-50 A qualified biologist shall provide project contractors and construction crews with a worker-awareness program prior to the start of any work within aquatic habitats or adjacent upland habitats that are appropriate for western pond turtles. This program shall be used to describe the species, its habits and habitats, its legal status and required protection, and all applicable mitigation measures.	LS
3.5-20 Western Burrowing Owls could be displaced with construction of the project and have a ***potentially significant*** impact.	PS	3.5-51 If not already completed, breeding season and focused winter surveys shall be conducted according to CDFG and California Burrowing Owl Consortium guidelines between April 15 and July 15 and December 1 and January 31, respectively, to determine the number of owls utilizing each of the properties.	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		The survey protocol calls for 4 separate survey dates during each season, at the time of day owls are most likely to be detected. 3.5-52 Prior to issuance of a grading permit, pre-construction surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the project area and within 250 feet of the project boundary. Presence or sign of burrowing owl and all potentially occupied burrows shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines. If burrowing owls are not detected, by either sign or direct observation, construction may proceed. Pre-construction surveys must be reinitiated if more than 30 days lapse between surveys dates and construction activities. 3.5-53 If potentially nesting burrowing owl are present during pre-construction surveys conducted between February 1 and August 31 grading shall not be allowed within 250 feet of any nest burrow during the nesting season (February-August), unless approved by the CDFG. 3.5-54 If burrowing owl are detected during pre-construction surveys outside the nesting season (September 1 - January 31), passive relocation and monitoring may be undertaken by a qualified biologist following CDFG and California Burrowing Owl Consortium guidelines, which involve the placement of one-way exclusion doors on occupied and potentially occupied burrowing owl burrows. Owls shall be excluded from all suitable burrows within the project area and within a 160-foot buffer zone of the impact area. A minimum of one (1) week shall be allowed to accomplish this task and allow for owls to acclimate to alternate burrows. These mitigation actions shall be carried out prior to the burrowing owl breeding season (February 1- August 31) and a qualified biologist shall monitor the site weekly until construction begins to ensure that burrowing owls do not re-inhabit the site. 3.5-55 If burrowing owls or signs of burrowing owls are detected at any time on the project site a minimum of 6.5 acres of foraging habitat per pair or individual resident bird, shall be acquired and permanently protected to compensate for the loss of burrowing owl habitat. The acreage shall be based on the maximum number of owls observed inhabiting the property for any given observation	

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Summary of Impacts and Mitigation Measures

Impact		*Level of Significance Prior to Mitigation*	*Mitigation Measures*		*Level of Significance after Mitigation*
				period, pre-construction survey, or other field visit. The protected lands shall be occupied burrowing owl habitat at a location acceptable to CDFG and the City of Oakley. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated open space area, second priority shall be given to habitat preservation at an off-site location within the Oakley city limits that shall be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside of the Oakley city limits. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of burrowing owl habitat on PAs 1, 3, and 4. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).
			3.5-56	Before construction activities begin all construction personnel shall receive training that includes photos of burrowing owl for identification purposes, habitat description, limits of construction activities in the project area, and guidance regarding general measures being implemented to conserve burrowing owl as they relate to the project.	
			3.5-57	A monitoring report of all activities associated with pre-construction surveys, avoidance measures, and passive relocation of burrowing owls shall be submitted to the City and CDFG no later than two weeks before initiation of grading.	
3.5-17	Disturbance of several special-status and common bird species would be considered a ***potentially significant*** impact.	PS	3.5-59	The removal of any buildings, trees, emergent aquatic vegetation, or shrubs shall occur from September 1 through December 15, outside of the avian nesting season. If removal of buildings, trees, emergent aquatic vegetation, or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or non-passerine land birds) or December 15 and August 31 (nesting season for raptors), a nesting bird survey shall be performed by a	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		qualified ornithologist within 14 days prior to the removal or disturbance of a potential nesting structure, trees, emergent aquatic vegetation, or shrubs, or the initiation of other construction activities during the early part of the breeding season (late December through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, a qualified biologist shall inspect all potential nesting habitat (trees, shrubs, structures, grasslands, pastures, emergent aquatic vegetation, etc.) in and immediately adjacent to the impact areas for nests. 3.5-60 All vegetation and structures with active nests shall be flagged and an appropriate non-disturbance buffer zone shall be established around the nest site. The size of the buffer zone shall be determined by the project biologist in consultation with CDFG and will depend on the species involved, site conditions, and type of work to be conducted in the area. 3.5-61 A qualified biologist shall monitor active nests to determine when the young have fledged and are feeding on their own. The project biologist and CDFG shall be consulted for clearance before construction activities resume in the vicinity. Mitigation Measure 3.5-66 shall be enforced for all raptors.	
3.5-18 Loss of occupied Swainson's hawk nest would be considered a ***significant*** impact. If during the pre-construction surveys, Swainson's hawks are found nesting on or adjacent to the site, the project could have a ***potentially significant*** impact on Swainson's hawks.	PS	3.5-62 In order to ensure that nesting Swainson's hawks would not be affected by construction of the project, a qualified biologist shall conduct pre-construction surveys according to CDFG and Swainson's Hawk Technical Advisory Committee guidelines (2000). Survey Period I occurs from January 1 – March 20, Period II from March 20 – April 5, Period III from April 5 – April 20, Period IV from April 21 – June 10, and Period V is from June 10 – July 30. Three surveys shall be completed in at least each of the two survey periods immediately prior to a project's initiation and encompass the area within ½ mile of the project site. If a nest site is found, then, either of the following measures shall be followed: 3.5-63 Trees containing known or potential raptor nest sites may be removed during the non-breeding season to discourage future nesting attempts on the condition that no Swainson's hawk pair is currently utilizing the nest site. Monitoring evidence that any nests in trees planned for early removal are unattended by reproductive-aged birds must be provided; or 3.5-64 If an active Swainson's hawk nest is found sufficiently close (as determined by	LS

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Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		the qualified biologist and CDFG) to the construction area to be affected by construction activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest. Intensive new disturbances (e.g., heavy equipment activities associated with construction) that may cause nest abandonment or forced fledging shall not be initiated within this buffer zone between March 1 and September 1 until it is determined by a qualified biologist in coordination with CDFG that the young have fledged and are feeding on their own.	
3.5-19 In the event that white-tailed kites are found nesting on site, construction activities within close proximity to a nest site could result in ***potentially significant*** impacts.	PS	3.5-65 If nesting white-tailed kite are observed on site during the pre-construction raptor surveys, CDFG shall be consulted regarding appropriate avoidance and mitigation measures to meet the specific needs of the nesting birds. Avoidance of impacts shall be accomplished through the implementation of a CDFG-approved buffer zone to protect the nest from disturbance until the young birds have fledged and are feeding on their own. 3.5-66 If, after the young are determined to have fledged by a qualified biologist, avoidance of the nesting tree is infeasible, it shall be removed under supervision of qualified biologist.	LS
3.5-20 If special-status bats are found roosting on site, destruction or disturbance of roosting sites could have a ***potentially significant*** impact.	PS	3.5-67 A pre-construction survey for roosting bats shall be performed by a qualified biologist within 30 days prior to any removal of trees or structures on the site. If no active roosts are found, then no further action would be warranted. If either a maternity roost or hibernacula (structures used by bats for hibernation) is present, the following mitigation measures shall be implemented. 3.5-68 If active maternity roosts or hibernacula are found in trees or structures which would be removed as part of project construction, the project shall be redesigned to avoid the loss of the tree or structure occupied by the roost to the extent feasible as determined by the City. If an active maternity roost is located and the project cannot be redesigned to avoid removal of the occupied tree or structure, demolition can commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). Disturbance-free buffer zones as determined by a qualified biologist in coordination with CDFG shall be observed during the maternity roost season (March 1 - July 31).	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		3.5-69 If a non-breeding bat hibernacula is found in a tree or structure scheduled for removal, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow airflow through the cavity. Demolition can then follow at least one night after initial disturbance for airflow. This action should allow bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees or structures with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.	
3.6 CULTURAL RESOURCES			
3.6-1 Significant buried deposits associated with site CA-CCO-652H might exist and would be disturbed during earth-moving activities, which would have a ***significant*** impact.	S	3.6-1 To insure that any previously unknown, potentially significant buried cultural deposits are not adversely affected by project construction, archaeological monitoring shall be conducted within 100 feet of the recorded boundaries of CA-CCO-652H during any ground-disturbing activities (i.e., grading, excavation, drilling, etc.). An archaeological monitor shall be present until all ground disturbances are completed. Prior to the beginning of construction, the developer shall establish protocols that will allow for the redirection of ground-disturbing activities until an assessment of the buried resources can be conducted and measures to protect resources are approved by the City.	LS
3.6-2 A ***significant*** impact would occur if ground-disturbing activities damage or destroy buried prehistoric or historic features and deposits in association with the construction of East Cypress Road.	S	3.6-2 Site CA-CCO-138/129 shall be protected from damage through the following mitigation measures: a. Plan construction to avoid archeological sites and record a conservation easement over the site. b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows: 1. The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18" thick; 2. Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer; 3. To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment); 4. The cap shall be in place before constructing non-intrusive facilities on the site; and 5. If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site. c. Prior to the construction of East Cypress Road, stake the road alignment in the vicinity of the toe of the mound. An archaeological survey of the portion of the new alignment in the vicinity of the toe of the mound shall be conducted and any significant visible resources recovered. During construction of East Cypress Road archaeological monitoring shall be conducted in the vicinity of the toe of the mound. d. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.	
3.6-3 If archaeological site CA-CCO-128 is disturbed a ***significant*** impact would	S	3.6-3 Site CA-CCO-128 shall be protected from damage with implementation of the following:	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
occur.		a. Plan construction to avoid archeological sites and record a conservation easement over the site. b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows: 1. The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18" thick; 2. Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer; 3. To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment); 4. The cap shall be in place before constructing non-intrusive facilities on the site; and 5. If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site. c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.	
3.6-4 If archaeological site CA-CCO-368 is disturbed there would be a ***potentially significant*** impact.	PS	3.6-4 Site CA-CCO-368 shall be protected from damage through the following mitigation measures: a. Plan construction to avoid the sites and record a conservation easement over the site.	LS

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		b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows: 1. The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18 inches thick; 2. Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer; 3. To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment); 4. The cap shall be in place before constructing non-intrusive facilities on the site; and 5. If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site. c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.	
3.6-5 If ground-disturbing activities expose to erosion, inadvertent damage or vandalism buried prehistoric or historic features and deposits that contribute to site CA-CCO-767's evaluation as a significant resource there would be a	S	3.6-5 Site CA-CCO-767 shall be protected from damage with implementation of the following: a. Plan construction to avoid archeological sites and record a conservation easement over the site.	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
significant impact.		b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows: 1. The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18 inches thick, 2. Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer; 3. To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment); 4. The cap shall be in place before constructing non-intrusive facilities on the site; and 5. If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site. c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.	
3.6-6 Project grading and construction of site CA-CCO-7687 would have a ***significant*** impact.	S	3.6-6 In accordance with CEQA Guideline §15064.5 (f), should any previously unknown historic or prehistoric resources, including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, pockets of dark, friable soils, glass, metal, ceramics, wood or similar debris, be discovered during grading, trenching, or other on-site excavation(s), earthwork within 100 feet of these materials shall be stopped. A professional archaeologist certified by the Register of Professional Archaeologists (RPA)	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		shall evaluate the significance of the find and suggest appropriate mitigation measure(s), as determined necessary to protect the resource and be approved by the City.	
3.6-7 If the Biggs Mound (CA-CCO-767) is destroyed prior to evaluation it could be a ***significant*** impact.	S	3.6-7 In accordance with CEQA Sections 15064.5 and 15126.4, any architectural resources over 45 years shall be recorded on appropriate Department of Parks and Recreation Primary Record (DPR 523) and associated (e.g., Building-Structure-Object) forms. Such structures shall be evaluated for significance (California Register of Historic Resources eligibility) in accordance with the criteria in CEQA Section 15064.5. Appropriate mitigation measures shall be developed for those structures determined to be potentially significant so that project-related impacts to the structures are reduced to less-than-significant.	LS
3.6-8 CA-CCO-139 (Simone Mound) is one of the Delhi sand mounds considered to be a component of the Hotchkiss Mound complex and if disturbed could have a ***potentially significant*** impact.	PS	3.6-8 Site CA-CCO-139 shall be protected with implementation of the following mitigation measures: a. Demolition of any buildings and structures located within the boundaries of CA-CCO-139 shall be monitored by the Project Archaeologist. 1. The demolition contractor shall attempt to minimize ground disturbance whenever possible, although heavy equipment and standard demolition practices may be used to remove surface improvements and structures. 2. In-place foundations and subsurface infrastructure improvements shall be left in place where possible to minimize ground disturbance in areas with known or with a high potential for subsurface archaeological resources. 3. At least ten (10) days prior to the commencement of demolition activities, the applicant shall notify the Corps of such activities and provide the Corps with the name and contact details of the monitoring archaeologist. 4. Within thirty (30) days of the close of demolition activities, the Project Archaeologist shall prepare and the Applicant shall submit to the Corps a site-specific written closure report or closure memo	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		reporting the results of the monitoring. b. The Applicant shall place a soil fill cap of at least eighteen (18) inches within the recorded site boundaries of CA-CCO-139 or other areas with a high potential for subsurface archaeological resources. 1. Minimal or no surface preparation shall be undertaken prior to the placement of the fill unless otherwise required or recommended by the Project Soils Engineer or the Contra Costa County Public Works, Building, or Planning departments. 2. A geotextile layer approved by the Project Soils Engineer/Contra Costa County shall be placed on the surface to be filled prior to the installation of the fill cap. c. To minimize ground disturbance and compaction in non-disturbed areas, non-tracked (i.e. rubber-tired) equipment shall be used whenever possible for the placement of the soil fill cap within the recorded site boundaries or other areas with a high potential for subsurface archaeological deposits. d. Excavation for landscaping or irrigation shall be confined to the fill cap. If necessary in order to meet code or other reasonable requirements, excavation below the fill cap may proceed to install underground utilities, park lighting, foundations for restroom facilities, etc. All excavation in native soils shall be monitored by the Project Archaeologist and Native American observer according to the monitoring procedures prescribed in Item 1 of Section B of Stipulation III (in the MOA).	
3.6-9 A ***significant*** impact would occur if ground-disturbing activities either disturb, damage, or destroy buried prehistoric or historic features and deposits that contribute to site CA-CCO-	S	3.6-9 Site CA-CCO-647 shall be protected from damage through the following mitigation measures: a. Avoidance to minimize impacts to the site is not feasible. Therefore, in consultation with the SHPO and the USACOE mitigation shall include	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
647 potential as a significant resource.		systematic data recovery; incremental removal of any cultural deposit within the footprint of the levee by light mechanical equipment (e.g., Bobcat) with intensive monitoring by an archaeologist; scientific removal and recovery of any human remains and significant artifacts and features during removal of the cultural deposit; and, monitoring by an archaeologist of any excavation below the cultural deposits to a depth of 10 feet. All discoveries shall be analyzed and reported in an appropriate professional report. The specific mitigation measures shall be developed in consultation with the USACOE and the SHPO.	
3.6-10 If ground-clearing or ground-disturbing activities disturb, damage, or destroy human remains, including Native American human remains and/or funerary objects, which are known to exist in the project, there would be a ***significant*** impact.	S	3.6-10 In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code shall be followed. Section 7050.5(b) of the California Health and Safety Code states: a. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. b. The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within twenty-four hours. The Commission has various	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of preconstruction worker training and intermittent construction monitoring by a qualified archaeologist will serve to achieve compliance with this requirement for protection of human remains. Worker training typically instructs workers as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.	
3.6-11 The construction of the proposed Summer Lake levee could have a ***significant*** impact to previously unknown buried deposits associated with CA-CCO-26.	S	3.6-11 Archaeological monitoring shall be conducted within 100 feet the recorded site boundary during all ground-disturbing activities (i.e., grading, excavation, drilling, etc.) associated with the construction of the levee (Colin Busby, pers. comm., June 3, 2005). An archaeological monitor shall be present until all ground disturbances are completed. Prior to the beginning of construction, the developer shall establish protocols are to be established that will allow for the redirection of ground-disturbing activities until an assessment of the buried resources can be conducted in compliance with Section 15064.5 of the CEQA Guidelines.	LS
3.7 GEOLOGY AND SOILS			
3.7-1 Ground shaking could cause structural damage to levees, buildings, bridges, and other permanent developments and have	PS	3.7-1 The proposed developments shall comply with the seismic design provisions of the Uniform Building Code (UBC). Because of the relatively close presence of the CRCV fault system, it is conceivable that the site may experience ground	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
a ***potentially significant*** impact.		shaking higher than the UBC-specified ground shaking (produced by the more distant Greenville Fault), but the probability of occurrence is lower. For this reason, structures shall be designed for a horizontal ground acceleration of at least 0.32g.	
3.7-2 There may be areas within a few hundred yards of the existing canal, unimproved levees, and the proposed man-made lakes in which lateral spreading may be a hazard and have a ***potentially significant*** impact.	PS	3.7-2. A design-level geotechnical report shall be completed for each project development (e.g., housing subdivisions, schools, commercial/retail centers, new levees) and submitted to the City Engineer for approval prior to issuance of a grading permit or building permit, whichever is issued first. Geologic hazards that shall be included in the study are lateral spreading, or other types of ground failure that could affect the project. Development design recommendations to correct geologic hazards that would impact development shall be included in each study and implemented during project construction. Acceptable corrective measures by the City Engineer shall be implemented as appropriate, based on the specific soil conditions and the type of facility being constructed.	LS
3.7-3 There may be areas within a few hundred yards of the existing canal, unimproved levees, and the proposed man-made lakes in which lateral spreading may be a hazard and have a ***potentially significant*** impact.	PS	3.7-3 Developers shall prepare for City review and approval an Earthquake Response Plan for all proposed pipelines and facilities outlining post-earthquake inspection and repair plans to evaluate any damage that may have occurred. Inspection procedures shall ensure the integrity of the mechanical systems, and, if service is disrupted, determine what is necessary to make facilities operational as soon as possible.	LS
3.7-4 There may be areas within a few hundred yards of the existing canal, unimproved levees, and the proposed man-made lakes in which lateral spreading may be a hazard and have a ***potentially significant*** impact.	PS	3.7-4 A design-level geotechnical report shall be completed by the project developers for the new master interior levee and submitted to the City Engineer, Reclamation District 799, and FEMA for approval prior to issuance of a grading permit for levee construction. In addition to the City Engineer, Reclamation District 799 and FEMA, CCWD shall review and approve the levee plan adjacent to the Canal.	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.7-5	The project could have ***potentially significant*** impacts on soil erosion unless compliance with the NPDES, County DAMP, and City of Oakley Water Quality Ordinance for erosion control is met.	PS	3.7-5	A Storm Water Pollution Prevention Plan (SWPPP) shall be completed for each project and submitted to the City of Oakley Public Works and Engineering Division for approval prior to the issuance of a grading permit. The SWPPP shall include BMPs acceptable to the City to reduce and minimize soil erosion and siltation. BMPs shall be installed prior to the start of grading and maintained throughout the duration of the project as determined by the City.	LS
3.7-6	Information and data obtained from previous studies indicate that a moderate to highly plastic and moderately expansive clay covers the southern portion of the site and could have a ***potentially significant*** impact on development of the project.	PS	3.7-6	A design-level geotechnical report shall be completed for each project development (e.g., housing subdivisions, schools, commercial/retail centers, new levees) and submitted to the City Engineer for approval prior to issuance of a grading permit or building permit, whichever is issued first. Geologic hazards that shall be included in the study include expansive soil and subsidence. Development design recommendations to correct expansive soil and subsidence, if present, shall be included in each study and implemented during project construction. Acceptable corrective measures by the City Engineer shall be implemented as appropriate, based on the specific expansive soil and subsidence conditions and the type of facility being constructed.	LS
3.7-7	The pH values ranged from 6 to 7.5, indicating a slightly acidic to neutral condition, which could have a ***potentially significant*** impact.	PS	3.7-7	A soil corrosion report shall be completed for each project development and submitted to the City Engineer for approval prior to issuance of a grading permit or building permit, whichever is issued first. The report shall include measures to address corrosive soils and identify measures to be incorporated into the project to minimize and control corrosive soils where damage to underground facilities may occur.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact		*Level of Significance Prior to Mitigation*	*Mitigation Measures*		*Level of Significance after Mitigation*
3.8	**HAZARDS AND HAZARDOUS MATERIALS**				
3.8-1	The use, storage, and transport of chemicals for maintenance of lakes in PAs 1, 3 and 4 could have a ***potentially significant*** impact if not applied, stored and transported properly.	PS	3.8-1	All chemicals transported, used and stored for lake maintenance shall comply with all applicable laws and regulations.	LS
3.8-2	The use, storage, and transport of chemicals for maintenance of lake in PA 2 could have a ***potentially significant*** impact if not applied, stored and transported properly.	PS	3.8-2	All chemicals transported, used and stored for lake maintenance shall comply with all applicable laws and regulations.	LS
3.8-3	An operating gas well requires the storage of fuel to operate internal combustion engines and lubricants. The accidental release of these chemicals could have a ***potentially significant*** impact.	PS	3.8-3	The drilling and operation of gas wells shall comply with all applicable laws and regulations to drill and operate gas wells, including D.O.G.G.R, Regional Water Quality Control Board, and the City of Oakley.	LS
3.8-4	Grading and development adjacent to and over abandoned gas wells could have a potentially ***significant*** impact if hazardous materials are present.	PS	3.8.4	Abandoned and past wells (that are not longer expected to be operational) may be difficult to locate. If they can be located the soils surrounding the wellhead they should be evaluated for constituents of concern. For abandoned or past wells that cannot be located, grading or development activities may uncover these wells. If a well head and or discolored soil or unusual odors are noted (indication of potential drilling muds) the soil shall be tested and analyzed for constituents of concern. If shallow groundwater is encountered water sampling shall also be conducted. Soil with elevated constituents as compared to site Residential Preliminary Remedial Goals (PRGs) (soil) shall either be removed from the site or used in a manner to reduce the risk of exposure based on the proposed land use and under applicable laws and regulations. If impact to shallow groundwater is found the RWQCB and the local health	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
				department shall be contacted for further consultation.	
3.8-5	Existing buildings that require demolition could have asbestos, lead paint, mercury, etc. These materials, if present, could have a ***potentially significant*** impact if not properly removed and disposed.	PS	3.8-5	Prior to issuance of a demolition permit for any structures, the project developer shall provide a building survey to determine whether any structures to be demolished contain asbestos, mercury, or lead paint. An asbestos and lead paint survey shall be conducted by a Cal-OSHA Certified Asbestos Consultant prior to the demolition of a structure. If lead paint and or asbestos is found, all lead containing paint and or asbestos shall be removed and disposed of by a licensed and certified lead paint and or asbestos removal contractor, as applicable in accordance with local, state, and federal regulations. The demolition contractor shall be informed that onsite buildings shall be considered as potentially containing lead and asbestos. The contractor shall take appropriate precautions to protect his/her workers, the surrounding community, and to dispose of construction waste containing lead paint and/or asbestos in accordance with local, state, and federal regulations subject to the City Building Official approval. If mercury is present it shall be removed and properly disposed in compliance with all applicable laws and regulations.	LS
3.8-6	Existing buildings that require demolition could have asbestos, lead paint, mercury, etc. These materials, if present, could have a ***potentially significant*** impact if not properly removed and disposed.	PS	3.8-6	An assessment of all buildings to be demolished shall be completed to evaluate if lead, mercury, CFCs, or universal waste are present. The assessment shall be submitted to the Oakley Building Department prior to the issuance of a demolition permit. If any are present, the assessment shall identify the measures that would be implemented to safely remove them from the building in compliance with all applicable laws and regulations.	LS
3.8-7	If present, pesticides and herbicides could have a ***potentially significant*** impact.	PS	3.8-7	Prior to the issuance of a grading permit the project developer shall submit a shallow soil sampling assessment to the City to evaluate if environmentally persistent pesticides are present. If present, the pesticide concentrations shall be compared to EPA Residential Preliminary Remedial Goals (PRGs) to evaluate if pesticide concentrations are appropriate for residential use. If Residential PRGs are exceeded, a site-specific health risk assessment shall be prepared to further evaluate risk. Potential remedial measures based on a risk	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		assessment shall include that the soil be treated, removed, or other mitigation methods employed to limit exposure/risk and to comply with applicable local, county, state and federal regulations. A health risk assessment and or confirmation soil samples, and supporting data shall be provided, if remedial activities are deemed necessary. This data shall be provided, as needed, to the City for said purposes prior to the issuance of a grading permit.	
3.8-8 The presence of several existing site conditions, including the natural gas transmission lines, natural gas wells, and overhead power lines could have a ***potentially significant*** impact to schools.	PS	3.8-8 A school site constraint analyses shall be prepared by each respective school district for each school based on standards for school site selection and procedures for site acquisition set forth in California Code of Regulations (CCR), Title 5 at the time individual schools are proposed for either of the elementary school sites. The school site constraint analysis shall meet California Department of Education and Department of Toxic Substance Control requirements and include a Phase I report and or a Preliminary Endangerment Assessment or remedial actions, as required by the regulatory agencies to address existing gas line, electrical transmission lines, the potential for residual soil contamination and any other identified potential hazard.	LS
3.8-9 The development of a high school on the northern portion of PA 2 could have a ***potentially significant*** impact in terms of safety.	PS	3.8-9 A school site constraint analyses shall be prepared by the Oakley Union Elementary School District for a middle school or Liberty Union High School District for the high school, whichever is proposed for construction, based on standards for school site selection and procedures for site acquisition set forth in California Code of Regulations (CCR), Title 5 at the time a middle or high school is proposed. The school site constraint analysis shall meet California Department of Education and Department of Toxic Substance Control requirements and include a Phase I report and or a Preliminary Endangerment Assessment as required by the regulatory agencies to address existing gas line, electrical transmission lines, the potential for residual soil contamination and any other identified potential hazard.	LS
3.8-10 The proposed construction of residences and the elementary school in PA 4 in close proximity to the CCWD water canal could have a ***potentially significant*** impact on human safety.	PS	3.8-10 The developers of PAs 3 and 4 shall install a CCWD approved fence along the east Canal property line from East Cypress Road to its intersection with Rock Slough.	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.8-11	Two Leaking Underground Storage Tank (LUST) sites are onsite. Their presence as well as the potential for additional sites is a ***potentially significant*** impact.	PS	3.8-11	All property shall be investigated to determine if it is a hazardous material site pursuant to Government Code Section 65962.5 and that evidence provided to the City prior to the issuance of a demolition or grading permit, whichever is issued first. If a property is listed as a hazardous materials site pursuant to Government Code Section 65962.5, remedial measures to remove the hazardous materials in compliance with all local, county, state and federal laws and regulations shall be provided to and approved by the City prior to the issuance of a grading or building permit.	LS
3.8-12	The project would have a ***potentially significant*** impact if secondary access were not provided for the project in a timely manner.	PS	3.8-12	Bethel Island Road, including the construction of either a two or four-lane bridge, as determined by the City Engineer, shall be constructed to Byron Highway for emergency access before 20% of the project is occupied. The construction cost of the bridge shall be paid by the project developers on a fair-share basis to be determined by the City Engineer.	LS
3.8-13	The project would have a ***potentially significant*** impact if secondary access were not provided for the project in a timely manner. The construction of an east-west road through the middle of PA 1 during the early development phase of the project would provide additional emergency evacuation routes for residents prior to and in addition to the bridge over Rock Slough.	PS	3.8-13	The project developer of PA 1 shall construct the east-west road through the middle of PA 1 connecting Bethel Island Road with Jersey Island Road prior to the occupancy of 5% of the residential units of PA 1. This roadway at a minimum shall be constructed to allow two-way travel in addition to supporting the weight of a fire truck and meeting fire department emergency roadway standards.	LS
3.8-14	The construction of a bridge over Rock Slough and the Contra Costa Canal could have a ***significant*** impact to the water, which is a source of CCWD's drinking water supply.	S	3.8-14	The bridge over Rock Slough shall be designed to minimize the discharge and release of liquids and material into the Contra Costa Canal from motorist and pedestrians on the bridge. The bridge shall also be designed to prevent easy access to the Canal from the bridge. The bridge plans shall be reviewed and approved by CCWD before a building permit is issued by the City of Oakley.	LS
3.8-15	Peat fires represent a special hazard that once ignited are extremely difficult to extinguish and could have a ***potentially significant*** impact, if ignited.	PS	3.8-15	A geotechnical engineer shall survey the property within a proposed development for the presence of peat soil prior to the issuance of a grading permit. If present, peat soil shall be removed or protected from potential fire hazard as recommended by the geotechnical engineer.	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.8-16	The overhead electrical power lines would have a ***potentially significant*** impact with the use of recreational watercraft on the lakes within the electrical easements.	PS	3.8-16	Prior to the issuance of a lake grading permit by the City of Oakley, the project developers shall submit their lake plans for PA 1 and 4 to Pacific Gas and Electric for review and approval. The City approved lake management plan shall include information that specifically and categorically identifies the types of recreational and maintenance watercraft that are allowed on the lakes within the electrical power line easements.	LS
3.8-17	The development of multi-use trails and landscape improvements in the utility easements could have a ***potentially significant*** impact if not developed in compliance with WAPA and PG&E requirements.	PS	3.8-17	All multi-use trails and open space landscape plans within the WAPA and PG&E electrical easements shall be approved by the respective public utility prior to the issuance of a grading or building permit, whichever is issued first, by the City of Oakley for any development within the easements.	LS
3.8-18	The encroachment of the levee into the minimum vertical height between the top of the levee and the power lines would have a ***significant*** impact.	S	3.8-18	All levee plans within the PG&E and WAPA utility easements shall be submitted to the respective public utility for review and approval for adequate vertical height separation prior to the issuance of a grading permit	LS
3.9	**HYDROLOGY AND WATER QUALITY**				
3.9-1	Urban pollutants from the project can have a ***potentially significant*** impact on water quality.	PS	3.9-1	The City of Oakley shall require comprehensive Stormwater Management Plans (SWMPs) for all new developments within the project. Each SWMP shall clearly identify the stormwater management strategy related to water quality such that the regulations and standards of the City, County of Contra Costa and Central Valley Regional Water Quality Control Board are met. At a minimum, each SWMP document shall provide treatment for storm water runoff consistent with the requirements in the C3 Guidebook prepared by the CCCWP.	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.9-2	Failure to maintain the lake infrastructure and implement the required management practices could create impaired beneficial uses in the ultimate receiving waters resulting in a ***potentially significant*** impact.	PS	3.9-2	To maintain long-term water-quality objectives for the lakes, the City shall require a comprehensive Lake Management Plan (LMP) for all individual projects that will construct lake features. The plan shall clearly identify the management activities that are needed, the anticipated costs of conducting the required activities and the funding source to implement the LMP. Wherever practical, the City of Oakley shall own the lakes and associated infrastructure and shall be the entity responsible for implementing the LMP. The Lake Management Plan shall be approved by the Building Department prior to the issuance of a final grading permit for the lake.	LS
3.9-3	Shallow groundwater levels and related moisture in surface soils has the potential to cause damage to buildings, roads, and other structures. Similar groundwater studies performed at Cypress Grove, a development lying west of the Specific Plan area, showed similar shallow groundwater and proposed particular building and infrastructure designs to address possible effects from shallow groundwater. Such interaction between shallow groundwater and developed structures is considered a ***potentially significant*** impact.	PS	3.9-3	Prior to issuance of a grading permit, individual project proponents shall conduct design-level geotechnical study. Measures recommended in that study shall be incorporated into the design of roadway and infrastructure improvements, building foundations, and building designs.	LS
3.9-4	If required, groundwater dewatering could have a ***potentially significant*** impact on receiving water.	PS	3.9-4	The developers shall obtain NPDES Construction General Permits prior to the start of grading. The applications for such permits shall include, in the required SWPPP, appropriate BMPs and mitigation measures. If dewatering is not allowed by the NPDES Construction General Permit, a separate Waste Discharge Requirement permit shall be obtained before dewatering is commenced.	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.9-5	Increased surface water volume and quantity from the project would have a ***potentially significant*** impact to the slough channels if the maximum discharge rate of the existing RD 799 pump stations is increased.	PS	3.9-5	All project drainage infrastructure shall be designed such that it is not necessary to increase peak discharge rates at the existing RD 799 pump station outfalls into Dutch Slough and Sand Mound Slough. Any installation or replacement of pumps and/or outfalls shall be completed with approval from the appropriate agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, etc.) and in consultation with federal and state fish and wildlife agencies.	LS
3.9-6	Make-up water needs for the lakes will peak in the summer months, precisely the time that the historical irrigation withdrawals have peaked, which could have a ***potentially significant*** impact on irrigation water supply.	PS	3.9-6	The City of Oakley shall require consideration of surface water supplies as an irrigation water source in the approval of all development in the project area. In cases where on-site lakes would be constructed, details of surface water use for irrigation shall be a component of the required Lake Management Plan. Where continued surface water withdrawals are needed they would be made in a manner that most closely approximates the rate and timing of customary surface water withdrawals. All surface water withdrawal infrastructure shall be updated to the prevailing standards for protection of fisheries resources where applicable.	LS
3.9-7	There may be instances where improvements for the proposed project would require the elimination of existing irrigation systems. This is a ***potentially significant*** impact.	PS	3.9-7	The City of Oakley shall confirm whether continued access to irrigation water from the Jersey Island Road Canal is needed as part of the interior levee design review. Delivery of surface water to existing users shall be maintained as needed and any required new or updated irrigation infrastructure shall be constructed on a schedule that precludes interruption of customary deliveries. Replacement of irrigation waters, if any, would be small and could be provided by pumping the small amount of water from Little Dutch Slough or the east end of the truncated Jersey Island Road Canal to the affected properties along the alignment. All surface water withdrawals shall be based on design requirements of NOAA Fisheries and other resource agencies to protect fishery resources from adverse impacts.	LS
3.9-8	Construction of the master interior levee, elimination of irrigation runoff and rerouting of stormwater flows may	PS	3.9-8	The Mitigation and Monitoring Plan prepared for Mitigation Measure 3.5-4 shall include the interior levee design. The plan shall recognize the sources of water supporting any preserved wetland habitats between the interior levee and	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	obstruct flow to wetlands on the DSWRP property and have a ***potentially significant*** impact to the hydroperiod.			the existing perimeter levee as well as maintain the DSWRP. Adequate provisions for maintaining the quantity and quality of flow shall be included in the mitigation plan and implemented on a schedule that does not impair the functions and values of the wetland habitats. An appropriate monitoring program shall be implemented to assess the effectiveness of any flow augmentation solutions that are used.	
3.9-9	Development of the project would increase impervious surfaces and lead to substantial increases in the rate and volume of stormwater runoff resulting in localized flooding and excessive work-load on the RD 799 pumps. This is a ***potentially significant*** impact.	PS	3.9-9	Project proponents shall prepare a detailed design level drainage study as part of the flood control levee design review. The final drainage design shall present detailed calculations and modeling that demonstrate that peak discharge rates would not be increased to those portions of the existing drainage system that will remain in place. This includes existing drainage ditches and channels, as well as the pump stations operated by RD 799. The City shall work closely with RD 799 as part of this study to assure that all improvements are consistent with mutually agreed long-term drainage management goals.	LS
3.9-10	Construction of new outfalls would lead to temporary impacts such as raising the turbidity of the sloughs during construction and over the long-term could alter flow patterns at the point of discharge. This is a ***potentially significant*** impact.	PS	3.9-10	All required outfalls for drainage improvements for the project shall be located at existing RD 799 pump station outfalls. Detailed engineering studies shall be carried out with RD 799 during the interior levee design process. The resulting designs shall coordinate the construction of any new outfalls with other improvements at the pump stations. Construction best management practices shall be strictly implemented and detailed in the SWPPP for control of erosion or degradation of water quality in the receiving waters.	LS
3.9-11	Construction of the flood control levee west of Jersey Island Road may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.9-11	Biology mitigation measure 3.5-1-4 shall be implemented.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.9-12 Construction of the flood control levee west of Jersey Island Road may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.	PS	3.9-12 A geotechnical report shall be submitted along with levee design plans to the City of Oakley, RD 799, FEMA, and CCWD for approval. The geotechnical report shall identify all geotechnical and soils constraints with levee construction and recommend measures accordingly to correct all identified soil and/or geotechnical constraints. All measures to correct soil and geotechnical constraints shall be incorporated into the design and construction of the levee.	LS
3.9-13 Soil erosion could occur during levee construction, especially during periods of high wind or during the winter months when rainfall typically occurs and have a ***potentially significant*** impact.	PS	3.9-13 A soil erosion control plan to reduce and minimize soil erosion during and after levee construction shall be submitted to the City for approval. The soil erosion control plan for both construction and post-construction shall be approved by the City prior to the start of construction.	LS
3.9-14 Groundwater would be encountered during construction of the flood control levee west of Jersey Island Road and have a ***potentially significant*** impact.	PS	3.9-14 Hydrology mitigation measure 3.9.3.1.7 shall be incorporated into the levee construction	LS
3.9-15 The operation of construction equipment during levee construction would generate noise to existing residents in close proximity to the construction and have a ***potentially significant*** impact.	PS	3.9-15 All levee construction activity shall comply with the City of Oakley Noise Element with regards to hours and days of construction.	LS
3.9-16 The construction of the levee across Bethel Island Road and East Cypress Road would have a ***potentially significant*** impact to traffic and circulation.	PS	3.9-16 Traffic mitigation measure 3.13-18 shall be incorporated into the construction of the levee.	LS
3.9-17 The loss of individual burrowing owls, western pond turtle nests, giant garter snakes, silvery legless lizards, nesting	PS	3.9-17 The following Biology mitigation measures shall be required: 3.5-42, 44, 45, 47- 50, 58, 59-69. The Hollywood junipers may be considered protected or heritage trees according to the Contra Costa County Tree Ordinance. Biology	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	birds, or bats could be a ***potentially significant*** impact.			mitigation measures 3.5-14-15 shall be followed to reduce impacts to heritage and protected trees.	
3.9-18	New habitable structures constructed in the inter-levee area would remain in the floodplain. This is a ***potentially significant*** impact.	PS	3.9-18	All new levees shall be constructed to the latest FEMA standards such that all interior areas can be removed from the one-percent chance floodplain. Compliance with FEMA regulations and standards shall be documented through the filing, and FEMA approval of a Letter of Map Revision. All new habitable structures located in a designated floodplain shall be protected by adequate levees, elevated above the base flood elevation or otherwise flood-proofed to FEMA standards.	LS
3.9-19	Obstruction of existing drainage patterns could potentially lead to flooding on- or off-site and this is a ***significant*** impact.	S	3.9-19	The City of Oakley shall require a detailed design level drainage study as part of the interior levee design review that supplements the analyses presented in the Hydrology and Water Quality report appended to this document. The final design analysis shall include a thorough assessment of existing drainage facilities that may be impacted by construction of the levee. Detailed calculations shall be provided of the peak flow and volume of runoff from any areas that will be impacted, consistent with the analytical methodologies used by the City of Oakley and CCCFCWCD, and must be reviewed and approved by RD 799. Adequate alternative drainage facilities shall be required as identified in the study, and shall be constructed on a schedule that precludes any impairment of existing drainage routes. In the case of the drainage that originates south of East Cypress Road, the ultimate solution may involve a small pump at the intersection of East Cypress Road and Jersey Island Road to direct the flow toward Little Dutch Slough at the existing RD 799 outfall for PS-1a or to the truncated end of the irrigation canal on the DWR property, along an alignment outside of the internal levees.	LS
3.9-20	Inundation of the inter-levee area would occur much more quickly with construction of the proposed master interior levee and have a ***potentially***	PS	3.9-20	The City of Oakley shall cooperate with RD 799, the County of Contra Costa and other pertinent agencies to update the emergency response plan for a perimeter levee failure. The updated emergency response plan shall include consideration of the changes in land use and public facilities proposed by the	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	significant impact.			project. The emergency response plan shall include a detailed levee failure analysis study to identify all areas of high risk, and select appropriate evacuation routes and staging areas accordingly. The emergency response plan shall be approved by the City, RD 799 and the County of Contra Costa before the extension of the interior levees beyond the southern phase of the Summer Lake project.	
3.9-21	Rising sea levels could reduce the safety factors of existing and proposed levees if they are not built to protect from the currently mapped base flood elevation. This is a ***potentially significant*** impact.	PS	3.9-21	All levees shall be constructed using design criteria identified in the NFIP regulations. Levees shall be constructed in a manner that takes into account the potential for future increase in sea level. The City of Oakley and RD 799 shall prohibit any structures or encroachments that would compromise future remedial actions to raise levee crest heights to maintain levee safety factors to FEMA standards.	LS
3.9-22	There is the potential for seiche inundation that could have a ***significant*** impact.	S	3.9-22	All man-made lakes shall be designed and constructed to contain wind- and seismically-generated (seiche) waves within the boundary of the lake. All structures and buildings, surrounding and within 20 feet of a lake shall be placed at a minimum of two feet above the maximum lake.	LS
3.10	**LAND USE AND PLANNING**				
3.10-1	Complaints by new residents moving into the project with the on-going agricultural activities could have a ***potentially significant*** impact.	PS	3.10-1	All perspective residents shall be notified prior to the purchase of a residence that existing agricultural activities exist on the site and the agricultural activities may continue into the future. In addition, future project residents shall acknowledge during and prior to the close of escrow they have been properly notified and are aware that agricultural activities exist and may continue to exist.	LS
3.10-2	The storage of maintenance equipment for RD 799 could have ***significant***	S	3.10-2	The site shall be screened from the surrounding residences with screening methods proposed in the Specific Plan for the water tank site or other	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	impacts to adjacent residents due to noise and aesthetics.			screening methods allowed by the Community Development Director. At a minimum screening shall include chain link fencing with slats to prevent direct views from surrounding residential areas.	
3.11	**NOISE AND VIBRATION**				
3.11-1	The near-term traffic noise levels are expected to exceed 65 dB Ldn which is a ***significant*** impact.	S	3.11-1.	A 6-foot noise barrier shall be constructed along the rear yards of those residences located adjacent to Bethel Island Road. If the building pad elevations of the residences are more than 2 feet below the roadway elevation, a revised barrier calculation shall be conducted to confirm the 6-foot noise barrier is adequate to reduce noise levels to meet City noise criteria.	LS
3.11-2	The roadways that would experience a noise level increase greater than 3 Db include East Cypress Road between Main Street and east of Bethel Island Road, Jersey Island Road from Cypress Road to Dutch Slough Road, and Bethel Island Road from East Cypress Road to Delta Road. This is a ***potentially significant*** impact.	PS	3.11-2	An 8-foot noise barrier shall be constructed along the rear yards of residences that are located adjacent to the north side of East Cypress Road between Jersey Island Road and Bethel Island Road. A 6-foot noise barrier shall be constructed along the south side of the pedestrian trail and the north side of the existing East Cypress Road, between Jersey Island Road and Bethel Island Road. If the building pad elevations of those residences are more than 2 feet below the roadway elevation, a revised barrier calculation shall be conducted to confirm the 8-foot and 6-foot noise barriers are adequate to reduce noise levels to meet City noise criteria.	LS
3.11-3	Residential land use adjacent to the Village Center could have a ***potentially significant*** impact due to the operation of the commercial center.	PS	3.11-3	A noise analysis shall be submitted to the City along with development plans for the Village Center. The noise analysis shall identify all on-site noise sources, including mechanical equipment, and determine the noise levels that could extend to adjacent residences. Measures to reduce exterior and interior noise levels of the residential use to City standards shall be identified.	LS
3.11-4	Noise from the operation of mechanical equipment and other stationary noise	PS	3.11-4	All loading docks shall be located a minimum of 150 feet from the closest residence.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	sources that exceed the City's noise ordinance are considered to be ***significant*** impacts.				
3.11-5	Noise from the operation of mechanical equipment and other stationary noise sources that exceed the City's noise ordinance are considered to be ***significant*** impacts.	S	3.11-5	Sound walls shall be constructed along property lines or adjacent to loading docks between commercial unloading areas or commercial truck routes, and adjacent residential uses. The final locations and heights of walls shall be determined at the time a site plan is submitted to the City for approval.	LS
3.11-6	Noise from the operation of mechanical equipment and other stationary noise sources that exceed the City's noise ordinance are considered to be ***significant*** impacts.	S	3.11-6	Loading dock activities and on-site truck traffic shall be limited to the daytime hours between 7:00 a.m. and 10:00 p.m.	LS
3.12	**PUBLIC SERVICES AND UTILITIES**				
3.12-1	The Specific Plan will substantially increase demand for potable water, such increase in demand represents a ***potentially significant*** impact.	PS	3.12-1	To address potential impacts on DWD water service infrastructure and provide the necessary looping in the southern part of the DWD service area, the developments within the Specific Plan area shall implement one or more of the following options: o Install 18" water main in Neroly Road, and extend the 16" water main in Laurel Road to Sellers Avenue. Install 24" main in Sellers Avenue from Laurel Road to East Cypress Road. o Install 24" main in Carpenter Road west of O'Hara Avenue, and extend the 16" water main in Laurel Road to Sellers Avenue. Install 24" main in Sellers Avenue from Laurel Road to East Cypress Road. o Install 18" water main in Neroly Road, and install 24" main in Neroly and Delta Roads from O'Hara Avenue to Sellers Avenue. Install 24"	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		main in Sellers Avenue from Delta Road to East Cypress Road. o Install 24" main in Carpenter Road west of O'Hara Avenue, and install 24" main in Neroly and Delta Roads from O'Hara Avenue to Sellers Avenue. Install 24" main in Sellers Avenue from Delta Road to East Cypress Road.	
3.12-2 Without appropriate water conservation measures, consistent with CVP provisions, use of CVP water would represent a ***potentially significant*** impact.	PS	3.12-2 Implement water conservation measures approved by USBR under Section 3406 of the CVPIA that shall include, but are not limited to: o Installation of water measuring devices (i.e., water meters); o Adoption of California Urban Water Agencies (CUWA) BMPs for residential/commercial water usage, including, but not limited to the following: ▪ Irrigating large turf/landscape areas with local groundwater wells; ▪ Landscape road medians and other similar areas with xeriscape and low water use plants; ▪ Install low water use fixtures in residential and non-residential buildings; and ▪ Use high efficiency irrigation equipment in public and common areas.	LS
3.12-3 The Specific Plan will substantially increase demand for potable water, such increase in demand represents a ***potentially significant*** impact.	PS	3.12-3 DWD shall prepare a Water Supply Assessment in accordance with SB 610. Before final map approval, DWD must provide Written Verification of sufficient water supply to serve the subdivision.	LS

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Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
3.12-4	Accordingly, the potential impacts of levee construction within the project area could present a ***potentially significant*** impact.	PS	3.12-4	The developers shall furnish all plans regarding FEMA levees proposed along the Canal (between the Rock Slough Headworks and East Cypress Road) to CCWD, RD 799, and the USBR. Plans shall include proposed levees within or adjacent to USBR property. All final plans shall be subject to approval by these three cooperating agencies in accordance with NEPA and other applicable state and federal regulations.	LS
3.12-5	The proposed widening of East Cypress Road at the Canal represents a ***potentially significant*** impact to CCWD's water system.	PS	3.12-5	To ensure proper coordination of the roadway improvements and replacement of the Canal siphon underlying East Cypress Road, design specifications and construction of roadway improvements and siphon replacement are subject to CCWD and Bureau of Reclamation direction and approval and must comply with NEPA, the Endangered Species Act, and other applicable federal and state regulations. Performance bonds for design and construction of the roadway improvements and siphon replacement shall be advanced prior to construction consistent with CCWD and Bureau of Reclamation requirements.	LS
3.12-6	The proposed widening of East Cypress Road at the Canal represents a ***potentially significant*** impact to CCWD's water system.	PS	3.12-6	Proposed residential developments within the Specific Plan Area shall provide reimbursement for a fair share of the administrative costs necessary for CCWD and the Bureau of Reclamation to review and approve the roadway and siphon designs and construction. Such administrative costs may include, for example, administration, design review, and inspection.	LS
3.12-7	The proposed widening of East Cypress Road at the Canal represents a ***potentially significant*** impact to CCWD's water system.	PS	3.12-7	Any modifications to the Canal itself shall follow and be consistent with CCWD and Bureau of Reclamation design and construction management approaches. The siphon may be designed and constructed either by CCWD, the City of Oakley, or a private party (as specifically approved by CCWD and the Bureau of Reclamation). In any event, the design of the siphon, including the designer used, shall be reviewed and approved by CCWD and/or the Bureau of Reclamation. Any private party design and/or construction of the siphon shall be subject to a design and construction agreement between the developer, CCWD and/or the Bureau of Reclamation.	LS

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Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.12-8 The proposed widening of East Cypress Road at the Canal represents a ***potentially significant*** impact to CCWD's water system.	PS	3.12-8 According to CCWD, during the early winter (typically October through December) the Canal can be taken offline without impacting the water supply system. If possible, the modifications to the Canal should occur during this down time. In the event that construction must proceed outside this period, the East Cypress Road widening shall require that a portion of the Canal flows be diverted around the construction area to maintain ongoing service to customers in the area. The timing of the construction of the facilities shall only occur at a time approved by CCWD and the Bureau of Reclamation.	LS
3.13 TRANSPORTATION/TRAFFIC			
3.13-1 The project would contribute to the unacceptable LOS E or LOS F at intersections along Main Street at Southbound SR 160 Ramps, Northbound SR 160 Ramps, Empire Avenue, O'Hara Avenue, East Cypress Road, and Laurel Road during both the AM and PM peak hours and have a ***potentially significant*** impact.	PS	3.13-1 Mitigation of the unacceptable traffic conditions along Main Street can partially be achieved through the construction of Segment 1 of the SR 4 Bypass, the Laurel Road Interchange and the extension of Laurel Road to the SR 4 Bypass. This mitigation would provide an alternative route to Main Street and alleviate some of its congestion. The SR 4 Bypass Authority is responsible for the construction of this mitigation. The project would contribute to this mitigation by paying its fair share of the cost through the payment of regional traffic fees to the East Contra Costa Regional Fee and Finance Authority (ECCRFFA).	LS
3.13-2 The project would contribute to the unacceptable LOS F traffic conditions at intersections along East Cypress Road at Jersey Island Road and Sellers Avenue during both AM and PM peak hours under Near Term and have a ***potentially significant*** impact.	PS	3.13-2 Mitigation of the unacceptable conditions along East Cypress Road between Sellers Avenue and Jersey Island Road can partially be achieved through widening the roadway to three lanes in each direction to provide more capacity on this portion of East Cypress Avenue and alleviate some of the congestion along the roadway. This roadway improvement has been identified in the City's General Plan and is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation constructing the improvement or by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS

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Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
3.13-3 The project would contribute to the unacceptable LOS E or LOS F operations at study intersections along East Cypress Road at Jersey Island Road, Sellers Avenue, and Main Street, and intersections along Main Street at O'Hara Avenue, Empire Avenue, and SR 160 Interchange during both AM and PM peak hours and have a ***potentially significant*** impact.	PS	3.13-3 Mitigation of the unacceptable conditions along East Cypress Road and Main Street can partially be achieved through extending Laurel Road from its current eastern terminus just west of the Union Pacific Railroad to Sellers Avenue as a four-lane arterial and upgrading Sellers Avenue between East Cypress Road and Laurel Road to a four-lane arterial. This mitigation measure in conjunction with the construction of Segment 1 of the SR 4 Bypass and extension of Laurel Road west to SR 4 Bypass (Mitigation 1) would provide an alternative route to and from the SR 4 freeway, and alleviate some of the congestion along East Cypress Road and Main Street. This roadway improvement project has been identified in the City's General Plan and is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS
3.13-4 The project would contribute to or cause study intersections along East Cypress Road at Jersey Island Road, Sellers Avenue, and Main Street to operate at unacceptable LOS F and have a ***potentially significant*** impact.	PS	3.13-4 Mitigation of the unacceptable conditions along East Cypress Road can partially be achieved with the construction of a four-lane roadway with bridge over Rock Slough to connect Bethel Island Road with Byron Highway and Delta Road that are south of the project site. This connection would provide an alternative access to the south. Tow lanes of the roadway and a bridge, with the exact width and configuration of the bridge to be determined through further engineering analysis, shall be constructed before 20% of the project (800 residential units) has been completed and the ultimate four-lane roadway should be constructed before 80% of the project (3,100 units) has been completed. This improvement project has been identified in the Contra Costa County General Plan. However, no funding sources have yet been identified. The project would contribute to this mitigation by constructing the improvement.	LS
3.13-5 The project contribute to the unacceptable LOS E or LOS F operations at intersections along Laurel Road at Empire Avenue, and Main Street	PS	3.13-5 Mitigation of the unacceptable conditions along Laurel Road can partially be achieved through widening Laurel Road to a four-lane arterial between Empire Avenue and Main Street. This mitigation measure would alleviate some of the congestion along Laurel Road. This roadway improvement project has been	LS

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	and have a ***potentially significant*** impact.			identified in the City's General Plan and is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	
3.13-6	The project traffic would contribute to the unacceptable LOS F operations the Main Street/O'Hara Avenue intersection and have a ***potentially significant*** impact.	PS	3.13-6	Mitigation of the unacceptable conditions at Main Street/O'Hara Avenue intersection can be achieved through the construction of the Main Street Downtown Bypass. This project would realign Main Street north of its current alignment as a new four-lane arterial between west of Vintage Parkway and 2nd Street to provide an alternative to Main Street through Downtown Oakley. The Main Street Downtown Bypass was included in the *Old Town Oakley Specific Plan* in 1999 and is also included in the City's General Plan and the City's Transportation Impact Fee Program. Developers of the East Cypress Corridor Specific Plan would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS
3.13-7	The addition of project traffic would cause the West Cypress Road/O'Hara Avenue intersection to operate at unacceptable LOS F during both AM and PM peak hours under Near Term with Project conditions and have a ***potentially significant*** impact.	PS	3.13-7	Mitigation of the unacceptable conditions at West Cypress Road/O'Hara Avenue intersection can be achieved through the installation of traffic signals at the intersection. The forecasted AM peak hour and PM peak hour intersection volumes would satisfy the MUTCD peak hour traffic signal warrants.[8] This signal installation is included in the City's Transportation Impact Fee Program. The proposed project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's	LS

[8] This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The City of Oakley should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

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	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
				Transportation Impact Fee.	
3.13-8	The project traffic would contribute to the unacceptable LOS F operations at the West Cypress Road/Main Street intersection and have a ***potentially significant*** impact.	PS	3.13-8	Mitigation of the unacceptable conditions at West Cypress Road/Main Street intersection can be achieved through the addition of a second southbound left-turn lane, the reconfiguration of the eastbound right-turn lane to a shared through/right-turn lane, and the reconfiguration of the westbound through lane to a shared through/right-turn lane. The reconfiguration of the West Cypress Road/Main Street intersection is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS
3.13-9	The project would contribute to the unacceptable LOS F operations at the East Cypress Road/Sellers Avenue intersection and have a ***potentially significant*** impact.	PS	3.13-9	Mitigation of the unacceptable conditions at East Cypress Road/Sellers Avenue intersection can be achieved through the reconfiguration of the intersection to provide a right-turn, a shared through/right-turn, a through, and a left-turn lane on the southbound approach; a shared through/right-turn, a through, and two left-turn lanes on the westbound approach; two left, two through, and a free right-turn lane on the northbound approach; and a right, two through, and one left-turn lane on the eastbound approach. The reconfiguration of the East Cypress Road/Sellers Avenue intersection is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS
3.13-10	The traffic would cause the East Cypress Road/Jersey Island Road intersection to operate at unacceptable LOS F and have a ***potentially significant*** impact.	PS	3.13-10	Mitigation of the unacceptable conditions at East Cypress Road/Jersey Island Road intersection can be achieved through the installation of a traffic signal at this intersection. The forecasted AM peak hour and PM peak hour intersection volumes would satisfy the MUTCD peak hour traffic signal warrant.[9] The installation of a signal is included in the City's Transportation	LS

9 Please see footnote 5.

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Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
		Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	
3.13-11 The traffic would contribute to the unacceptable LOS F operations at Laurel Road/Empire Avenue and have a ***potentially significant*** impact.	PS	3.13-11 Mitigation of the unacceptable conditions at the Laurel Road/Empire Avenue intersection can be achieved through installing traffic signals at the intersection and providing a right-turn, two through, and a left-turn lane on the northbound approach and a shared through/right-turn lane, a through lane, and a left-turn lane on the other approaches. The signalization of the Laurel Road/Empire Avenue intersection is included in the City's Transportation Impact Fee Program. The project would contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee.	LS
3.13-12 The addition of project traffic would cause the Laurel Road/Main Street intersection to operate at unacceptable LOS E during the AM peak hour under Near Term with Project conditions and have a ***potentially significant*** impact.	PS	3.13-12 Mitigation of the unacceptable conditions at the Laurel Road/Main Street intersection can be achieved by providing an additional eastbound right-turn lane on Laurel Road. This improvement project is not included in any funding document. The proposed project would contribute to this mitigation by paying its fair share of the cost.	LS
3.13-13 The traffic would cause the Balfour Road/Byron Highway intersection to operate at unacceptable LOS E and have	PS	3.13-13 Mitigation of the unacceptable conditions at the Balfour Road/Byron Highway intersection can be achieved through installing a traffic signal at the intersection. The forecasted PM peak hour intersection volumes would satisfy	LS

10 This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The County of Contra Costa should

LS=Less-Than-Significant; PS=Potentially Significant Impact; S=Significant; SA=Significant Adverse; UA=Unavoidable Adverse

Table 1-1
Summary of Impacts and Mitigation Measures

Impact	*Level of Significance Prior to Mitigation*	*Mitigation Measures*	*Level of Significance after Mitigation*
a ***potentially significant*** impact.		the MUTCD peak hour traffic signal warrant for rural areas.[10] The Balfour Road/Byron Highway intersection signalization is not identified in any funding documents, but this mitigation measure is consistent with the findings of previous environmental documents[11]. If an agreement regarding cooperative funding of this improvement exists between Contra Costa County and the City of Oakley at the time of vesting map, the proposed project would contribute to this mitigation by paying its fair share of the cost to Contra Costa County.	
3.13-14 The traffic would cause the Sandmound Boulevard/Bethel Island Road intersection to operate at unacceptable LOS F and have a ***potentially significant*** impact.	PS	3.13-14 Mitigation of the unacceptable conditions at Sandmound Boulevard/Bethel Island Road intersection can be achieved through widening the Bethel Island Road to two lanes in each direction and the installation of traffic signals at the intersection. The forecasted AM peak hour and PM peak hour intersection volumes would satisfy the MUTCD peak hour traffic signal warrant.[12] No funding sources have been identified for this project. The proposed project would construct this improvement.	LS
3.13-15 The traffic would contribute to the segment of SR 4 freeway between Loveridge Road and Hillcrest Avenue to exceed the established Delay Index of 2.5 and have a ***potentially significant*** impact.	PS	3.13-15 Mitigation of the unacceptable conditions on SR 4 freeway can be achieved through widening the freeway to provide three mixed-flow travel lanes and one high-occupancy vehicle (HOV) lane in each direction between Loveridge Road and Hillcrest Avenue. This improvement project is currently in the planning stages and a variety of funding sources, including ECCRFFA and Measure C, have been identified. The proposed project would contribute by paying its fair share of the cost through the payment of the regional fees.	LS
3.13-16 Emergency access to the project and evacuation from the project can	PS	3.13-16 Mitigation of the potential insufficient emergency access can be achieved by providing an additional access point to the site with the construction of a	LS

undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

11 *Discovery Bay West General Plan Amendment Environmental Impact Report* (Contra Costa County, 1994).

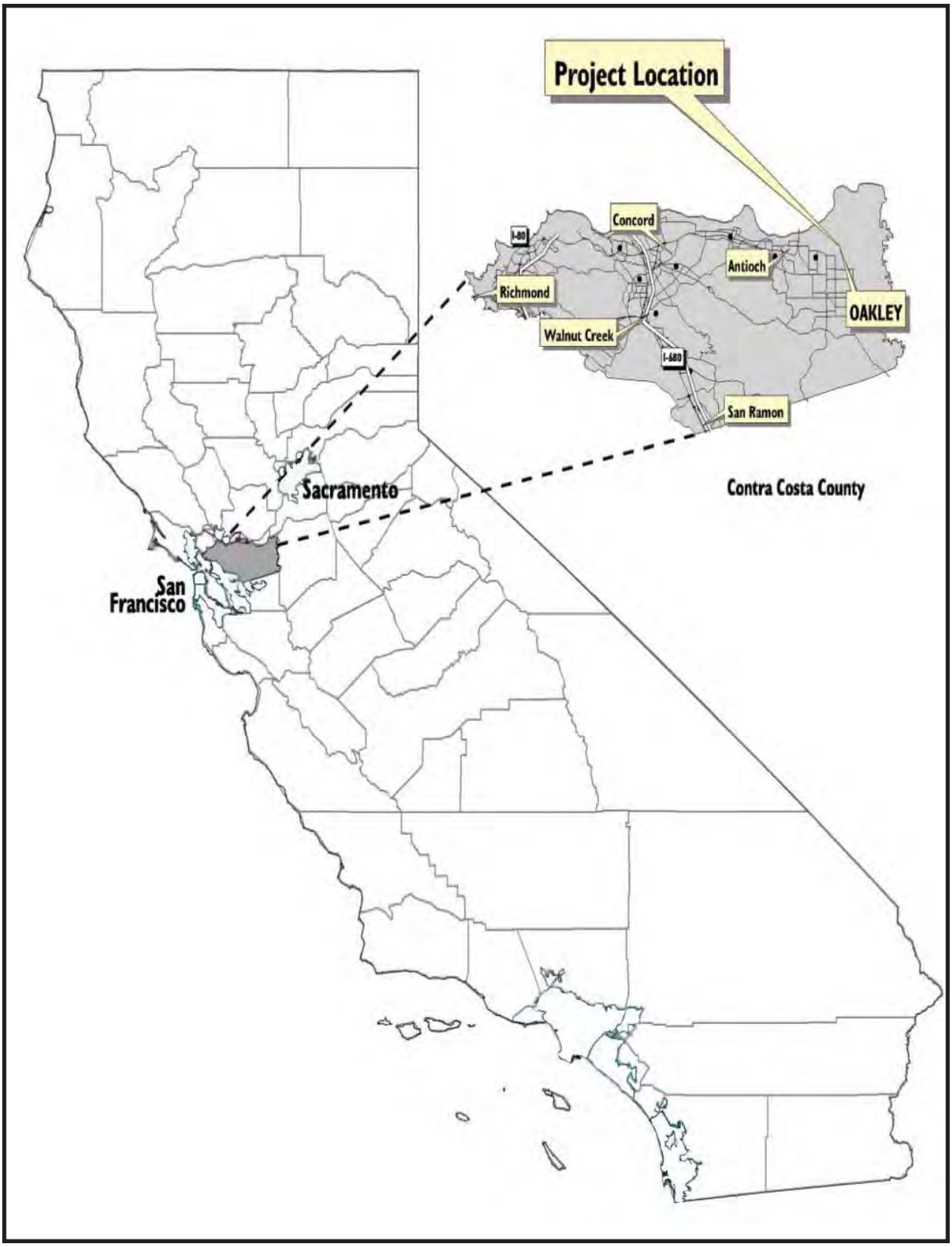
12 Please see footnote 5.

LS=Less-Than-Significant; PS=Potentially Significant Impact; S=Significant; SA=Significant Adverse; UA=Unavoidable Adverse

Table 1-1
Summary of Impacts and Mitigation Measures

	Impact	*Level of Significance Prior to Mitigation*		*Mitigation Measures*	*Level of Significance after Mitigation*
	potentially be insufficient because East Cypress Road provides the only external access and have a ***potentially significant*** impact..			bridge over Rock Slough to connect Bethel Island Road south to Byron Highway and Delta Road. The project would construct this improvement.	
3.13-17	The site plan for the individual neighborhoods may result in increased hazards due to a design feature, inadequate emergency access, or conflicts with adopted alternative transportation policies, plans, or programs and have a ***potentially significant*** impact.	PS	3.17-17	Mitigation of the potential impact can be achieved through a review of the tentative map for each neighborhood by the City Engineer to ensure the adequacy of the site plan.	LS
3.13-18	On-going construction in the project may result in potential temporary hazardous conditions and have a ***potentially significant*** impact.	PS	3.13-18	Mitigation of the potential temporary hazardous conditions can be achieved through preparation of a Construction Phasing and Management Plan for each construction phase. The Construction Phasing and Management Plan shall be approved by the City and may include the following elements: • A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure procedures; signs, cones, and other warning devices for drivers; and designation of construction access routes. • Location of construction staging, and provision of on-site parking for all construction employees, site visitors, and inspectors. • Provision for monitoring surface streets used for haul routes so that any damage attributable to the haul trucks can be identified and corrected. Note: The impact would be reduced to less than significant with the implementation of this mitigation measures.	LS

LS=Less-Than-Significant; PS=Potentially Significant Impact; S=Significant; SA=Significant Adverse; UA=Unavoidable Adverse

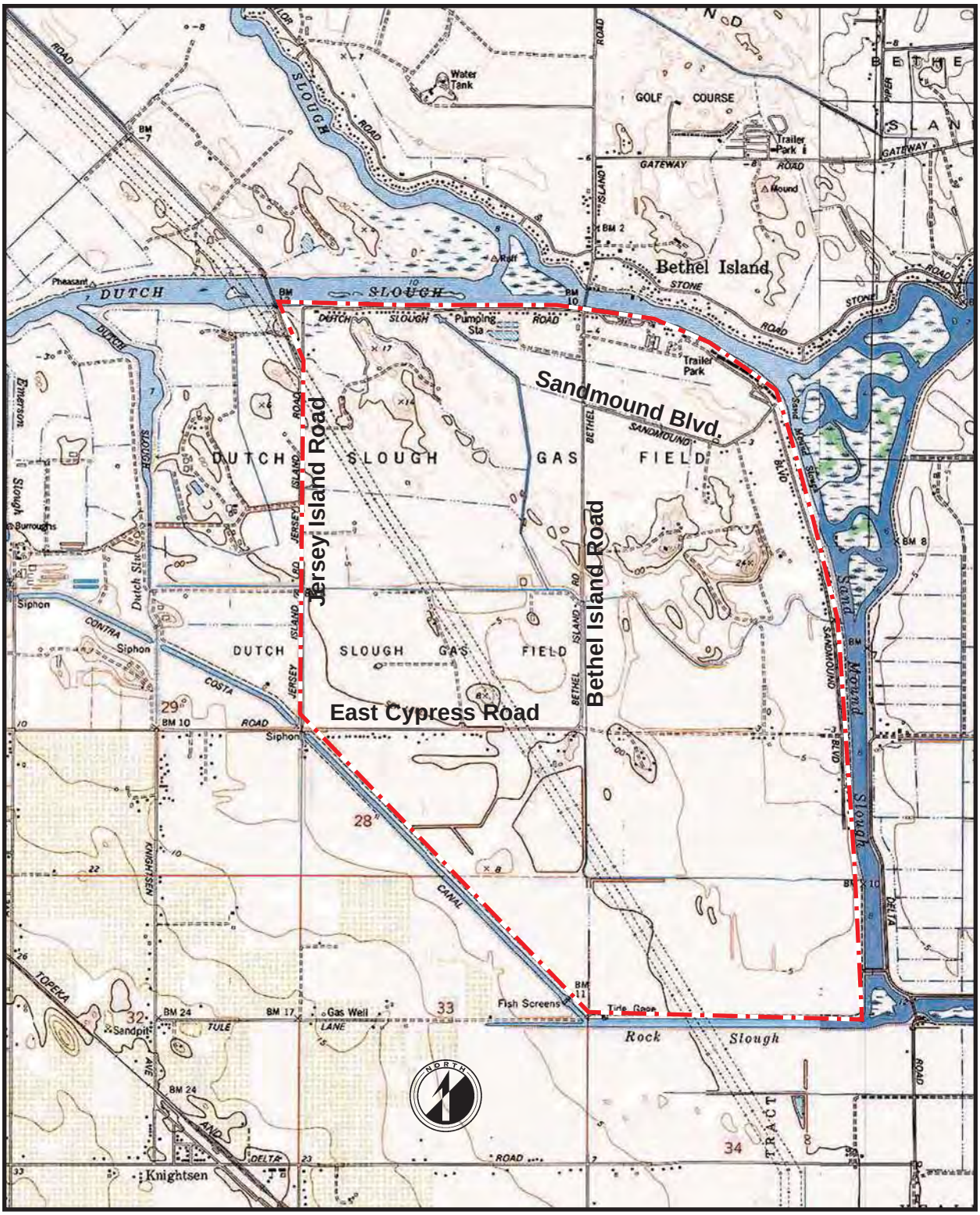


Source: City of Oakley, 2005

Figure 1-1
Regional Location Map

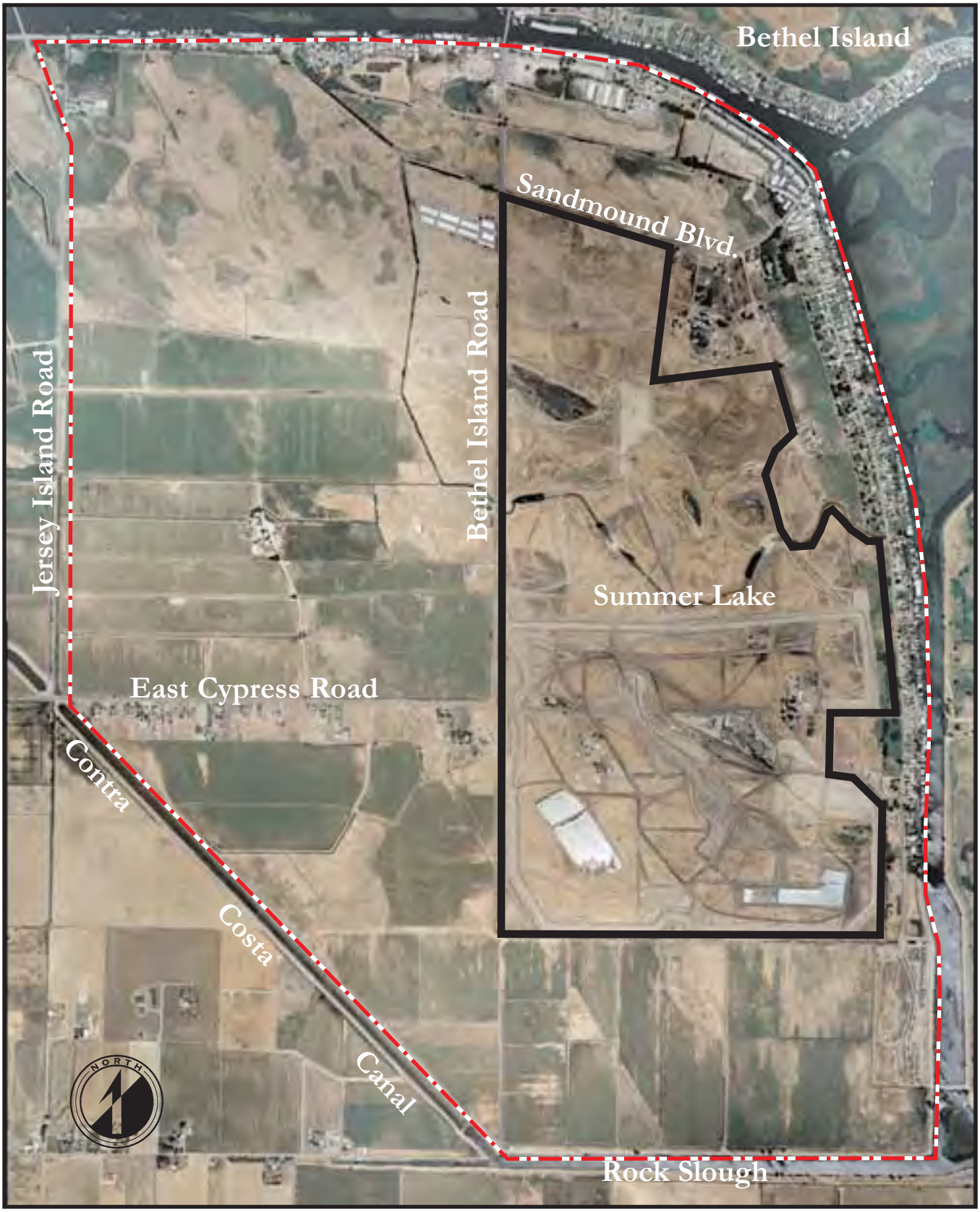
Source: Phil Martin & Associates, 2005

Figure 1-2
Local Vicinity Map



Source: 2001 USGS Topographic Maps and Phil Martin & Associates, 2005

Figure 1-3
USGS Topographic Map

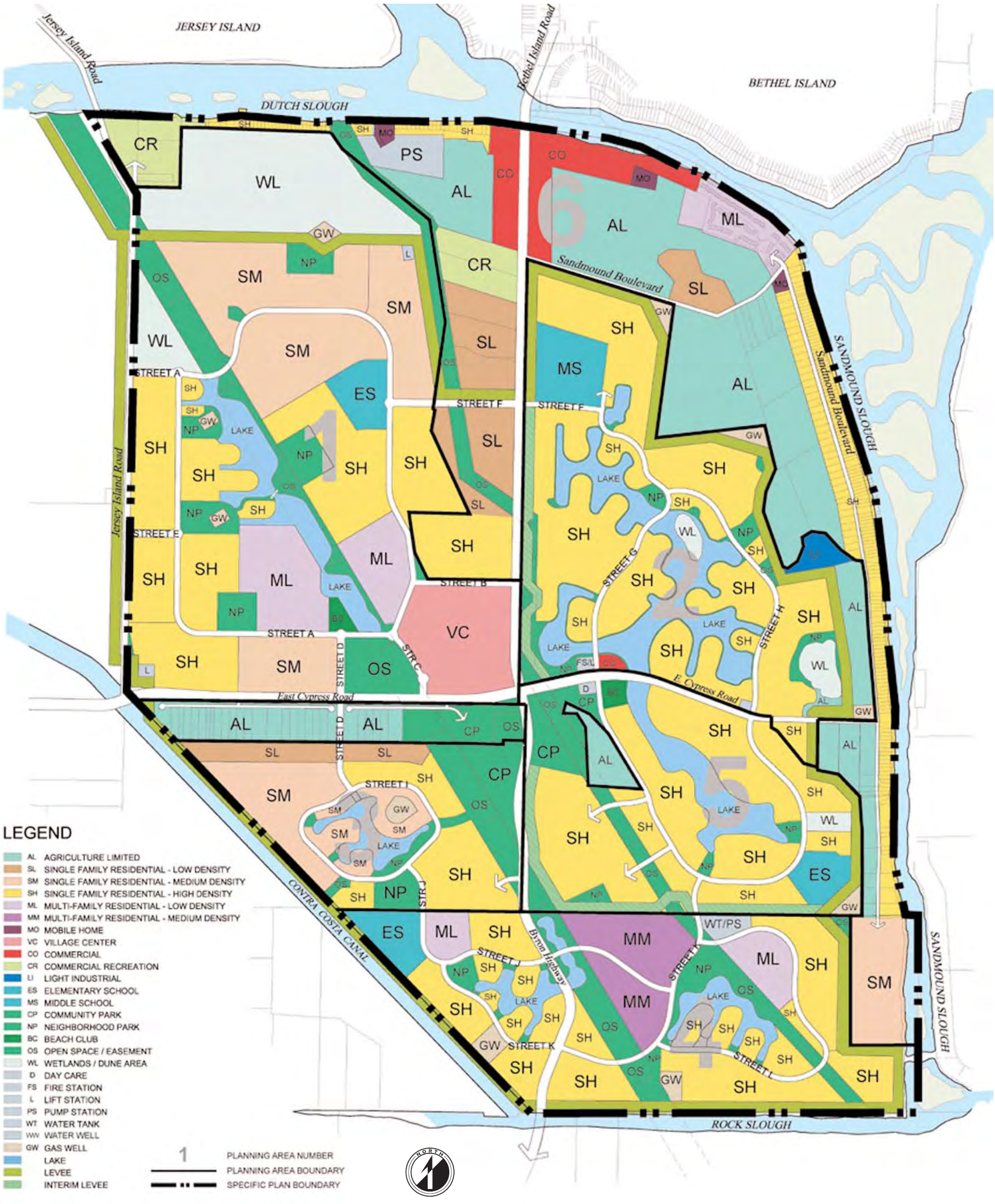


Summer Lake Boundary

Project Boundary

Source: McLarand, Vasquez, Emsiek & Partners, Inc., 2005

Figure 1-4
Aerial Photograph

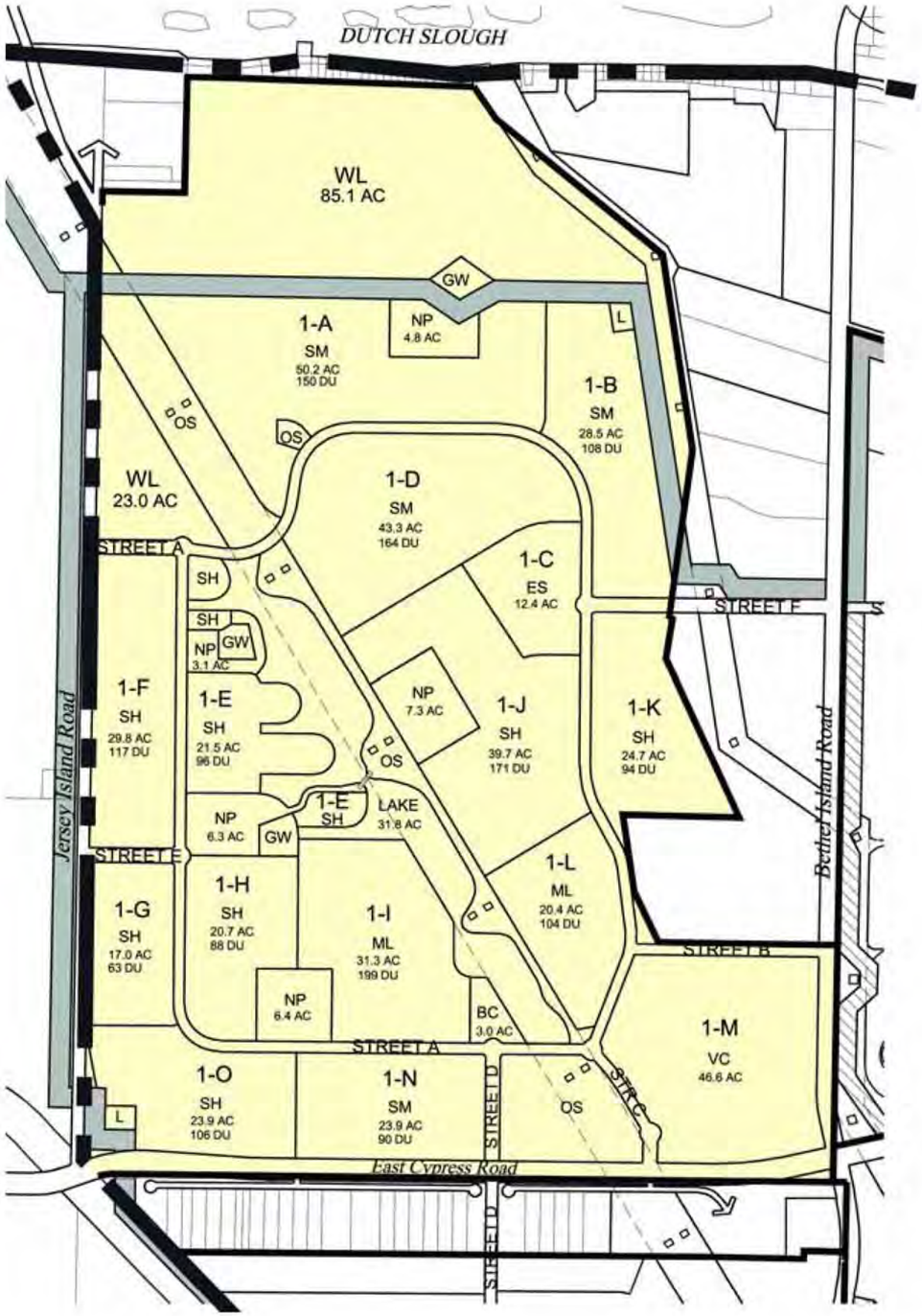


Source: City of Oakley and McLarand, Vasquez, Emsiek & Partners, Inc., 2005

Figure 1-5
East Cypress Corridor Specific Plan
Land Use Plan Map

Source: McLarand, Vasquez, Emsiek & Partners, Inc., 2005

Figure 1-6
East Cypress Corridor Specific Plan
Planning Areas



Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
1-A	SM	Single Family Residential - Medium Density	50.2	2.3 - 3.8	150	
1-B	SM	Single Family Residential - Medium Density	28.5	2.3 - 3.8	108	
1-C	ES	Elementary School	12.4			
1-D	SM	Single Family Residential - Medium Density	43.3	2.3 - 3.8	164	
1-E	SH	Single Family Residential - High Density	21.5	3.8 - 5.5	96	
1-F	SH	Single Family Residential - High Density	29.8	3.8 - 5.5	117	
1-G	SH	Single Family Residential - High Density	17.0	3.8 - 5.5	63	
1-H	SH	Single Family Residential - High Density	20.7	3.8 - 5.5	88	
1-I	ML	Multi-Family Residential - Low Density (Detached)	31.3	5.5 - 9.6	199	
1-J	SH	Single Family Residential - High Density	39.7	3.8 - 5.5	171	
1-K	SH	Single Family Residential - High Density	24.7	3.8 - 5.5	94	
1-L	ML	Multi-Family Residential - Low Density (Detached)	20.4	5.5 - 9.6	104	
1-M	VC	Village Center	46.6	5.5 - 9.6	150	435,600
1-N	SM	Single Family Residential - Medium Density	23.9	2.3 - 3.8	90	
1-O	SH	Single Family Residential - High Density	23.9	3.8 - 5.5	106	
	L	Lift Station	1.1			
	NP	Neighborhood Parks	27.9			
	BC	Beach Club	3.0			
		Lakes	31.8			
		Levee	20.1			
	OS	Open Space / Easement	56.0			
	WL	Wetlands / Dune Area	108.1			
	GW	Gas Well Sites	4.2			
		Roads (Bethel Island, Jersey Island, and E. Cypress)	17.7			
TOTAL			**703.8**		**1,700**	**435,600**

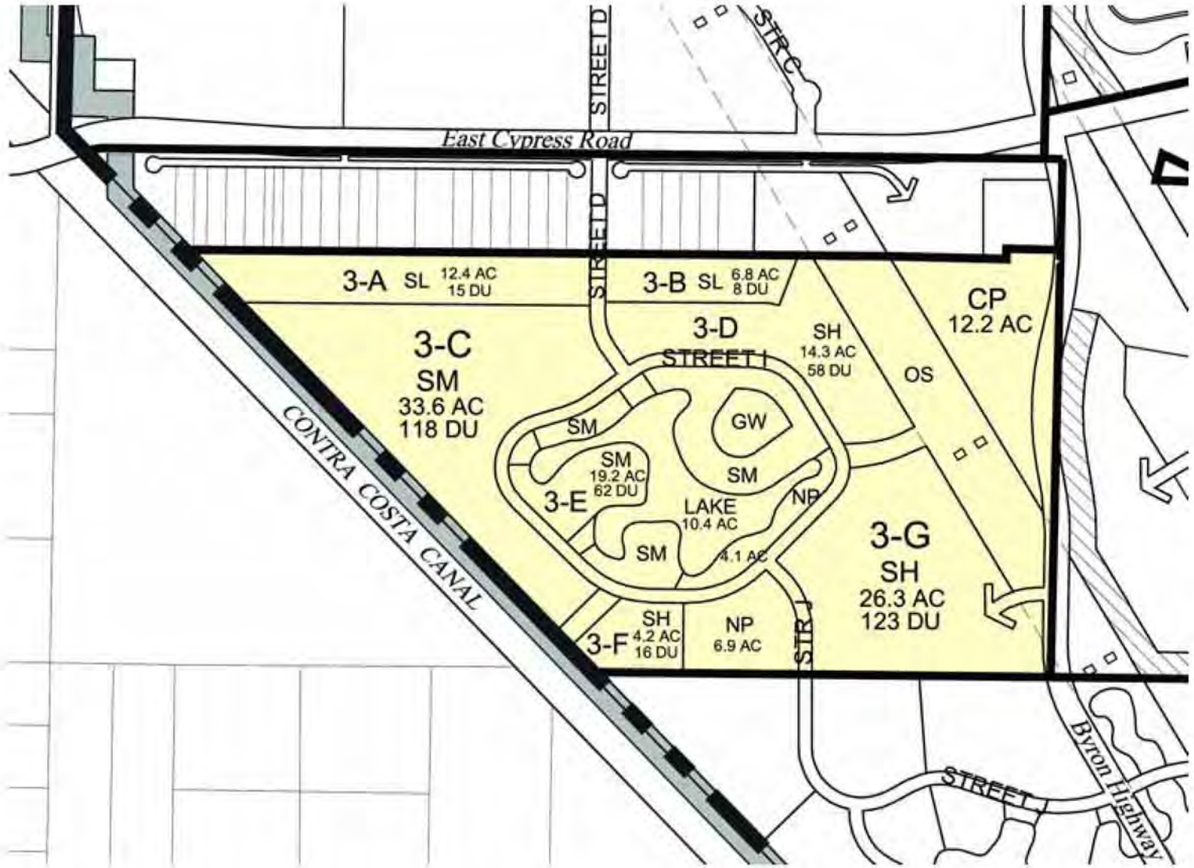
Notes: All acreages are based on gross area.
Village Center Commercial square footage based on approximately 40 acres.
Up to 150 units may replace approximately 20 acres of Village Center Commercial (217,800 sf)

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-7
Planning Area 1



Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
3-A	SL	Single Family Residential - Low Density	12.4	0.8 - 2.3	15	
3-B	SL	Single Family Residential - Low Density	6.8	0.8 - 2.3	8	
3-C	SM	Single Family Residential - Medium Density	33.6	2.3 - 3.8	118	
3-D	SH	Single Family Residential - High Density	14.3	3.8 - 5.5	58	
3-E	SM	Single Family Residential - Medium Density	19.2	2.3 - 3.8	62	
3-F	SH	Single Family Residential - High Density	4.2	3.8 - 5.5	16	
3-G	SH	Single Family Residential - High Density	26.3	3.8 - 5.5	123	
	CP	Community Parks	12.2			
	NP	Neighborhood Parks	11.0			
		Lakes	10.4			
		Levee	3.2			
	OS	Open Space / Easement	22.7			
	GW	Gas Well Sites	2.4			
		Roads (Bethel Island, Jersey Island, and E. Cypress)	3.8			
TOTAL			**182.5**		**400**	

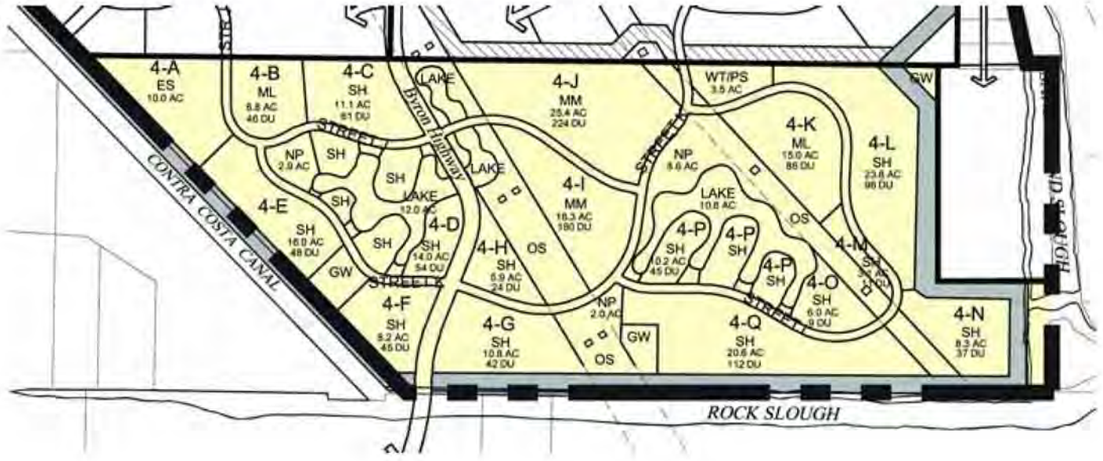
Note: All acreages are based on gross area.

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-8
Planning Area 3



Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
4-A	ES	Elementary School	10.0			
4-B	ML	Multi-Family Residential - Low Density (Detached)	8.8	5.5 - 9.6	46	
4-C	SH	Single Family Residential - High Density	11.1	3.8 - 5.5	61	
4-D	SH	Single Family Residential - High Density	14.0	3.8 - 5.5	54	
4-E	SH	Single Family Residential - High Density	16.0	3.8 - 5.5	48	
4-F	SH	Single Family Residential - High Density	8.2	3.8 - 5.5	45	
4-G	SH	Single Family Residential - High Density	10.8	3.8 - 5.5	42	
4-H	SH	Single Family Residential - High Density	5.9	3.8 - 5.5	24	
4-I	MM	Multi-Family Residential - Medium Density	16.3	9.0 - 12.0	180	
4-J	MM	Multi-Family Residential - Medium Density	25.4	9.0 - 12.0	224	
4-K	ML	Multi-Family Residential - Low Density (Detached)	15.0	5.5 - 9.6	86	
4-L	SH	Single Family Residential - High Density	23.8	3.8 - 5.5	96	
4-M	SH	Single Family Residential - High Density	3.1	3.8 - 5.5	11	
4-N	SH	Single Family Residential - High Density	8.3	3.8 - 5.5	37	
4-O	SH	Single Family Residential - High Density	6.0	3.8 - 5.5	9	
4-P	SH	Single Family Residential - High Density	10.2	3.8 - 5.5	45	
4-Q	SH	Single Family Residential - High Density	20.6	3.8 - 5.5	112	
	NP	Neighborhood Parks	13.5			
		Lakes	22.6			
		Levee	38.4			
	OS	Open Space / Easement	44.6			
	GW	Gas Well Sites	6.3			
	WT/PS	Water Tanks / Pump Station	3.5			
		Roads (Bethel Island, Jersey Island, and E. Cypress)	8.6			
TOTAL			**351.0**		**1,120**	

Note: All acreages are based on gross area.

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-9
Planning Area 4

Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
6-A	CR	Commercial Recreation (F.A.R. = 0.1)	20.9		5	91,000
6-B	SH	Single Family Residential - High Density	5.7	3.8 - 5.5	30	
6-C	MO	Mobile Home	1.5		10	
6-D	SH	Single Family Residential - High Density	7.1	3.8 - 5.5	32	
6-E	CO	Commercial (F.A.R. = 0.1)	13.2		4	57,500
6-F	AL	Agriculture - Limited	25.4	0.1 - 1.0	25	
6-G	CR	Commercial Recreation (F.A.R. = 0.1)	16.4			71,500
6-H*	SL	Single Family Residential - Low Density	26.0	0.8 - 2.3	79	
6-I	SL	Single Family Residential - Low Density	14.2	0.8 - 2.3	44	
6-J	SL	Single Family Residential - Low Density	7.8	0.8 - 2.3	24	
6-K	SH	Single Family Residential - High Density	27.0	3.8 - 5.5	148	
6-L	CO	Commercial (F.A.R. = 0.01)	31.1		9	135,500
6-M	MO	Mobile Home	1.8		11	
6-N	AL	Agriculture - Limited	64.5	0.1 - 1.0	64	
6-O	SL	Single Family Residential - Low Density	12.3	0.8 - 2.3	28	
6-P	AL	Agriculture - Limited	97.8	0.1 - 1.0	96	
6-Q	ML	Multi-Family Residential - Low Density	19.9	5.5 - 9.6	163	
6-R	MO	Mobile Home	1.0		12	
6-S	SH	Single Family Residential - High Density	63.8	3.8 - 5.5	195	
6-T	AL	Agriculture - Limited	23.5	0.1 - 1.0	23	
6-U	SM	Single Family Residential - Medium Density	35.3	2.3 - 3.8	58	
6-V	AL	Agriculture - Limited	9.9	0.1 - 1.0	9	
6-W	AL	Agriculture - Limited	9.3	0.1 - 1.0	6	
6-X	AL	Agriculture - Limited	27.2	0.1 - 1.0	20	
	PS	Pump Station	12.1			
	CP	Community Park	9.3			
		Levee	4.5			
	OS	Open Space / Easement	20.6			
		Roads (Bethel Island, Jersey Island, and E. Cypress)	21.6			
TOTAL			**630.7**		**1,095**	**355,500**

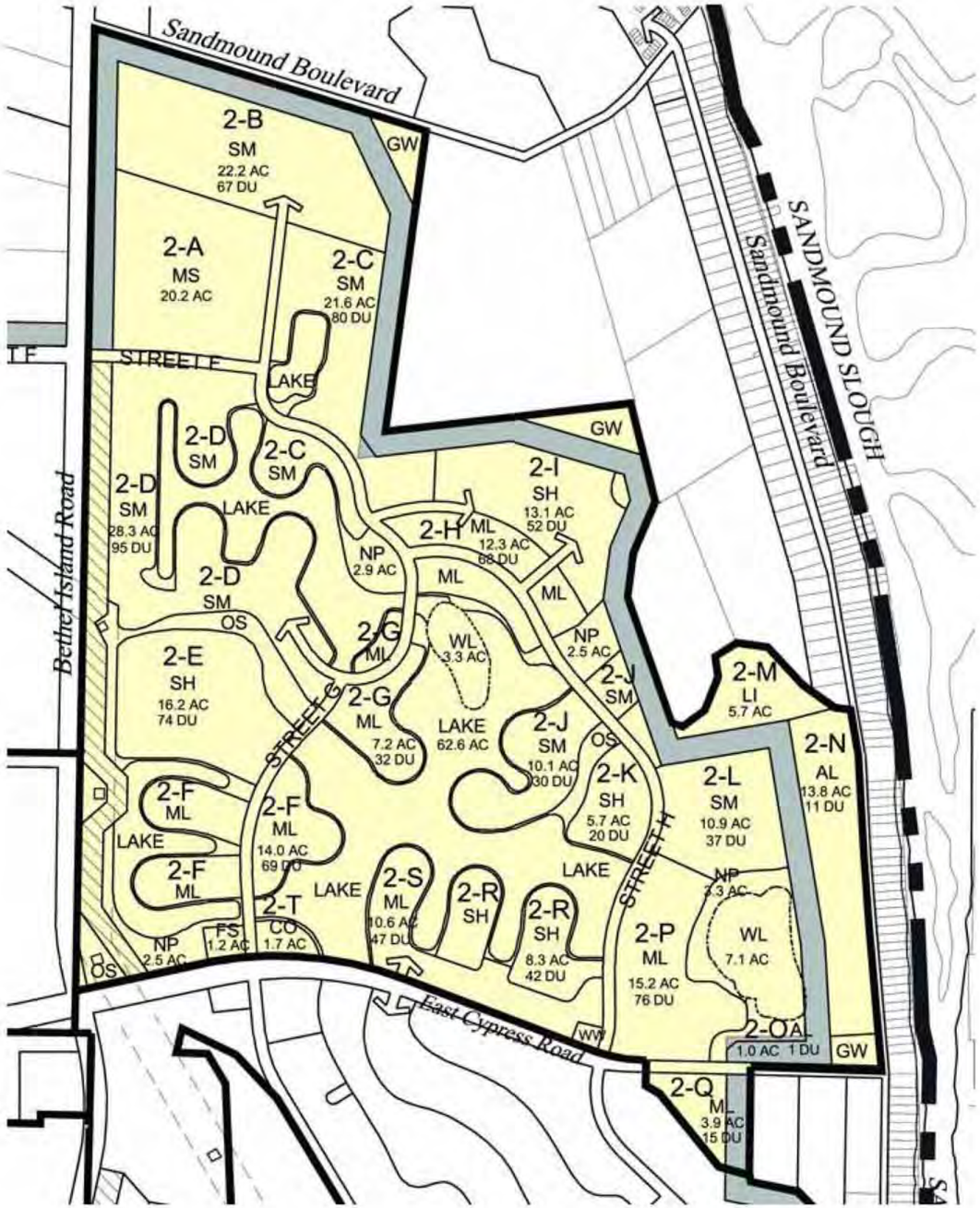
Note: All acreages are based on gross area.
Actual commercial square footage is anticipated to be substantially less than 355,500 sf.
* If the levee system is relocated to provide adequate protection, Planning Area 6-H may be considered for a Multi-Family Residential – High Density Affordable Housing Overlay District, at a maximum density of 20 units per acre.

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-10
Planning Area 6



Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
2-A	MS	Middle School	20.2			
2-B	SM	Single Family Residential - Medium Density	22.2	2.3 - 3.8	67	
2-C	SM	Single Family Residential - Medium Density	21.6	2.3 - 3.8	80	
2-D	SM	Single Family Residential - Medium Density	28.3	2.3 - 3.8	95	
2-E	SH	Single Family Residential - High Density	16.2	3.8 - 5.5	74	
2-F	ML	Multi-Family Residential - Low Density(Detached)	14.0	5.5 - 9.6	69	
2-G	ML	Multi-Family Residential - Low Density (Detached)	7.2	5.5 - 9.6	32	
2-H	ML	Multi-Family Residential - Low Density (Detached)	12.3	5.5 - 9.6	68	
2-I	SH	Single Family Residential - High Density	13.1	3.8 - 5.5	52	
2-J	SM	Single Family Residential - Medium Density	10.1	2.3 - 3.8	30	
2-K	SH	Single Family Residential - High Density	5.7	3.8 - 5.5	20	
2-L	SM	Single Family Residential - Medium Density	10.9	2.3 - 5.5	37	
2-M	LI	Light Industrial	5.7			
2-N	AL	Agriculture Limited	13.8	0.1 - 1.0	11	
2-O	AL	Agriculture Limited	1.0	0.1 - 1.0	1	
2-P	ML	Multi-Family Residential - Low Density (Detached)	15.2	5.5 - 9.6	76	
2-Q	ML	Multi-Family Residential - Low Density (Detached)	3.9	5.5 - 9.6	15	
2-R	SH	Single Family Residential - High Density	8.3	3.8 - 5.5	42	
2-S	ML	Multi-Family Residential - Low Density (Detached)	10.6	5.5 - 9.6	47	
2-T	CO	Commercial(F.A.R. = 0.14)	1.7			10,000
	FS	Fire Station	1.2			
	NP	Neighborhood Park	11.2			
		Lakes	62.6			
		Levee	39.5			
		Interim Levee	11.9			
	OS	Open Space / Easement	20.5			
	WL	Wetlands / Dune Area	10.4			
	WW	Water Well	0.6			
	GW	Gas Well Sites	5.5			
		Roads (Bethel Island, Jersey Island, and E. C	3.6			
TOTAL			**409.0**		**816**	**10,000**

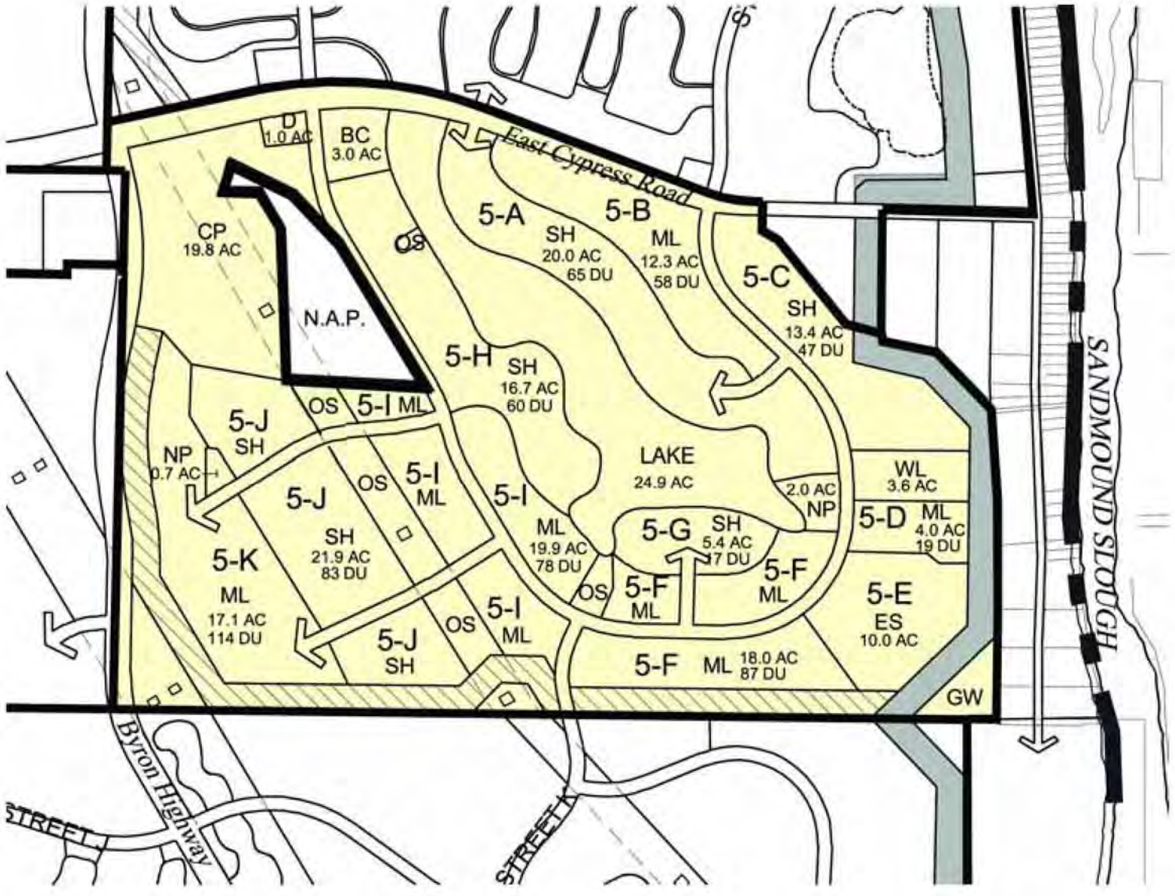
Note: All acreages are based on gross area.

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-11
Planning Area 2



Planning Area	Land Use	Description	Acres	Density Range	Target Units	Square Footage
5-A	SH	Single Family Residential - High Density	20.0	3.8 - 5.5	65	
5-B	ML	Multi-Family Residential - Low Density (Detached)	12.3	5.5 - 9.6	58	
5-C	SH	Single Family Residential - High Density	13.4	3.8 - 5.5	47	
5-D	ML	Multi-Family Residential - Low Density (Detached)	4.0	5.5 - 9.6	19	
5-E	ES	Elementary School	10.0			
5-F	ML	Multi-Family Residential - Low Density (Detached)	18.0	5.5 - 9.6	87	
5-G	SH	Single Family Residential - High Density	5.4	3.8 - 5.5	17	
5-H	SH	Single Family Residential - High Density	16.7	3.8 - 5.5	60	
5-I	ML	Multi-Family Residential - Low Density (Detached)	19.9	5.5 - 9.6	78	
5-J	SH	Single Family Residential - High Density	21.9	3.8 - 5.5	83	
5-K	ML	Multi-Family Residential - Low Density (Detached)	17.1	5.5 - 9.6	114	
	D	Day Care	1.0			
	CP	Community Park	19.8			
	NP	Neighborhood Park	2.7			
	BC	Beach Club	3.0			
		Lakes	24.9			
		Levee	9.6			
		Interim Levee	18.5			
	OS	Open Space / Easement	13.0			
	WL	Wetlands / Dune Area	3.6			
	GW	Gas Well Sites	2.1			
		Roads (Bethel Island, Jersey Island, and E	12.1			
TOTAL			**269.0**		**628**	

Note: All acreages are based on gross area.

LEGEND

- LEVEE
- INTERIM LEVEE
- PLANNING AREA
- SPECIFIC PLAN BOUNDARY
- ELECTRICAL TOWER

Source: East Cypress Corridor Specific Plan

Figure 1-12
Planning Area 5

Source: City of Oakley, 2005

Figure 1-13
Oakley Sphere of Influence

Source: McLarand, Vasquez, Emsiek & Partners, Inc., 2005

Figure 1-14
East Cypress Corridor Specific Plan
Existing Conditions

2.0 Project Description

2.0 PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.0.1 INTRODUCTION

This chapter describes the components of the proposed East Cypress Corridor Specific Plan, as well as the background, location, project objectives, and required public approvals for the proposed project.

2.0.1.1 BACKGROUND

Oakley General Plan

Prior to incorporation of the City of Oakley, Contra Costa County was responsible for planning and land use in the Oakley community, including the proposed Project Area. The Contra Costa County General Plan was adopted in July of 1996. After the City of Oakley was incorporated in July 1999, the City adopted the County General Plan and Zoning Ordinance.

Subsequently, after incorporation the City of Oakley embarked on a process to prepare and process a new General Plan to specifically serve the needs of the City. In December 2002, the City of Oakley adopted its own General Plan – The Oakley 2020 General Plan. As part of the General Plan update, the City also prepared an Oakley 2020 General Plan Background Report. Both documents include urbanization of the Project Area in their analysis. These reports are used in this Draft EIR as a source for descriptive text, and the new Oakley General Plan has been used for policy discussions.

The City of Oakley recently prepared a draft zoning ordinance to designate specific zoning for property within the City of Oakley. The zoning ordinance is scheduled for adoption by September 2005. Once adopted, the zoning ordinance would apply to the proposed East Cypress Corridor Specific Plan, if the project is approved and annexed into the City of Oakley.

The Project Area remains in the unincorporated area of Contra Costa County. However, the Project Area is located in the City's Sphere of Influence as noted previously. As such, the project would have to be formally annexed into the City of Oakley, Contra Costa Water District and Diablo Water District, as part of a phased boundary reorganization process after project approval by the City. These actions were anticipated in the 2020 General Plan. The City will formally initiate the applications to the Local Agency Formation Commission of Contra Costa County upon certification of this EIR and adoption of the Specific Plan. The annexation application for the project is pending upon action by the City on the East Cypress Corridor Specific Plan.

2.0.1.2 EAST CYPRESS CORRIDOR SPECIFIC PLAN

Summary

The purpose of the East Cypress Corridor Specific Plan is to provide the City of Oakley with a mechanism to control development within the Specific Plan area, insuring that a comprehensive land plan is adopted which promotes the development of a livable community designed for compatible neighborhoods and connectivity to parks, open space, schools, and commercial services. The Specific Plan will also provide the City of Oakley with a mechanism to manage growth leading to the installation of adequate infrastructure and public services for the new and existing neighborhoods within the Specific Plan Area.

The East Cypress Corridor Specific Plan establishes the land use, infrastructure plan, development regulations, and design guidelines which will govern development of a master planned community offering a variety of residential housing types within an open space setting. A network of multi-purpose trails, on-street bike lanes, and pedestrian corridors provides bicycles and pedestrian access linking residential and commercial areas. Bicycle and pedestrian accessibility is also provided between the residential development and the planned elementary and middle school sites distributed throughout the Specific Plan Area.

Specific Plan Components

The East Cypress Corridor Specific Plan includes the following sections: Section 1- Executive Summary; Section 2 - Introduction; Section 3 – Existing Conditions; Section 4 – Land Use; Section 5 – Infrastructure and Community Facilities; Section 6 – Development Standards; Section 7 – Design Guidelines; Section 8 – Implementation; and Section 9 – General Plan Consistency.

Purpose

The City of Oakley has identified the need for a specific plan for the East Cypress Corridor area in order to provide for appropriate growth management and comprehensive planning of new residential, commercial, open space, and recreational land uses accompanied by adequate infrastructure and public facilities compatible with existing agricultural and residential land uses.

Objectives

The City of Oakley will pre-zone the Specific Plan Area as Specific Plan 1, "SP-1". Upon approval of the phased annexation request by the City, the Specific Plan Area will be rezoned to "SP-1". The East Cypress Corridor Specific Plan will establish the land use plan, development standards, infrastructure requirements, and implementation requirements for the "SP-1" zoning district. The City of Oakley will also amend the General Plan as follows:

- The General Plan Land Use Diagram will be changed for the Specific Plan Area to reflect the East Cypress Corridor Specific Plan land use plan;
- The General Plan allocation of commercial acreage for the Specific Plan Area will be increased from 69 to 89 acres to allow development of approximately a 40 acre Village Center in Planning Area 1;

- Approximately 9 acres of residential land use adjacent to East Cypress Road designated as "Agriculture Limited" will be changed to Park land use designation to accommodate the development of a community park within the Specific Plan Area; and
- Change the land use designation of 5.7 acres in PA 2 from Delta Recreation to Light Industrial.

The East Cypress Corridor Specific Plan does not increase residential density from that established by the Oakley General Plan. The East Cypress Corridor Specific Plan establishes the type and distribution of land uses, defines the development regulations and design guidelines for each land use, establishes locations for schools, and describes the infrastructure requirements for public facilities necessary to serve the Specific Plan Area. The East Cypress Corridor Specific Plan also establishes the procedures and requirements to approve new development within the Specific Plan Area.

Governing Documents

The development within the East Cypress Corridor Specific Plan will be governed by the following documents:

- The City of Oakley 2020 General Plan adopted December 16, 2002, as amended, which establishes policies governing land use, circulation, housing, conservation and open space, noise, safety, and public facilities within the East Cypress Corridor Specific Plan Area.
- The East Cypress Corridor Specific Plan to include a Land Use Plan, Infrastructure Plan, Design Guidelines, and Development Regulations.
- The City of Oakley Municipal Code as applicable to the project where the East Cypress Corridor Specific Plan is silent on development standards and regulations.
- The City of Oakley Municipal Code regulating the subdivision of land within the East Cypress Corridor Specific Plan Area.
- Covenants, Conditions, and Restrictions (CC&R's) to be established by the developers within the East Cypress Corridor Specific Plan as a means of ensuring and enforcing quality design and development of the master planned community.

Specific Plan Project Description

Planning Area 1 - Approximately 704 acres of the Specific Plan Area are owned by Dal Porto/Lesher and proposed for development by KB Home with approximately 1,700 residential dwelling units in a variety of housing types and recreational and open space amenities. A 12.4-acre site is reserved for development of an elementary school. A Village Commercial Center is proposed on approximately 40 acres. In addition, approximately 108.1 acres are reserved as natural wetlands/dunes areas and 31.8 acres of man-made lakes.

Planning Area 2 - Approximately 409 acres of the Specific Plan Area are owned by Shea Homes and proposed for development of up to 816 residential dwelling units in a variety of housing types and public recreational and open space amenities. A 1.7-acre site is proposed for a commercial center and a 1.8-acre site is proposed for development of a fire station and sewer lift station. Approximately 20.2 acres is reserved for development of a middle school. Planning Area 2 also includes a 62.6-acre man-made lake and 5.7 acres of light industrial use. Planning Area 2 was previously approved by Contra Costa County for the development of 702 residential units in 1993.

Planning Area 3 - Approximately 182 acres of the project are owned by Dal Porto and proposed for development by D.R. Horton. The development for PA 3 includes 400 residential dwelling units in a variety of single-family detached residential dwelling types, 22.7 acres of open space/easements, a 12.2 acre community park, 11-acres of neighborhood parks, a 10.4-acre man-made lake and a 2.4-acre gas well site.

Planning Area 4 - Approximately 351 acres are proposed for development by Bethel Island LLC. This planning area is proposed for 1,120 residential dwelling units with a variety of single-family detached and multi-family dwelling units, a 10-acre elementary school, 13.5-acres of neighborhood parks, 22.6-acres of man-made lakes, 44.6-acres of open space/easements and a 3.5-acre water tank site.

Planning Area 5 - Approximately 269 acres of the project comprises the existing Summer Lake development located south of East Cypress Road, which was approved by Contra Costa County in 1993. Shea Homes is constructing the Summer Lake residential planned community with 628 residential dwelling units, parks, open space amenities, and an elementary school. Planning Area 5 is considered an "existing condition" within the Specific Plan since it is an approved development and under construction with occupancy anticipated early 2006.

Planning Area 6 – The remaining 631 acres of the project are located in Planning Area 6, which includes existing single-family residences, apartments, mobile homes, commercial and vacant properties. Potential new development proposed for PA 6 includes 355,500 square feet of commercial/commercial recreation, 20.6 acres of open space/easements, 9.3 acres of community park, 12.1 acres of community facilities, and 551 new residential units for a total of 1,095 permitted residences, as provided in the Oakley 2020 General Plan.

Land Use Summary

The East Cypress Corridor Specific Plan proposes the incorporation of existing developed areas and the Summer Lake development, under construction south of East Cypress Road, with the development of a new planned community comprised of single family detached residential dwelling units, multi-family residential dwelling units, commercial uses, parks and open space uses, natural wetlands/dune areas, public schools, and other public facilities. A central feature of the Specific Plan is the proposal for a comprehensive system of levees designed to protect new development within the Specific Plan Area from a 100- year storm event. A network of landscaped greenways is proposed linking parks and open space areas to residential and commercial areas within the Specific Plan. The greenways offer connectivity throughout the entire community providing a network of multipurpose pedestrian and bicycle paths within the greenways and connecting to the community's

local street system. Residents would be able to walk or bike to parks, schools, and commercial uses located within the Specific Plan and to surrounding areas outside of the Specific Plan.

Natural wetlands/dune areas would be preserved as part of the development of Planning Areas 1, 2 and 5. Additionally, agricultural land in Planning Area 6 would be preserved. A public bicycle trail system is proposed on the top of the proposed levee system as part of the overall bicycle trail network planned for the new community.

The key elements of the East Cypress Corridor Land Use Plan are described below and shown in Table 2-1, Overall Project Summary.

Overall Project Summary

Residential Land Use

Altogether a total of 5,759 residential units are permitted by the Specific Plan, including the existing Summer Lake project. The project proposes a variety of residential housing types, including single-family detached, multi-family, and lots up to one-acre. Of the 5,759 total units allowed for development by the Specific Plan, there are 544 existing units. The Specific Plan allows the development of up to 4,587 new residential units.

Commercial Land Use

Approximately 40 acres in Planning Area 1 are proposed for development of a Village Center that would allow commercial use such as retail and service businesses to serve the project. The Village Commercial center, located at the northwest corner of East Cypress Road and Bethel Island Road, is suitable for development of community serving retail uses such as a supermarket, drug store, and service commercial and business/professional office uses.[1]

Parks, Lakes, and Amenities

The East Cypress Corridor Specific Plan includes the development of approximately 254 acres, or approximately 10% of the project as parks and lakes. Community parks would provide active recreational areas to include soccer fields and baseball diamonds as well as open play areas, picnic tables, and informal gathering areas. Neighborhood parks would provide open play areas, picnic and bar-b-q facilities, tot lots, and informal gathering areas.

A signature feature of the planned community is the provision of approximately 152-acres of lakes, or approximately 6% of the site. The lakes are proposed adjacent to parks and open space, which are accessible by trails and sidewalks. The City of Oakley would maintain the lakes in PAs 1, 3 and 4. A Homeowners Association is proposed to maintain the lake in PA 2.

[1] If, after using reasonable marketing methods, the entire approximately 40 acre Village Center site is not sold or leased to a commercial development entity within seven years after the recorded annexation of Planning Areas 1-5 of the East Cypress Corridor Specific Plan or by the issuance of the 3,000th building permit within Planning Areas 1-5, whichever is later, an application for a tentative map for up to 150 residential dwelling units for development of residential uses within the Village Center site may be filed for processing with the City of Oakley.

Greenways and Trails

The East Cypress Corridor Specific Plan provides for development of greenways and trails linking each Planning Area to parks, open space, natural wetlands/dune areas, commercial areas, and schools. The greenways and trails offer equestrian, pedestrian, and bicycle access throughout the entire site to connect existing development to public facilities, commercial uses, and parks to offer access to community-wide amenities and facilities to residents.

Open Space and Natural Areas

Approximately 190 acres is reserved as open space within public utility corridors and easements. The open space would provide the backbone for a multi-purpose trail system connecting residential areas with parks, schools, and commercial uses and connecting to a trail system to be developed on the levee system and within roadways providing connectivity within the entire site.

Approximately 122 acres of the site within Planning Areas 1, 2 and 5 is preserved as natural wetlands and dune area of which approximately 108 acres are provided within Planning Area 1. Opportunities for visual access from a limited trail system providing an educational nature walk with interpretive signage may be provided.

Levees

To protect the project from flooding a comprehensive master interior levee system would be constructed consistent with FEMA requirements for an urban levee. The earthen levee is designed with appropriate freeboard above the 100-year storm water elevation to provide permanent flood protection from flooding of the San Joaquin River waterways. The levee/bank stabilization would extend around the project to protect much of the area proposed for development from flooding. The levee would not enclose the wetlands/dune area in the northern area of Planning Area 1 or existing agricultural and residential areas located north and east of the development area. Existing single-family residential areas adjacent to and south of East Cypress Road between Jersey Island Road and Bethel Island Road that are currently subject to a 100-year flood would be protected by the new levee system. The levee system would also serve as a primary component of the comprehensive development of multi-purpose trails within the Specific Plan Area. Multi-purpose equestrian, biking and pedestrian trails would be developed along the top of the levee connecting multi-purpose trails within arterial roadways and greenways within the Specific Plan.

Schools

The East Cypress Corridor Specific Plan provides for development of two elementary schools and one middle school to serve the K-8 school age needs of the community. Sites for elementary and middle schools are proposed for Planning Areas 1, 2 and 4. The school sites are accessible by pedestrians and bicyclists via the proposed multi-purpose trail network to be developed as well as by automobile.

2.0.1.3 PROJECT OBJECTIVES

The East Cypress Corridor Specific Plan proposes to achieve the following objectives:

- Create a gateway to the Cypress Corridor and establish a high quality and inviting tone for all future development along the corridor.
- Develop the project area build out consistent with general land uses and policies defined in the City of Oakley 2020 General Plan, that anticipate an urban level residential community with complementary commercial and recreation uses.
- Complete the planned expansion of the City to the east as provided by LAFCO in adopting the City's Sphere of Influence.
- Provide a specific plan level framework for future urbanization of the project area, facilitating cohesive and cooperative planning of a mixed density community for properties under separate ownership.

2.0.1.4 PROJECT COMPONENTS

Four developers: D.R. Horton; KB Home; Bethel Island, LLC and Shea Homes (Summer Lake) propose to develop the largest areas of the site (PAs 1, 2, 3, 4 and 5). The areas of the project site proposed for development by the four largest developers are shown in Figure 2-1, Land Ownership. These four developers account for approximately 1,916 acres of the 2,546-acre project.

The Summer Lake project is also part of the proposed East Cypress Corridor Specific Plan as discussed previously. Summer Lake is a 678-acre project and is approved for the development of 1,330 single-family residential dwelling units on lots ranging from 5,000 square feet to over 7,000 square feet. Summer Lake is an approved project, however, Shea Homes is proposing changes to the 409 acres that are located north of East Cypress Road, referred to as Planning Area 2. The proposed changes to the Summer Lake project are part of the East Cypress Corridor Specific Plan and the potential environmental impacts of the proposed changes are evaluated in this EIR at a program level. No land use changes are proposed for Planning Area 5.

2.0.1.5 EXISTING LAND USE DESIGNATIONS

The Project Area is designated by the Oakley 2020 General Plan for a variety of land uses including: Agricultural Limited; Single Family Residential High; Single Family Medium; Single Family Low; Single Family Very Low; Multi-Family Low; Commercial; Commercial Recreation; Parks and Recreation; Business Park, Utility Energy, Public and Semi-Public. The zoning designations for the site include: Single family residential (R-10); Single family residential (R-7); Single family residential (R-6); Single family residential (R-15); Single family residential (R-40); Single family residential (R-20); Single family residential (R-15); Single family residential (D-1); Community District (C-B); Neighborhood Business (N-B); Retail Business (R-B); General Commercial (C); Agricultural District; Agricultural Limited; and Commercial Recreation. The City of Oakley land use designations for the project site are shown in Figure 2-2, Oakley 2020 General Plan Land Use Designations.

2.0.1.6 SUBDIVISION DESCRIPTIONS

KB Home – Planning Area 1

The property proposed for development by KB Home includes the development of 1,700 residential units at densities of 3.8 to 9.6 units per acre. The plan also includes a 40-acre commercial center at the northwest corner of East Cypress Road at Bethel Island Road. The development plan includes a man-made lake, an elementary school, neighborhood parks, gas well sites, wetlands, open space, community facilities (sewer pump station), and a public access trail that would connect the residential units with the commercial center, the lake, and parks.

Shea Homes – Summer Lake – Planning Area 2

Shea Homes proposes to change the land use of the 409 acres of their site located north of East Cypress Road from the plan that was approved by Contra Costa County in 1993. Their proposed changes include the elimination of the 18-hole golf course and the construction of a 20.2-acre middle school at the north end of the site and 113 additional residential units. The current approved County plan allows the development of 686 residential units on Planning Area 2, which is the area north of East Cypress Road. The proposed change would add 113 residential units to PA 2 for a total development of Summer Lake of 1,443 dwelling units. The area of the Shea project south of East Cypress Road (Planning Area 5) is under construction and the current approval for the southern portion of Summer Lake by the County would not change.

DR Horton – Planning Area 3

Planning Area 3 is proposed for development by DR Horton and includes 400 residential units at densities of 2.3 to 5.5 units per acre. The development plan also includes a man-made lake, a community park, neighborhood parks, open space/trails, and a gas well site. The gas well site has an existing operating gas well and can accommodate additional gas wells.

Bethel Island, LLC – Planning Area 4

The Bethel Island LLC property proposes 1,120 residential units ranging from a density of 5.5 units per acre to 12 units per acre. The development plan includes two man-made lakes, three gas well sites, a water tank site, an elementary school, and neighborhood parks along with open space and trails.

2.0.1.7 INFRASTRUCTURE PLANS

The primary infrastructure systems would be sized to meet demands created by build out of the proposed project. Some existing infrastructure would have to be upgraded to accommodate future growth anticipated in the City's General Plan and General Plan EIR (e.g., roadway design, drainage, etc.). In addition, new infrastructure systems would have to be constructed as a part of the East Cypress Corridor project, including storm drainage, wastewater, water supply, roadways, and a system of parks and trails, to serve the proposed project. The following summarizes the major infrastructure features. Additional detail is provided in the technical chapters.

Storm Drain

The design of the storm water management facilities for the project were developed by Bellecci & Associates, Inc. to manage storm water within the development and to provide for the treatment of runoff to prevent degradation of water quality in the Delta.

The design of the storm water management facilities for the project has been developed to control peak storm water flows, improve the quality of the storm water runoff before it is discharged from the site. The surface water generated by the project would be collected by on-site storm drains and directed by gravity flow to the man-made lakes that are part of the project. The lakes are designed to provide storm water detention and treatment prior to discharge into receiving waters. The man-made lakes would serve to contain all surface water flows so that the project does not generate any more storm water from the site than existing conditions. Storm water from the man-made lakes would be carried in underground storm drains to a new pump station, pumped over the new master interior levee to existing drainage ditches to three existing pump stations that are owned and operated by RD 799 along the project perimeter and pumped over the existing historic exterior levee into Dutch Slough and Sandmound Slough.

An interior levee system would be constructed as part of the project to protect the site from a 100-year flood from the San Joaquin-Sacramento River Delta. Although there is an existing levee along Dutch Slough and Sandmound Slough, it does not meet FEMA standards for an Urban Standard Levee (USL). The proposed master interior levee system would be constructed to meet Federal Emergency Management Agency (FEMA) USL standards. Once constructed, the levee system would protect most of the site from a 100-year flooding event. The wetlands/dune area in the north portion of the site would remain subject to flooding. However, there are no homes proposed for the wetland area.

Wastewater

The project site is located within the service boundary of the Ironhouse Sanitary District (ISD). ISD is responsible to provide sanitary sewer service to the entire Cypress Corridor area and would provide wastewater service to the project. ISD owns and operates the wastewater collection, treatment, storage, and disposal facilities for the City of Oakley, unincorporated eastern Contra Costa County communities and Bethel Island. ISD's wastewater system includes collection facilities, a wastewater treatment plant, and a disposal system. The project would be required to construct on and off-site wastewater collection facilities in order for the project to have adequate sewage collection facilities. The wastewater collection facilities required by the project include a backbone sewage collection system to collect and transport wastewater to ISD's wastewater treatment facility, including sub-regional sewage lift stations. The project wastewater collection facilities would connect with the existing 14-inch force main in East Cypress Road that serves the area along with development in Summer Lake.

Water

The Diablo Water District (DWD) would provide potable water to the project for domestic use, including fire protection and landscape irrigation. The Diablo Water District is a water retailer and obtains their water from the Contra Costa Water District (CCWD), which is a water wholesaler. A

portion of the project site is outside the service boundary of CCWD and DWD, thus portions of the project site would have to be annexed into both CCWD and DWD. The CCWD Board of Directors must approve whether or not the project would be provided the benefits of the Los Vaqueros Project. In order for that portion of the project site to be annexed into CCWD and DWD, an inclusion application to the Central Valley Project Service Area would be limited to and have to be submitted to the U.S. Bureau of Reclamation by CCWD for inclusion approval. The project proponent and CCWD would initiate the Endangered Species Act (ESA) compliance through consultation with the U.S. Fish and Wildlife Service as part of the inclusion application process. Both on and off-site water facilities would have to be constructed to serve the project.

CCWD operates and manages an unlined canal that runs along the southwestern portion of the Specific Plan area. CCWD has proposed a capital improvement project to enhance approximately four miles of the unlined Canal from the Rock Slough intake by lining the Canal and/or replacing it with a piped conveyance to protect and enhance water quality in the Canal. The project sponsors have agreed as part of the Specific Plan project to provide a funding contribution to CCWD's capital improvement project, which will be used to enhance the Canal along and adjacent to the Specific Plan area.

The project proposes to construct a total of eight million gallons of water storage in the northeast area of Planning Area 4. This could be either two 4 million gallon tanks or one 4 million gallon tank and two 2 million gallon tanks. The water tanks would provide potable water for domestic use and fire flow to the project. A pump system at the reservoir site would be required to provide the water pressure necessary to serve the project. An emergency generator would be installed as a back-up power supply in the event of power failure.

Roadways

New roadways would be constructed to provide suitable access to the project to meet the transportation needs of the project. Street widths are designed in accordance with traffic studies completed for the project as well as the Oakley 2020 General Plan. East Cypress Road is proposed to be a four-lane major arterial with a landscaped median. Bethel Island Road would be a four-lane major arterial north of East Cypress Road to the Bethel Island bridge. Bethel Island Road would be extended as a four-lane road south of East Cypress Road and narrows to a two-lane road at Rock Slough where it would be extended to connect with Byron Road south of the site, south of the CCWD canal. A bridge would be constructed over Rock Slough at the southern project boundary as part of the project to complete the extension of Bethel Island Road to Byron Road. Jersey Island Road would be improved as a two-lane collector along the west project boundary. East Cypress, Jersey Island, and Bethel Island Roads would have to be ramped accordingly to allow motor vehicles to pass over the levee system at key locations.

Parks and Trails

The project would provide a variety of public parks, trails, and open space amenities to meet and serve the recreational needs of the project residents. The project proposes neighborhood parks that total 65.6 acres. The neighborhood parks are located throughout the project to provide parks and open space for local residents. In addition, a series of pedestrian/bicycle/equestrian trails system are

proposed to connect the neighborhood parks, man-made lakes, Village Center, and the residential areas together.

2.0.1.8 LAFCO Annexation

The project will require annexation into the City of Oakley. The project is proposed to be annexed into the City in phases as shown in Figure 2-3, Annexation Phasing.

2.0.1.9 Required Public Approvals

The East Cypress Corridor Specific Plan requires the following discretionary actions by the Oakley City Council:

- Certification of the Final Environmental Impact Report;
- Adoption of CEQA Findings;
- Adoption of a General Plan Amendment;
- Adoption of the East Cypress Corridor Specific Plan;
- Pre-zoning;
- Approval of development applications within PAs 1, 2, 3, 4, and 6 would require the following additional actions:
  - Development Agreements
  - Tentative or Vesting Tentative Maps

This Program EIR also serves as the environmental document the following agencies would rely upon to ensure compliance with CEQA when carrying out actions required of them by the proposed project. The agencies and their associated actions required by the proposed project are listed below:

- LAFCO – Annexation to the City of Oakley
- Annexation of a portion of the site into the Diablo Water District
- Annexation of a portion of the site into the Contra Costa Water District
- Inclusion of the project site into the Central Valley Service Area
- U.S. Bureau of Reclamation - Approval of an inclusion application
- U.S Army Corps of Engineers – Section 404 permit
- California Central Valley Water Quality Control Board – 401 Water Quality Certification
- California Department of Fish and Game – A Streambed Alteration Agreement, pursuant to Section 1600 of the California Fish and Game Code

- Adjustment of the Knightsen and Oakley Elementary School District common boundary by the Contra Costa Board of Education to place the entire project area into the Oakley Elementary School District
- Allocation of land area by CalFed for accommodation of the Jersey Island Road levee through efforts coordinated by Planning Area developers and/or a Community Facilities District (CFD).

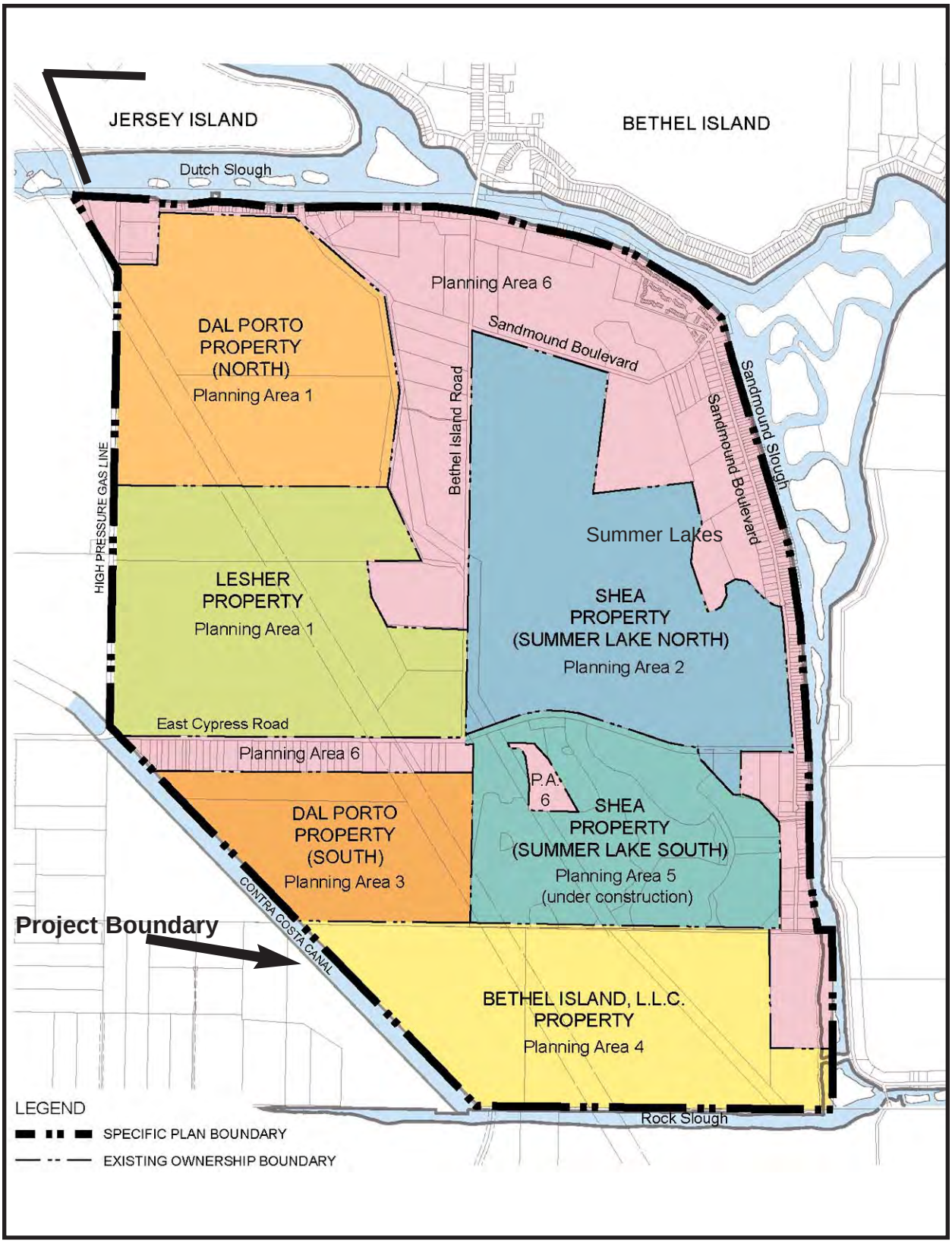
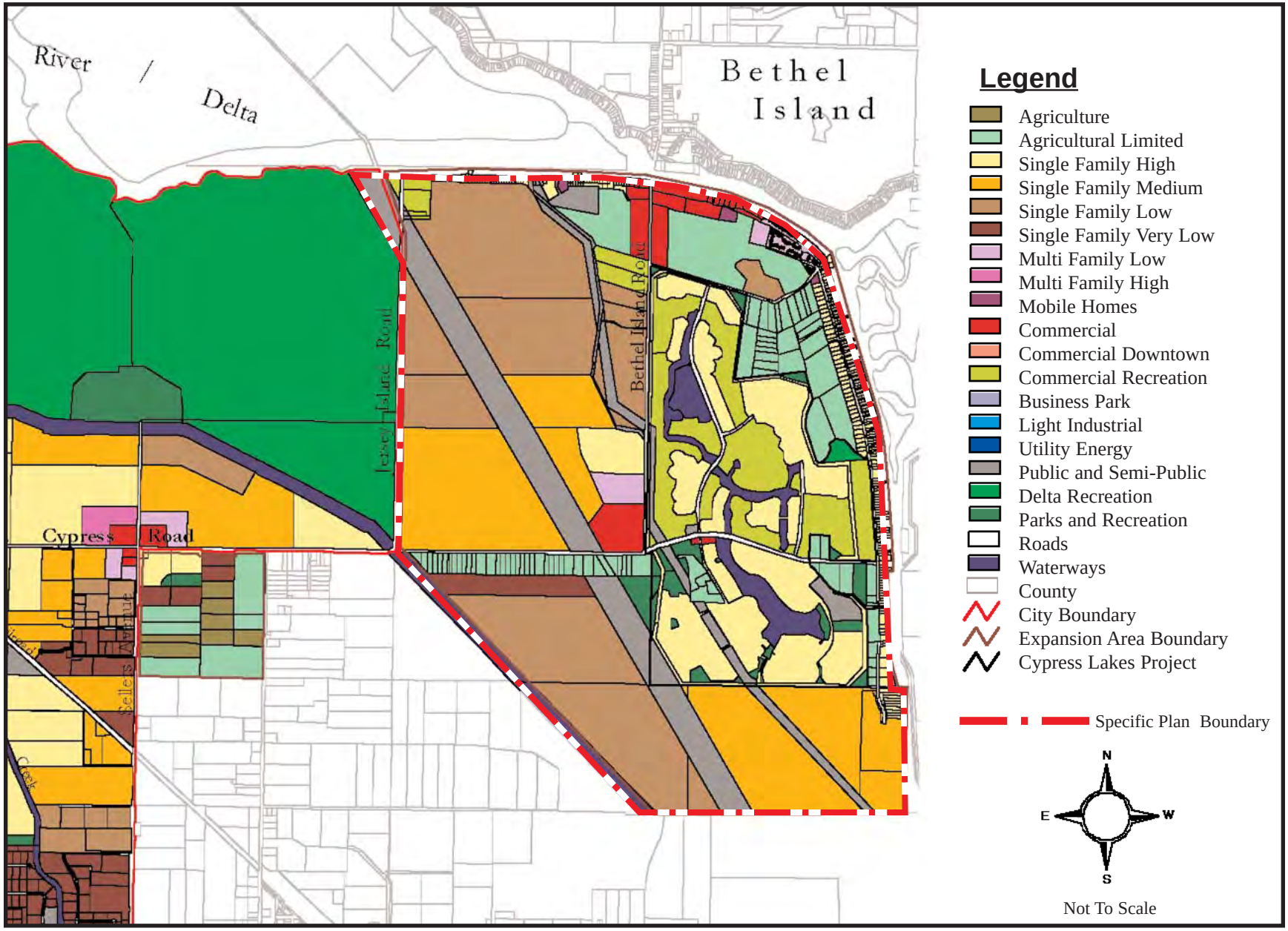


Figure 2-1
Land Ownership Map

Source: McLarand, Vasquez, Emsiek & Partners, Inc., 2005



Source: City of Oakley 2020 General Plan, 2005

Figure 2-2
Oakley 2020 General Plan Land Use Designations

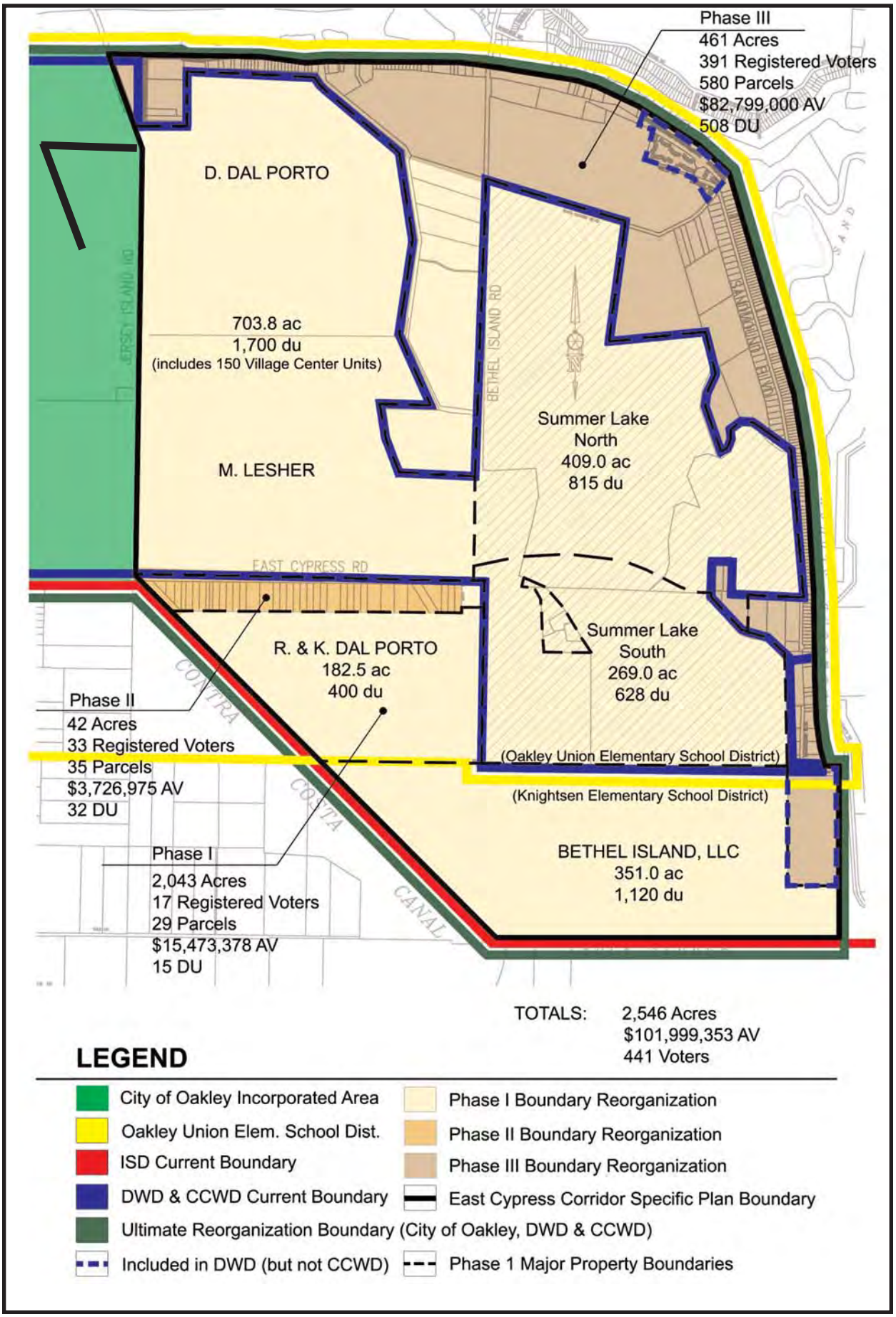


Figure 2-3

Source: Richard T Loewke, AICP, 2005 **Annexation Phasing (August 22, 2005)**

Planning Area		I (Lesher / Dal Porto North)			II (Summer Lake North)			III (Dal Porto South)		IV (Bethel Island, LLC)		V (Summer Lake South)		VI			TOTALS		
		Acres	Units	Sq. Ft.	Acres	Units[3]	Sq. Ft.	Acres	Units	Acres	Units	Acres	Units[3]	Acres	Units	Sq. Ft.	Acres	Units	Sq. Ft.
Agriculture - Limited *Max. density = 1.0 du/ac*	(AL)				14.8	12								257.6	243		271.4	255	
Single Family Residential - Low *Max. density = 2.3 du/ac*	(SL)							19.2	23					60.3	175		79.5	198	
Single Family Residential - Medium *Max. density = 3.8 du/ac*	(SM)	145.9	512		93.1	309		52.8	180					35.3	58		327.1	1,059	
Single Family Residential - High *Max. density = 5.5 du/ac*	(SH)	177.3	735		43.3	188		44.8	197	138.0	584	77.6	272	103.6	405		584.6	2,381	
Multi-Family Residential - Low *Max. density = 9.6 du/ac (Detached)*	(ML)	51.7	303		63.2	307				23.8	132	71.8	356				210.5	1,098	
Multi-Family Residential - Low *Max. density = 9.0 du/ac (Attached)*	(ML)													19.9	163		19.9	163	
Multi-Family Residential - Medium *Max. density = 12.0 du/ac*	(MM)									41.7	404						41.7	404	
Mobile Home *Max. density = 9.6 du/ac*	(MO)													4.3	33		4.3	33	
Village Center	(VC)	46.6[1]	150[2]	435,600													46.6	150	435,600
Commercial	(CO)				1.7		10,000							44.3	13	193,000	46.0	13	203,000
Commercial Recreation	(CR)													37.3	5	162,500	37.3	5	162,500
Light Industrial	(LI)				5.7												5.7		
Schools[4]		12.4			20.2					10.0		10.0					52.6		
Community Facilities[5]		1.1			1.8					3.5		1.0		12.1			19.5		
Community Parks	(CP)							12.2				14.6		9.3			36.1		
Neighborhood Parks	(NP)	27.9			11.2			11.0		13.5		2.0					65.6		
Beach Club	(BC)	3.0										3.0					6.0		
Lakes		31.8			62.6			10.4		22.6		24.9					152.3		
Levees		20.1			36.7			3.2		38.4		9.6		4.5			112.5		
Interim Levees					8.3							18.5					26.8		
Open Space / Easements	(OS)	56.0			26.9			22.7		44.6		18.2		20.6			190.0		
Wetlands / Dune Area	(WL)	108.1			10.4							3.6					122.1		
Gas Well Sites	(GW)	4.2			5.5			2.4		6.3		2.1					20.5		
Roads (Bethel Island, Jersey Island, Byron Highway & East Cypress)		17.7			3.6			3.8		8.6		12.1		21.6			67.4		
TOTALS:		**703.8**	**1,700**	**435,600**	**409.0**	**816**	**10,000**	**182.5**	**400**	**351.0**	**1,120**	**269.0**	**628**	**630.7**	**1,095[6]**	**355,500[7]**	**2,546.0**	**5,759**	**801,100**
Percentage Totals:		**27.6%**	**29.5%**	**54.4%**	**16.0%**	**14.2%**	**1.2%**	**7.2%**	**6.9%**	**13.8%**	**19.4%**	**10.6%**	**10.9%**	**24.8%**	**19.1%**	**44.4%**	**100.0%**	**100.0%**	**100.0%**

NOTES:
1. Commercial square footage based on approximately 40 acres.
2. Up to 150 units may replace approximately 20 acres of commercial (217,800 S.F.)
3. Does not include 200 potential entitled second units in Planning Areas 2 & 5 combined.
4. Schools include the following land uses: Elementary School (ES) and Middle School (MS).
5. Community facilities include the following land uses: Day Care (D); Fire Station (FS); Lift Station (L); Pump Station (PS); Water Well (WW); and Water Tank (WT).
6. Planning Area 6 reflects the loss of 5 units from the original 544 existing units.
7. Actual commercial square footage may be substantially less than 355,500 sf.
8. All acreages are based on gross area.

Source: McLarand, Vasquez, Emsiek & Partners, Inc., 2005

Table 2-1
Overall Project Summary

3.0 Environmental Assessment
of East Cypress Corridor
Specific Plan

3.0 ENVIRONMENTAL ASSESSMENT OF EAST CYPRESS CORRIDOR SPECIFIC PLAN

3.1 INTRODUCTION TO THE ANALYSIS

3.1.1 INTRODUCTION

Chapter 3 analyzes the potential impacts of the East Cypress Corridor Specific Plan on a range of environmental issue areas. Sections 3.2 through 3.13 describe the focus of the analysis, references and other data sources for the analysis, the environmental setting as it relates to the specific issue, project-specific impacts and mitigations measures for each issue area. The format of each of these sections is described below.

3.1.1.2 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code §21068). The Guidelines implementing CEQA direct that this determination be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each section, and are consistent with significance criteria set forth in the CEQA Guidelines.

3.0.1.3 INITIAL STUDY

The Initial Studies and Notices of Preparation (see Appendix A, C, and E, Volume II) prepared for the East Cypress Corridor Specific Plan as a part of this EIR include a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either "no impact," "less-than-significant," "potentially significant with mitigation incorporated," and "potentially significant." The Initial Studies provide the following conclusions:

- The proposed project resulted in less-than-significant population and housing impacts which did not require mitigation:

All remaining issues were identified in the Initial Studies as potentially significant and are discussed in the Draft EIR.

3.1.1.4 ISSUES ADDRESSED IN THE DRAFT EIR

The Initial Studies identify environmental impacts as potentially significant and required further analysis. The EIR provides the additional analysis necessary to address the technical environmental impacts not fully resolved in the Initial Studies. Consistent with the conclusions of the Initial Studies, the following environmental issues are addressed in this chapter of the Draft EIR:

- Aesthetics
- Agricultural Resources
- Air Quality

- Biological Resources
- Cultural Resources
- Geology/Soils
- Hazards & Hazardous Materials
- Hydrology/Water quality
- Land Use and Planning
- Noise
- Public Services and Utilities
- Transportation/Traffic

3.1.1.5 SECTION FORMAT

Each section in Chapter 3 addresses a specific environmental issue and begins with an introduction describing the purpose of the section. The introduction is followed by a description of the project's environmental setting as it pertains to that particular issue. The setting description is followed by the regulatory context and an impacts and mitigation measures discussion. The impacts and mitigation measures discussion contains the significance criteria. An explanation of each impact and an analysis of its significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement. The degree of relief provided by identified mitigation measures is also evaluated. All figures are provided in the order presented at the end of each chapter.

3.2 AESTHETICS

3.2 AESTHETICS

3.2.1 INTRODUCTION

This section describes existing visual and aesthetic resources of the project site and the surrounding area and evaluates the potential impacts of the project with respect to the development proposed for the site. CEQA describes the concept of aesthetic resources in terms of scenic vistas, scenic resources (such as trees, rock outcroppings, and historic buildings within a state scenic highway), the existing visual character or quality of the project site, and light and glare impacts. The following impact analysis is based on information in the East Cypress Corridor Specific Plan, City of Oakley Residential Design Guidelines[1] the Oakley 2020 General Plan Background Report[2] the Oakley 2020 General Plan[3] and its associated EIR.[4]

3.2.2 ENVIRONMENTAL SETTING

The project site is located in the unincorporated area of Contra Costa County, but within the City of Oakley Sphere of Influence as shown previously. Sandmound Slough borders the project site to the east, Rock Slough to the south, open space to the west, which is part of the 1,229 acre Dutch Slough Wetland Restoration project, and Dutch Slough to the north.

The existing uses on the site include open space used primarily for cattle grazing, residential dwellings including single-family detached and attached units, a small amount of commercial use, the Summer Lake project that is currently under construction, several operating natural gas wells, and two separate overhead power line easements. The largest concentration of residences is along the Dutch Slough and Sandmound Slough levee as shown in Figure 3.2-1, Existing On-Site Residential Units. In addition, there is a row of 34 single-family detached homes along the south side of East Cypress Road between Bethel Island and Jersey Island Roads. There are also single-family detached residences scattered throughout the site.

There are a few commercial uses that are concentrated largely in the northeastern portion of the site along both sides of Bethel Island Road north of the intersection of Sandmound Boulevard and Bethel Island Road. The Summer Lake project, located east of Bethel Island Road and north and south of East Cypress Road, is currently under construction. The construction activity at Summer Lake includes the recent completion of a flood control levee and the current construction of infrastructure necessary to support the first two phases of residential development within PA 5. The construction of the first phase of residences of Planning Area 5 of Summer Lake is currently underway with occupancy scheduled for early 2006. Portions of PA 2 have also been graded pursuant to the existing 1993 County approval. Photographs of the existing land uses on the site are shown in Figures 3.2-2 through 3.2-6, Site Photographs.

[1] City of Oakley Residential Design Guidelines, December 2003
[2] Oakley 2020 General Plan Background Report (Oakley GP Background) © September 2001
[3] Oakley 2020 General Plan, City of Oakley, August 30, 2002.
[4] Oakley 2020 General Plan Environmental Impact Report, City of Oakley, September 2002.

3.2.2.1 UNIQUE VISUAL FEATURES

The project site is largely undeveloped open space used primarily for cattle grazing. It is generally flat in elevation with a flood control levee along the north and east boundary to protect a portion of the site from flooding by the San Joaquin River. Several features that are highly visible include overhead electrical transmission lines in two separate easements owned by Pacific Gas and Electric (PG&E) and Western Authority Power Administration (WAPA). Also present, but less visible, are two operating natural gas wells.

Surrounding land uses include Rock Slough and the Contra Costa Canal, which extend along the southern and southwestern project boundary, respectively. The area further south of the site, south of Rock Slough and the Contra Costa Canal is characterized by rural agricultural scenery with dispersed detached residential units in the County. West of the site and south of East Cypress Road is agriculture land that is used for cattle grazing. North of East Cypress Road and west of Jersey Island Road is open space associated with the Dutch Slough Wetland Restoration Project. North of the site is Bethel Island and the Holland Tract. Dutch Slough separates the project site from both Bethel Island and the Holland Tract.

Mount Diablo is located approximately 15 miles southwest of the site and is visible throughout much of the year. However, there are days of the year that haze and other environmental conditions impair views of Mount Diablo. Mount Diablo is considered a scenic resource by the Oakley 2020 General Plan. Dutch Slough, agriculture land, open space, and Mount Diablo are considered a scenic resource by the Oakley 2020 General Plan.

3.2.2.3 REGULATORY CONTEXT

In terms of community and character design, the City of Oakley 2020 General Plan states that its goal is to "Encourage projects exhibiting excellent design and sensitivity to the community, while preserving the community character of the City of Oakley".[4]

The following policies[5] that are applicable to the project to meet the above goal include:

Policy 2.8.7 Residential neighborhoods and adjoining land uses should be connected by streets and multiuse trails, as appropriate. Fragmentation of neighborhoods is strongly discouraged.

Policy 2.8.8 New development should continue the existing adjacent neighborhood concepts, including street pattern, street trees, setbacks, and scale as appropriate. Gradual transition of uses shall be strongly encouraged.

Policy 2.8.9 Commercial development should provide opportunities for interaction between patrons and pedestrians. Examples include storefront display windows, sidewalk cafes and exterior seating, and pedestrian-scale signage.

Policy 2.8.10 Commercial areas should be clustered so as to provide a destination for shoppers and to limit vehicular trips.

[4] City of Oakley 2020 General Plan, Goal 2.8, page 2-11.

[5] City of Oakley 2020 General Plan, Community Character & Design Policies, page 2-12.

Policy 2.8.11 Monument or similar signs should be provided at appropriate gateways to residential districts, commercial areas, or other significant landmarks.

Policy 2.8.12 Conflicting levels of public improvements adjacent to neighboring developments and land uses should be mitigated through fee programs and construction and dedication of facilities and land, as appropriate.

The applicable Implementation Programs to implement the above policies include:

2.8.A The City will review development regulations and modify as appropriate to evaluate and promote projects exhibiting superior design features.

2.8.D The City will develop standards for accessible sidewalks, street trees, and bicycle lanes for new streets or significant improvement of existing streets.[6]

The Signage and Monumentation goal for Oakley states, "Establish a sense of entry at Oakley's boundaries, to enhance individual identity of Oakley's neighborhoods and to establish unified design themes throughout the City".[7]

The following policies[8] that are applicable to the project to meet the above goal include:

Policy 2.9.1 Pursue the construction of community entry monuments at key locations, including but not limited to: Highway 4/Main Street immediately east of Highway 160; Neroly Road and Empire Avenue; Neroly Road and O'Hara Avenue; Highway 4 and Delta Road; and Cypress Avenue at a location to be determined.

Policy 2.9.2 Require the construction of project monumentation to clearly identify the location and entry to major residential and commercial development projects, as deemed appropriate.

Policy 2.9.3 Monumentation at the entry to major commercial projects shall generally be constructed at intersections with arterial streets, or in some cases, at entry roads connecting to collector streets.

The applicable Implementation Programs to implement the above policies include:

2.9.A Monumentation at the entry to major commercial projects shall generally be constructed at intersections with arterial streets, or in some cases, at entry roads connecting to collector streets.

Scenic Resources

Scenic resources in Oakley include predominant natural landscape features of the Delta waterways and views of Mount Diablo to the west. The City supports the preservation of these valuable scenic

[6] City of Oakley 2020 General Plan, Community Character & Design, page 2-12.

[7] City of Oakley 2020 General Plan, Signage and Monumentation, page 2-12.

[8] City of Oakley 2020 General Plan, Signage and Monumentation, page 2-12.

resources.[9] The goal to preserve scenic resources states "Preserve the scenic qualities of the Delta Waterway, Marsh Creek, and views of Mount Diablo".[10]

The following policies[11] that are applicable to the project to meet the above goal include:

Policy 6.7.1 Encourage preservation and enhancement of views of the Delta and Mount Diablo to the extent possible.

Policy 6.7.2 New development and redevelopment along the Delta, adjacent to Marsh Creek and throughout the City should take advantage of view opportunities and visual impacts to the waterway and Mount Diablo, respectively.[12]

The applicable Programs to implement the above policies include:

6.7.B Review development applications for discretionary actions to determine aesthetic impacts and visual compatibility with surrounding property.[13]

Open Space Resources

Open space resources in Oakley consist of designated parkland, natural and recreational open space areas, and waterways (Delta and creeks). Goals, policies, and programs address the City's desire to preserve, enhance, and expand open space resources to maintain the natural physical and visual quality of Oakley.[14] The city goal to provide open space states, "Encourage preservation and enhancement of existing open space resources in and around Oakley and balance open space and urban areas to meet the social, environmental and economic needs of the City now and for the future."[15]

Policy 6.6.1 Encourage public access in multiple forms and improvements along the City's waterways, particularly the San Joaquin Delta, Marsh Creek and Dutch Slough.

Policy 6.6.2 Establish buffers from adjoining land uses to protect the natural open space resources in the City.

Policy 6.6.3 Encourage preservation and enhancement of the watershed, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations.

Policy 6.6.4 Where feasible and desirable, major open space components shall be combined and linked to form a visual and physical system in the City.

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[9] City of Oakley 2020 General Plan, Open Space and Conservation Element, Scenic Resources, page 6-7.

[10] City of Oakley 2020 General Plan, Open Space and Conservation Element, Scenic Resources, Goal 6.7, page 6-7.

[11] City of Oakley 2020 General Plan, Open Space and Conservation Element, Scenic Resources, Policies, page 6-7

[12] City of Oakley 2020 General Plan, Open Space and Conservation Element, page 6-7.

[13] City of Oakley 2020 General Plan, Open Space and Conservation Element, page 6-7.

[14] City of Oakley 2020 General Plan, Open Space and Conservation Element, page 6-6.

[15] City of Oakley 2020 General Plan, Open Space and Conservation Element, Goal 6.6, page 6-7.

The applicable Programs to implement the above policies include:

6.6.A Adopt land use controls that prevent incompatible uses for parcels adjacent to existing open space resources.

6.6.B Pursue opportunities for additional open space land in the form of parkland dedication, and public open space easements, leaseholds, land donations/dedications, and gift annuities.[16]

In keeping with the General Plan, the City of Oakley adopted Guidelines[17] for residential development to aid project developers, design professionals, City staff, the Planning Commission, and City Council in the design review of individual, public, and private development within the City of Oakley. The Guidelines provide minimum standards for design issues including neighborhood layout and design, residential siting and lot design, architectural character, and streetscape. The Residential Design Guidelines have been incorporated into the design guidelines for the East Cypress Corridor Specific Plan to integrate the project with the City of Oakley from a design standpoint.

Summer Lake – Supplemental EIR

The Summer Lake site is vacant, however it has been disturbed in conjunction with the construction of the flood control levee to protect the first two phases of development of Planning Area 5 from flooding. A large portion of the site was graded and disturbed to construct the required levee. In addition, on and off-site infrastructure construction is underway to provide water and sewer facilities to serve the project.

3.2.3 PROJECT IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

An aesthetic impact with the development of the proposed East Cypress Corridor Specific Plan would be considered significant if any of the following conditions would result from implementation of the project:

a. A substantial adverse effect on a scenic vista;

b. Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;

c. Substantial degradation to the existing visual character or quality of the site and its surroundings; or

d. Creation of a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

[16] City of Oakley 2020 General Plan, Open Space and Conservation Element, page 6-7.

[17] City of Oakley Residential Guidelines, December 2003, David Gates & Associates

3.2.3.1 A SUBSTANTIAL ADVERSE EFFECT ON A SCENIC VISTA

Implementation of the East Cypress Corridor Specific Plan for Planning Areas 1, 3, 4 and 6 would transform and change the existing aesthetics of the site from predominantly rural agriculture and open space to planned urban development. The proposed uses for the site include a mixture of residential types and densities, commercial use, parks, roadways, man-made lakes, a flood control levee, water tank, etc. The project would change the visual landscape of the site from rural agriculture and open space to urban development. However, the proposed uses are similar type, intensity and pattern to land uses proposed by the General Plan. The development of the site as proposed by the specific plan would not be significantly different from the land uses and densities designated by the General Plan. Thus, the project would have no significant aesthetic impacts greater than anticipated in that both would urbanize the site by the General Plan.

The Oakley General Plan does not identify any scenic vistas either on or adjacent to the site that could be impacted by the project. Although the project would reduce distant views across the site due to the construction of homes, the flood control levee, commercial buildings, schools, etc., the project would not impact any scenic vistas.

The Oakley 2020 General Plan states that part of one goal that the City seeks to preserve is views of Mount Diablo[18]. In addition, the City wants to preserve other scenic resources and view corridors within Oakley. The views of Mount Diablo by the existing residents that live throughout the site would not be impacted by the project. The existing residents would continue to have views of Mount Diablo on days of the year that visibility is not prevented by haze and other environmental conditions. The project would have no impact to the number of days that Mount Diablo is visible for existing residents.

Future residents of the project may not have direct views of Mount Diablo from their individual residence; they would be able to see Mt. Diablo from adjacent streets, parks, and other open space areas within the project. The project would have ***no impact*** to views of Mount Diablo for either existing or future residents because direct views of Mount Diablo would be preserved.

Mitigation Measures

Since no impacts to scenic vistas have been identified no mitigation measures are required.

Summer Lake - Supplemental Impact

The Summer Lake (Cypress Lakes and Country Club) EIR did not identify any scenic vistas that would be impacted by the project. Because there are no scenic vistas on the site or in the area that could be impacted, the land use adjustments and construction of 113 additional residential units and middle school would have ***no impact*** to scenic vistas.

Mitigation Measures

Since no impacts to scenic vistas have been identified no mitigation measures are required.

[18] City of Oakley 2020 General Plan, Goal 6.7, page 6-7.

3.2.3.2 SUBSTANTIAL DAMAGE TO SCENIC RESOURCES, INCLUDING, BUT NOT LIMITED TO, TREES, ROCK OUTCROPPINGS, AND HISTORIC BUILDINGS WITHIN A STATE SCENIC HIGHWAY

There are no State scenic highways that extend through or are located within the boundary of the Specific Plan including Planning Areas 1, 3, 4, and 6. The project would have ***no impact*** to scenic resources such as trees, rock outcroppings, or historic buildings in a State scenic highway since none exist.

Mitigation Measures

Since no impacts to a State scenic highway have been identified no mitigation measures are required.

Summer Lake - Supplemental Impact

The proposed land use changes to Planning Area 2 would not impact scenic resources in a State scenic highway since there are no scenic highways adjacent to or extend through the Summer Lake development. Therefore, the revisions to the Summer Lake development would have ***no impact*** to a State scenic highway.

Mitigation Measures

Since no impacts to a State scenic highway have been identified no mitigation measures are required.

3.2.3.3 SUBSTANTIAL DEGRADATION TO THE EXISTING VISUAL CHARACTER OR QUALITY OF THE SITE AND ITS SURROUNDINGS

The East Cypress Corridor Specific Plan site has a rural appearance due to the large amount of agricultural land and open space that is present. Development of PAs 1, 3, 4 and 6 would replace the undeveloped, rural character and largely unobstructed views across the site with urban development. The project would have a permanent alteration of the site's rural and vacant character that covers most of the site and replace it with urban development consisting of a mix of residential densities, a flood control levee, commercial/commercial recreation, public schools, roadways, man-made lakes, parks and open space, a water tank, and other urban uses as planned by the Specific Plan.

The Oakley 2020 General Plan anticipates this alteration of the site as discussed in the General Plan EIR and includes policies and implementation programs to make development attractive and compatible with surrounding uses. The East Cypress Corridor Specific Plan includes design guidelines that when implemented would ensure development consistent with the General Plan. Design guidelines for PAs 1, 3, 4, and 6 are provided for residential development, streetscapes, gateways and entries into the project, parks, open space, lakes, on-site trails, tract and perimeter walls, and the levee to ensure the project meets the design that is desired by the City for the site. The development standards and design guidelines of the Specific Plan would provide a buffer between development and natural open space areas, including the wetland area in the northern portion of PA 1.

The specific plan provides criteria for lot coverage, building setbacks, scale and massing, facades, roof forms, garages, parking, etc. for residential use. Streetscape design includes criteria for the treatment of medians and the landscaping of the medians and setbacks.

Project Entries

The project would be considered a "gateway" into Oakley from the County south of the site. The Oakley 2020 General Plan indicates that one of its goals is to establish a sense of entry at Oakley's boundaries, to enhance individual identity of Oakley's neighborhoods and to establish unified design themes throughout the City. The Specific Plan includes design guidelines for gateways, entries, and arrival points to meet the goals of the General Plan. Figure 3.2-7, Project Entries and Arrivals, shows the project entries and arrival points.

The primary entry to the project is the intersection of East Cypress Road at Jersey Island Road. The future extension of Bethel Island Road south of the site over Rock Slough and connect with Byron Highway would provide a gateway from south of the site. The project entries would have clusters of riparian trees as a form of identification. These entries into the project are consistent with Goal 2.9 of the General Plan.

Community entries are the main entry points from major arterials including East Cypress Road and Bethel Island Road to the various project development areas. The project entries are proposed to have large landscape setbacks to crease a sense of outdoor room and accommodate tree planting, entry walls, and structures. The materials proposed for community entries include stone, stucco, metal and tile. When feasible, these entries would use water as a focal element.

The specific plan provides design criteria for neighborhood entry points. Neighborhood entries are secondary entry points to development areas and have landscape setbacks that include tree planting, walls and monoliths. The materials that would be allowed for neighborhood entries are the same as community entries.

Arrival points are focal points in local neighborhoods and include the intersection of a collector road with a loop road at a rotary with a landscaped center. The design of an arrival point includes the focus on water, parkland, or open space.

Implementation of the Signage and Monumentation Policies of the Specific Plan would have ***no impact*** to the aesthetics of project entries.

On-Site Roadways

Figure 3.2-8, Roadway Hierarchy, shows the hierarchy of the roads proposed for the project that establishes the locations of the various entry points described above. As shown, the roadways proposed to serve the project include arterials (East Cypress Road, Bethel Island Road), loop roads, collector streets, and local streets. The arterial and collector roads are proposed to have landscaped medians along with landscaped rights-of-way.

Figure 3.2-9, Collector Road Cross Section, shows the cross-section of a typical collector road. As shown in this figure the median is proposed to have flowering trees along with a low decorative wall.

Bethel Island Road and East Cypress Road are the major north-south and east-west arterials through the site, respectively. Both of the roadways will be elevated at specific locations to allow the roads to pass over the flood control levee that would be constructed to protect the site from flooding. In particular, the intersection of Bethel Island Road at East Cypress Road is elevated to accommodate for the flood control levee at this location in association with the development of Summer Lake. In addition, Bethel Island Road will be elevated approximately one-half mile south of Sandmound Boulevard to cross over the levee that would be constructed at this location. In order to cross over the levee both East Cypress Road and Bethel Island Road would have a gradual grade transition to cross over the levee.

Bethel Island Road and East Cypress Road would have landscaped medians and rights-of-way. The landscaping proposed for both roads are shown in Figures 3.2-10, Bethel Island Road Landscaping, and 3.2-11, East Cypress Road Landscaping, respectively. The landscaping would provide a buffer between motorists and the land uses adjacent to the roads.

Jersey Island Road extends along the west project boundary and the right-of-way along both sides of the road would be landscaped. Jersey Island Road is a collector road, which does not have a median. Therefore this road would not have a landscaped median. A proposed drainage canal along the west side of the road, between Jersey Island Road and the proposed flood control levee, would be planted to provide additional landscaping along the west side of the road. Figure 3.2-12,Jersey Island Road Landscaping, shows the proposed landscaping for Jersey Island Road.

The proposed landscaping of all project road rights-of-way and medians along with the special low wall in the median of East Cypress Road and Bethel Island Road would meet the goals and policies of the general plan to improve the physical appearance of public roads for motorists and the community as a whole. Implementation of the Community Character and Design Policies of the Specific Plan would have a ***less-than-significant*** impact on the aesthetics of major roadways and connecting neighborhood roads.

Parks, Trails and Man-Made Lakes

The project proposes a variety of open space including parks, man-made lakes, and joint use trails. The specific plan has design criteria for each of the open space areas to provide positive aesthetic benefits to the project and the residents. The project proposes both community and neighborhood parks. The proposed community parks would provide active recreational needs for the project residents. The community parks would provide sports fields and courts for soccer, football, baseball, basketball, and tennis. The community parks abut open space easements that would connect parks with multi-use trails. The community park would also provide passive recreation facilities including picnic areas that would be shaded and wind protected.

The neighborhood parks proposed by the project would provide informal recreational needs for the local neighborhoods. They are linked to the multi-use trail system that extends throughout the site to allow park access by either foot or bicycle. A neighborhood park can include open lawns, deciduous canopy trees for summer shade and winter sun, shrubs for wind protection, small court

recreation facilities, and playgrounds. Many of the neighborhood parks are placed to take advantage of the proposed man-made lakes throughout the site and are directly adjacent to the lake or within clear view. Each neighborhood park would have a formal entry as shown in Figure 3.2-13, Neighborhood Park Entry Elevation-Typical.

The project proposes four man-made lakes. The lakes are a central aesthetic feature for the project and provide both a visual and recreational amenity. The edge treatment of the lakes would range from natural wetland transition to hard edges with occasional lake overlooks as shown in Figure 3.2-14, Lake Overlook-Typical. Most of the lake frontage would be accessible to the public via trials, parks, and open space. The lakes would be non-contact and provide an aesthetic amenity for the project. Narrow sidewalks would allow the public the opportunity to walk around and be close to this aesthetic amenity as shown in Figure 3.2-15, Narrow Lake Trail. The development of neighborhood parks and open space adjacent to the lakes would provide areas of continuous open space.

There are two open space areas designated within the project that extend along existing power line easements. The open space areas along the power line easements include multi-use trails including pedestrian and equestrian trails. The easements would be planted primarily with low native shrubs and seasonal grasses that would transition to native wetland habitat at the edges of the lakes. The improvement of the open space areas with enhanced landscaping would provide areas of landscaped open space within the project for it's the residents.

Trails are proposed for the top of the flood control levee that would be constructed throughout the project to protect the project from flooding. The trails would be designated for pedestrian, equestrian, and bicycle use. The landscape materials proposed for the levee slopes would be restricted to low profile ground cover and grasses as required by RD 799. RD 799 as the levee owner would have to approve a vegetation plan for the levee. The trails would make use of levee maintenance roads as much as feasible to provide access to the top of the levee. Access points and ramps to the trails would be provided at strategic locations to reduce and minimize maintenance and conflicts with RD 799 maintenance personnel and equipment. All ramps and access points to the levee trail system would be handicap accessible. Figure 3.2-16, Levee Trail, shows a cross-section of a levee trail with the multi-use trail on the top and the typical landscaping allowed by RD 799 for the slopes. Landscaping the levee would eliminate the exposed dirt of the levee.

The project proposes to retain the existing wetlands at the north end of the site between Dutch Slough and the levee at the north end of Planning Area 1. The wetlands would be preserved in their current state and serve as additional project open space. The preservation of the wetlands as open space would implement a policy of the General Plan, which is to preserve and enhance Delta wetlands as well as provide areas with unobstructed views.

Implementation of Open Space, Trails, and Community Character and Design Policies of the Specific Plan would have a ***less-than-significant*** impact to open space, trails, and lakes throughout the project.

Water Tank Site

A water tank site is proposed in the northeast portion of Planning Area 4 adjacent to the levee that extends along the southern boundary of Summer Lake and the WAPA power line easement. The tank site would allow a total of 8 million gallons of water storage by either two 4 million gallon tanks or one 4 million gallon tank and two 2 million gallon tanks. The water tanks would be screened by a double row of evergreen trees to screen and buffer the tank site from residents as shown in Figure 3.2-17, Water Tank Screening. A 4 million gallon water tank would be 25 feet in height and approximately 83 feet in diameter. A 2 million gallon water tank would be 20 feet in height and approximately 65 feet in diameter. The proposed screening for the water tank site would somewhat screen direct views of the water tanks from surrounding areas. Therefore, the impact would be ***less-than-significant.***

On-Site Landscaping

The specific plan proposes a variety of trees and other landscape materials to be planted throughout the site. The landscaping would buffer the project development for motorists traveling on the arterial roadways through the site. The landscape palette includes a variety of trees including deciduous and evergreens, shrubs, grasses, etc. for roadways and open space areas. The proposed landscape plan would increase the amount of introduced landscaping on the site compared to the current condition. The proposed landscape plan for the project would screen and buffer residences, buildings, and other proposed improvements from direct view. The overall landscape structure for the project site including streetscapes, the flood control levee, lake edges, parks, and open space is shown in Figure 3.2-18, Landscape Structure. The incorporation of the landscape standards listed in the Specific Plan would have a ***less-than-significant*** impact to landscaping throughout the project.

Flood Control Levee

The construction of the flood control levee around a large portion of the project perimeter is required to protect the project from flooding. The levee would eliminate existing off-site views of flat agricultural land to the west and north of the existing residents. However, none of the surrounding land is designated a scenic resource. The flood control levee would have a minimum height of 10 feet, preventing same-height views of properties west and north of the site. The levee would restrict distant views of adjacent properties, especially for residents in close proximity to the levee itself. Limited off-site views would decrease the farther one moves away from the levee. Distant views at eye level would be reduced while views above the horizon would remain unobstructed.

The Oakley 2020 General Plan EIR did not identify any significant aesthetic impacts with development of the project site consistent with the General Plan and incorporation of the General Plan policies that protect scenic qualities. The East Cypress Corridor Specific Plan is generally consistent with the General Plan, except for three general plan amendments that are required. The three general plan amendments are identified in Chapter 2 and include: a) the General Plan Land Use map would be changed for the Specific Plan Area to reflect the East Cypress Corridor Specific Plan land use plan; b) the General Plan allocation of commercial acreage for the Specific Plan Area would increase from 69 to 89 acres to allow for development of approximately a 40 acre Village Center in Planning Area 1; and c) approximately 9 acres of residential land uses adjacent to East

Cypress Road currently designated as "Agriculture Limited" would be changed to Park land use designation to accommodate the development of a community park within the Specific Plan Area. These changes are similar to the development allowed by the General Plan. The project would not change the aesthetics of the site from the development allowed by the General Plan. The project would have a ***less-than-significant*** impact to aesthetics compared to the development allowed for the site by the General Plan.

Village Center

The specific plan has design and development standards for the 40-acre Village Center and the other commercial areas proposed for the project. The design and development standards would buffer commercial development from adjacent residential development as well as motorists traveling past the commercial development through means such as landscaping, earthen berms, or decorative walls or fencing. In addition, all storage, including cartons, containers, materials or trash would be required to be shielded from view within a building or area enclosed by a solid fence or wall not less than six feet in height. Trash areas would be enclosed and covered. All roof mounted equipment, including, but not limited to, mechanical equipment, satellite dishes, tanks, ducts and towers, and all equipment appurtenant thereto, shall be screened on all sides from public view from the street, adjoining properties, and neighboring residential units, by a parapet wall, decorative enclosure, or other architectural element. All equipment screening would be required to be an integral part of the building architecture. Implementation of the design and development regulations of the Specific Plan for the Village Center would result in a ***less-than-significant*** impact aesthetic impact.

Natural Gas Wells

Short-Term Drilling

There are several natural gas wells on the site that currently produce natural gas. One gas well is located adjacent to and east of Jersey Island Road and secured by chain link fencing as shown previously in the on-site photographs. A second gas well is located near the middle of Planning Area 3. The natural gas production wells that are on the site are low profile and not highly visible.

The equipment that is required to drill a gas well is visible from the area surrounding the gas well site because the project site is flat. The equipment used to drill natural gas wells include a drill rig that extends approximately 20-30 feet into the air, mud pumps, portable water tanks, waste tanks, fuel tanks to operate the motorized drilling equipment, portable toilets, pipe racks, etc. Once the drilling is completed the equipment is removed and the gas well is either put into production or abandoned. The time that is typically required to drill a gas well is 30-days. Equipment and supplies are delivered to the site daily. Approximately 12-15 employees are on the drill site at any time.

There are six gas well sites proposed throughout the project. The gas well sites are located mostly adjacent to neighborhood parks and residential areas throughout the site. The drilling equipment would be visible and have a ***significant*** impact during short-term drilling operations.

Mitigation Measures

The following mitigation measures shall be implemented to reduce short-term aesthetic impacts of the drilling equipment to ***less-than-significant.***

Mitigation Measure 3.2-1 All drilling equipment less than fifteen feet tall shall be screened from direct view from the surrounding area as approved by the Community Development Director and the screening shall be maintained in place until the drilling equipment is removed from the drill site.

Mitigation Measure 3.2-2 All drilling equipment shall be painted a camouflage or earthen tone to blend with the surrounding landscape. The Community Development Director shall approve the color of the drilling equipment prior to the issuance of a drilling permit.

Mitigation Measure 3.2-3 All production wells shall be appropriately screened from direct view as recommended in the Specific Plan and approved by the Community Development Director. The landscape and screening materials shall be maintained as approved for the life of the well.

Long-Term Production

Once drilled, a successful gas well would be developed as a production well. The type of equipment that is installed for a typical production well includes a wellhead, gas meters, a heater/separator, dehydrator, production water and condensate storage tanks, and an underground pipeline to transfer the natural gas to a regional distribution line. The Specific Plan provides screening methods to buffer production equipment from surrounding land uses. The screening materials required for operating wells would depend upon the location of the well site. For those well sites outside the levee chain link fencing would be required. The well sites located in parks and adjacent to residential areas require walls, fencing, berm and/or landscaping as appropriate. The landscaping and screening of gas well sites as proposed by the Specific Plan would have a ***less-than-significant*** aesthetic impact.

Residential Design

The East Cypress Corridor Specific Plan provides guidelines that establish criteria for the design of the residential units. Design guidelines are also proposed for the Village Center in Planning Area 1. Guidelines related to landscaping and roadway infrastructure including features such as dense shrubbery and large trees, decorative walls, pedestrian/bike paths, and jogging trails are provided to enhance the project. Overall, the guidelines for the residential units, streetscapes, parks, street rights-of-way, open space, etc. have been designed to provide aesthetic variations within a unified visual standard; and would be consistent with the General Plan.

The aesthetics associated with the design of the East Cypress Corridor Specific Plan is consistent with the aesthetic goals and policies of the Oakley General Plan. The types of land uses, neighborhoods and adjoining land uses connected by streets and multiuse trails, gradual transition of uses, monuments at key project entries and neighborhood entries, preservation of open space, etc.

provided in the Specific Plan are consistent with and implement the many City goals and policies applicable to the project.

Design Guidelines

The Specific Plan has guidelines to provide the framework for design and ensure a unified environment within the project. The guidelines express the desired character of future development within the project and address site planning, architecture, and landscaping. Appropriate guidelines from the City's Residential Design Guidelines have been incorporated into the Specific Plan to ensure the characteristics expected for the entire city are incorporated into the specific plan. The specific plan design guidelines have precedence over the Oakley zoning regulations and Residential Design Guidelines. Project compliance with the Specific Plan design guidelines would ensure that the design of the project is consistent throughout and meets the intent of the City. Therefore, there would be ***no impact*** with development of the project as proposed.

Detailed development plans have not been prepared for any of the property within the boundary of Planning Area 6. The development of the property in Planning Area 6 in the future would have to meet and be in compliance with the goals, policies, and design guidelines in the Specific Plan. Future development of PA 6 would not have any aesthetic impacts with implementation of all applicable goals, policies, and guidelines in the Specific Plan.

The project site is designated for urban development by the Oakley 2020 General Plan. The development proposed for the site by the general plan is similar to the East Cypress Corridor Specific Plan. The Oakley 2020 General Plan EIR, Impact 3.2-B concludes that development proposed by the general plan would have a less-than-significant impact to the alteration of Oakley's visual and community character through compliance with the general plan goals, policies, and programs.[19] Because the proposed East Cypress Corridor Specific Plan is very similar to the general plan, the project would have ***no impact*** from a visual character standpoint.

Mitigation Measures

Since no visual impacts have been identified no mitigation measures are required.

Summer Lake – Supplemental Impact

The development of 113 additional residential units on PA 2 would not significantly change the aesthetics of the site and have impacts greater than the approved project. The additional 113 residential units would be integrated with the other units approved for the site and not discernable from the other units. The project would be required to incorporate the applicable design, landscaping, and architectural policies and programs in the Specific Plan into the project. The project would also be required to meet the Oakley Residential Design Guidelines that provide mandatory and suggested design guidelines.

The golf course and the drainage channel that extends through PA 2 would be replaced with 113 residences and a middle school. The replacement of the golf course with residences and middle

[19] Oakley 2020 General Plan EIR, page 3-24 to 3-26.

school would reduce open space that would have been provided by the golf course. The man-made lake is proposed to increase in size to account for some of the lost golf course. The additional lake surface area would have a positive aesthetic impact by providing more open water on the site.

The open views across the golf course would be replaced with residential homes, eliminating the unobstructed open space views. Increasing the size of the man-made lake from would replace some of the open space loss with elimination of the golf course. The project proposes to provide landscaped open space to replace some of the landscaped open space lost by the golf course. Although there would be less open space views with the elimination of the golf course, the impact would be less than significant because views from offsite would be of urban development with the existing or proposed development.

The proposed Summer Lake project retains the three gas well sites that are allowed by the current plan. The aesthetic impacts, including drilling and operations, of the three drill sites would not change with the proposed site plan changes.

The Summer Lake EIR identified unavoidable aesthetic impacts with the development of the project due to construction of a flood control levee. Although the EIR recommended mitigation measures to reduce the impacts, the incorporation of the mitigation measures still resulted in unavoidable aesthetic impacts. The proposed changes to Planning Area 2 would not change the conclusions of the Summer Lake EIR in regards to unavoidable adverse aesthetic impacts because the project does not propose changes to the flood control levee. Therefore, the proposed changes would have ***no impact*** to aesthetics.

Mitigation Measures

Since no aesthetic impacts have been identified no mitigation measures are required.

3.2.3.4 CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE, WHICH WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA

The project site is mostly vacant, however there is some residential and commercial development. The largest concentration of development is along the north and east project boundary, including Dutch Slough Road and Sandmound Boulevard. There are approximately 34 residences along the south side of East Cypress Road between Jersey and Bethel Islands. There is some commercial development along Bethel Island Road near Sandmound Boulevard to Dutch Slough. Existing development produces a relatively small amount and intensity of light and glare.

The development of PAs 1, 3, 4, and 6 would introduce new sources and increase the intensity of light and glare on the site. The new sources of light include streetlights, parking lot lights, interior and exterior lights of residences, schools, and commercial buildings, automobile headlights, landscape lighting, advertising signs, safety and security lighting, and park lighting. The new sources of glare include metal trim with residential, commercial, and public buildings, glazing, man-made lakes, pavement, metal fixtures, etc.

The light and glare would significantly increase the amount and intensity of light and glare on the site compared to the existing condition. The increase in the amount and intensity of nighttime lighting and daytime glare could impact existing residents within and adjacent to the site.

The light that would be generated is typical of similar urban development in Oakley. The glare that would be generated would also be the same or similar to other urban development in the area. There are no land uses proposed by the project that would generate high intensity light or glare greater than similar urban development throughout Oakley.

The Oakley Design Guidelines[20] provides information on the types and intensity of streetlights and other public lighting fixtures allowed in the City. As a general rule one-foot candle per square foot of ground surface is adequate for safe and secure lighting. The Guidelines also stipulate a specific streetlight for local and collector streets.

All project lighting, including development of Planning Areas 1, 3, 4, and 6 would be required to comply with the Oakley Design Guidelines as applicable. Lights would be focused and directed to remain on-site to minimize the amount of light that extends onto adjacent property. Flood lighting is discouraged.

The amount of light and glare on the site is not expected to be different from and more intense than other similar urban development in Oakley; however, the increase in light and glare for existing residents is a ***significant*** impact.

Because the drilling activities operate 24-hours a day, temporary lighting is necessary for nighttime drilling. The lights are typically directed on-site to minimize off-site lighting impacts to surrounding land uses. Nighttime lighting required for drilling operations can impact light sensitive land uses adjacent to the drill site and have a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce development and drilling activity light and glare to ***less-than-significant.***

Mitigation Measure 3.2-4 Lighting for development and for drilling activities shall be limited to that necessary for safety and security purposes and shall be directed away from adjacent properties and road rights-of-way. All flares shall be shielded from adjacent properties and road rights-of-way.

Summer Lake – Supplemental Impact

The proposed revisions to Planning Area 2 include the development of 113 additional residential units and construction of a middle school. The 113 residential units and the school would generate and increase the amount of light and glare in the area.

[20] City of Oakley Residential Design Guidelines, December 2003.

The intensity and duration of light and glare that would be generated by 113 additional residential units would increase compared to the golf course. The intensity of light and glare that would be generated from each of the 113 individual residences would be the same as the intensity of light and glare that would be generated from each of the other 730 homes. All together there would be an increase in light and glare, however, the light and glare of the 113 units would be difficult to distinguish from the 730 units proposed for PA 2. While the light and glare from the additional 113 residences would increase compared to the golf course it is not anticipated the overall increase would have a significant light or glare impact on the other 730 residences proposed for PA 2. The light and glare impact generated by the 113 residential units would be ***less-than-significant.***

The intermediate school would generate light and glare. The light and glare generated by the school includes interior lights, exterior safety and security lights, parking lot lights, etc. The glare generated by the school would be from glazing, metal surfaces, and pavement. Light and glare from the school site would not be unique to this area of the Summer Lake site. The existing plan includes residential development and a golf course, which would also generate light and glare. The light and glare generated by an intermediate school could have a ***significant*** impact to surrounding residential use. Proper building design and orientation, type and location of landscaping, type and location of light fixtures, type of glazing, light shielding, etc. can be incorporated into the school building plans to reduce light and glare impacts.

Mitigation Measures

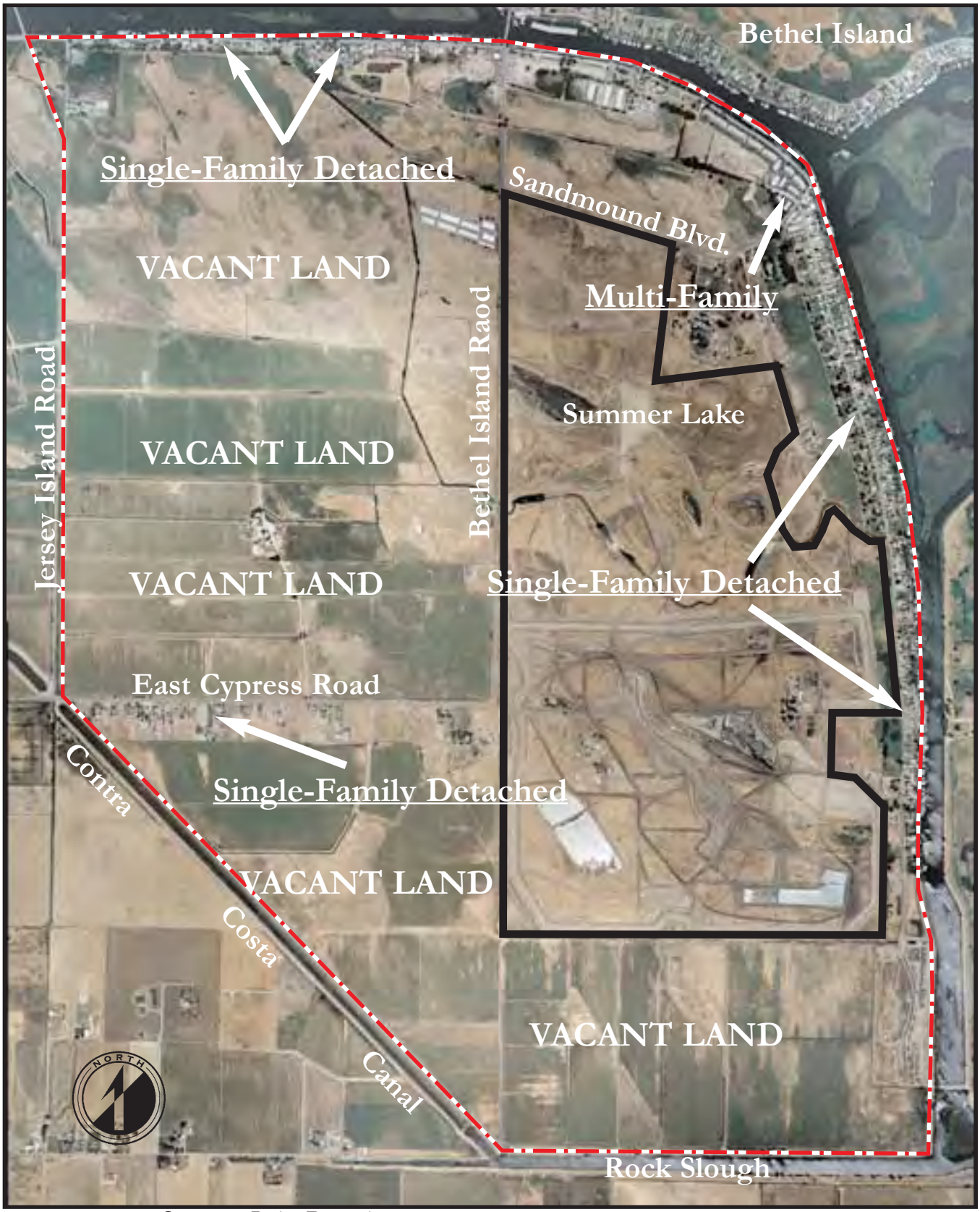
The following mitigation measures shall be implemented to reduce light and glare impacts of the proposed middle school to ***less-than-significant.***

Mitigation Measure 3.2-5 A lighting plan shall be submitted to the City prior to the approval of a school site plan to identify the intensity (foot candle) of light that is projected to extend off-site onto adjacent land uses. The light that extends off-site onto adjacent property shall not exceed one-foot candle.

Mitigation Measure 3.2-6 All exterior lights of the school shall have hoods and/or shielded to avoid excessive light spillage onto adjacent properties.

Mitigation Measure 3.2-7 Flood lighting shall not be allowed on the school campus.

[4] Oakley 2020 General Plan Environmental Impact Report, City of Oakley, September 2002.

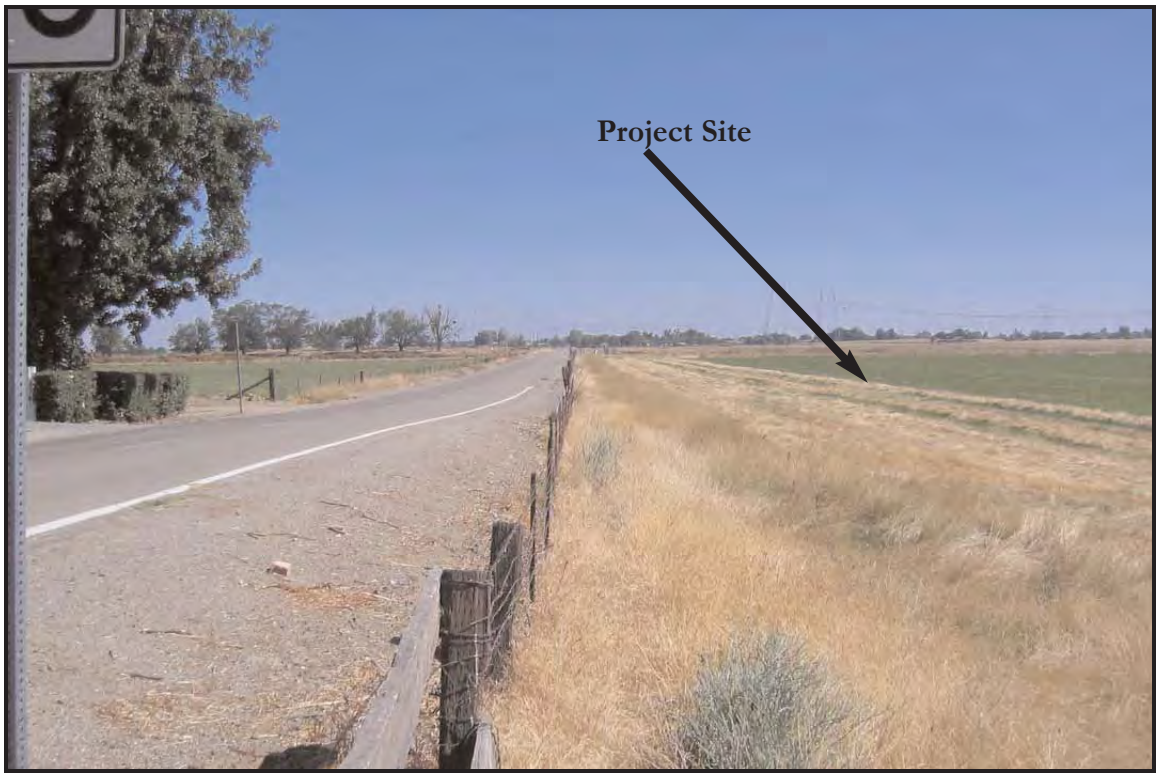


Summer Lake Boundary

Project Boundary

Figure 3.2-1
Existing On-site Residential Units

Source: Phil Martin & Associates

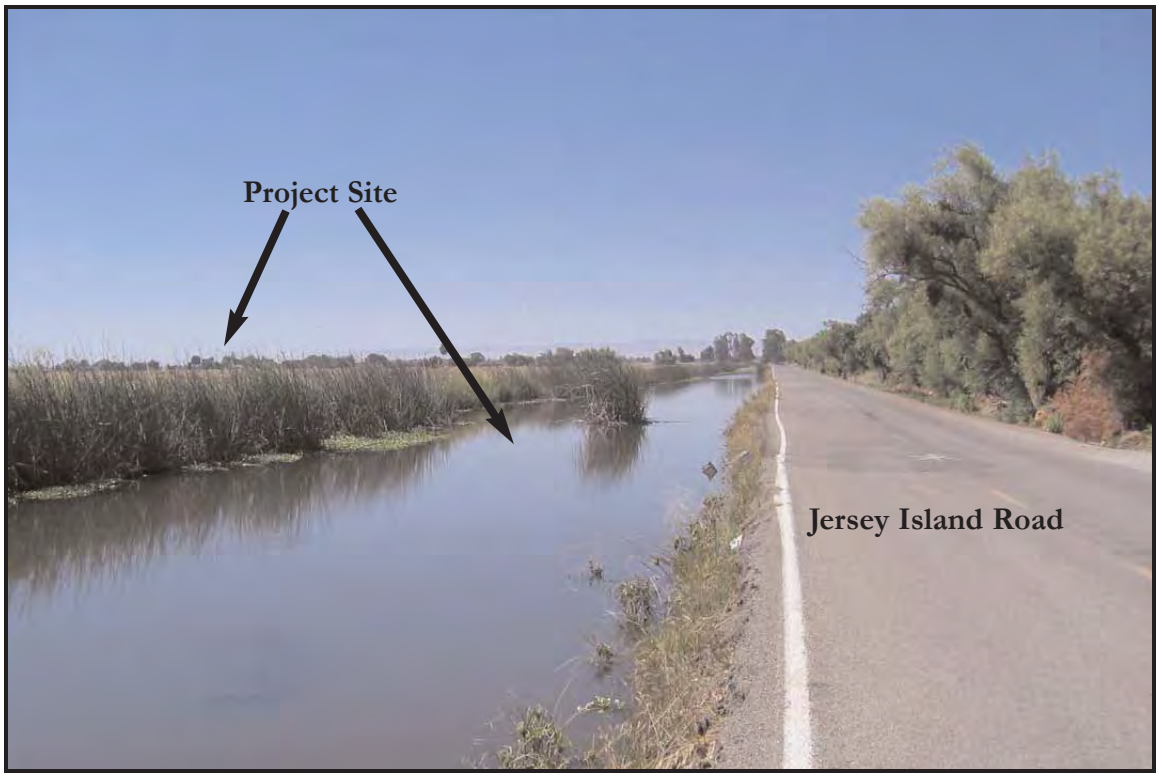


Photograph 1. Looking north along Jersey Island Road. The project site is on the right.

Photograph 2. Looking west from Bethel Island Bridge at the Delta (Dutch Slough) north of the site. The project is on the left.

Source: Phil Martin & Associates

Figure 3.2-2
Site Photographs

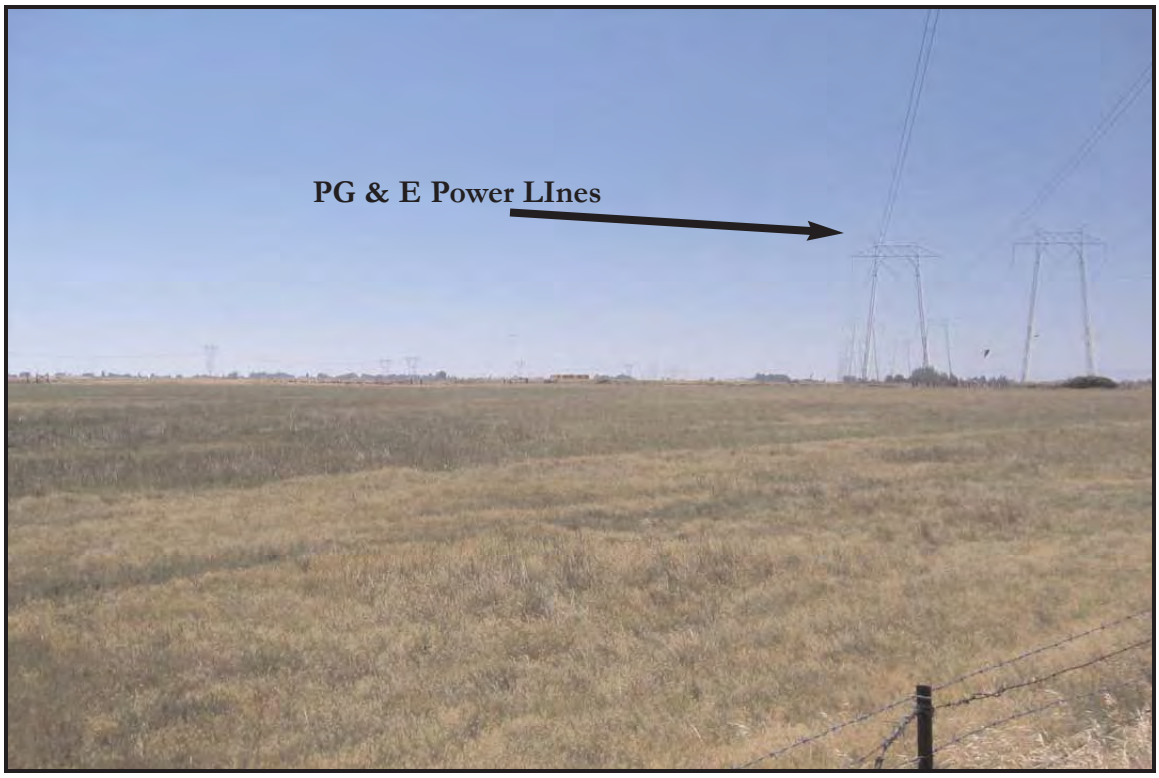


Photograph 3. Looking south from Jersey Island road at the irrigation canal along the west project boundary.

Photograph 4. Looking easterly across the site from Jersey Island Road at irrigated pasture land.

Source: Phil Martin & Associates

Figure 3.2-3
Site Photographs



Photograph 5. Looking southeasterly across the site from Jersey Island Road at the Pacific Gas & Electric power lines that extend through the site.

Photograph 6. An existing natural gas pump station along the east side of Jersey Island Road.

Source: Phil Martin & Associates

Figure 3.2-4
Site Photographs

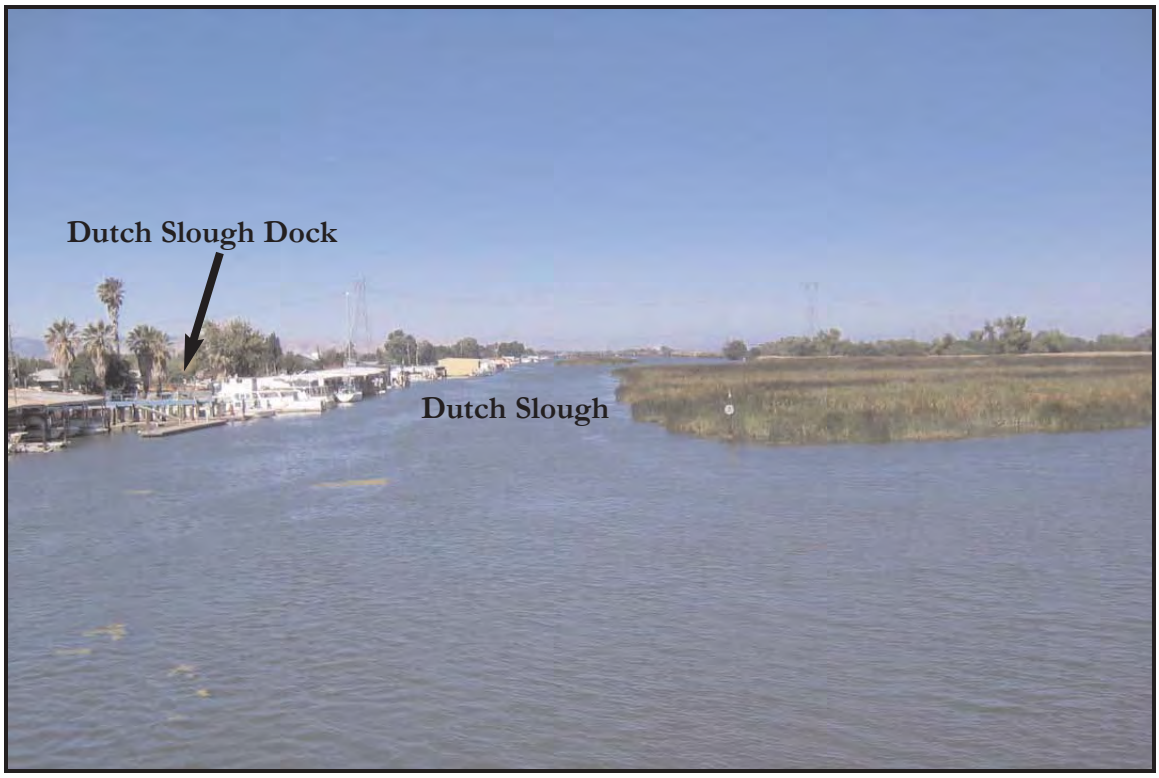
Photograph 7. Looking north across the site from East Cypress Road.

Photograph 8. Looking west across the site from the intersection of East Cypress Road at Bethel Island Road.

Source: Phil Martin & Associates

Figure 3.2-5
Site Photographs

Photograph 9. Looking north from Bethel Island Road at the intersection with Sandmound Boulevard..



Photograph 10. Looking west from Bethel Island Bridge at the Delta (Dutch Slough) north of the site. The project is on the left.

Source: Phil Martin & Associates

Figure 3.2-6
Site Photographs

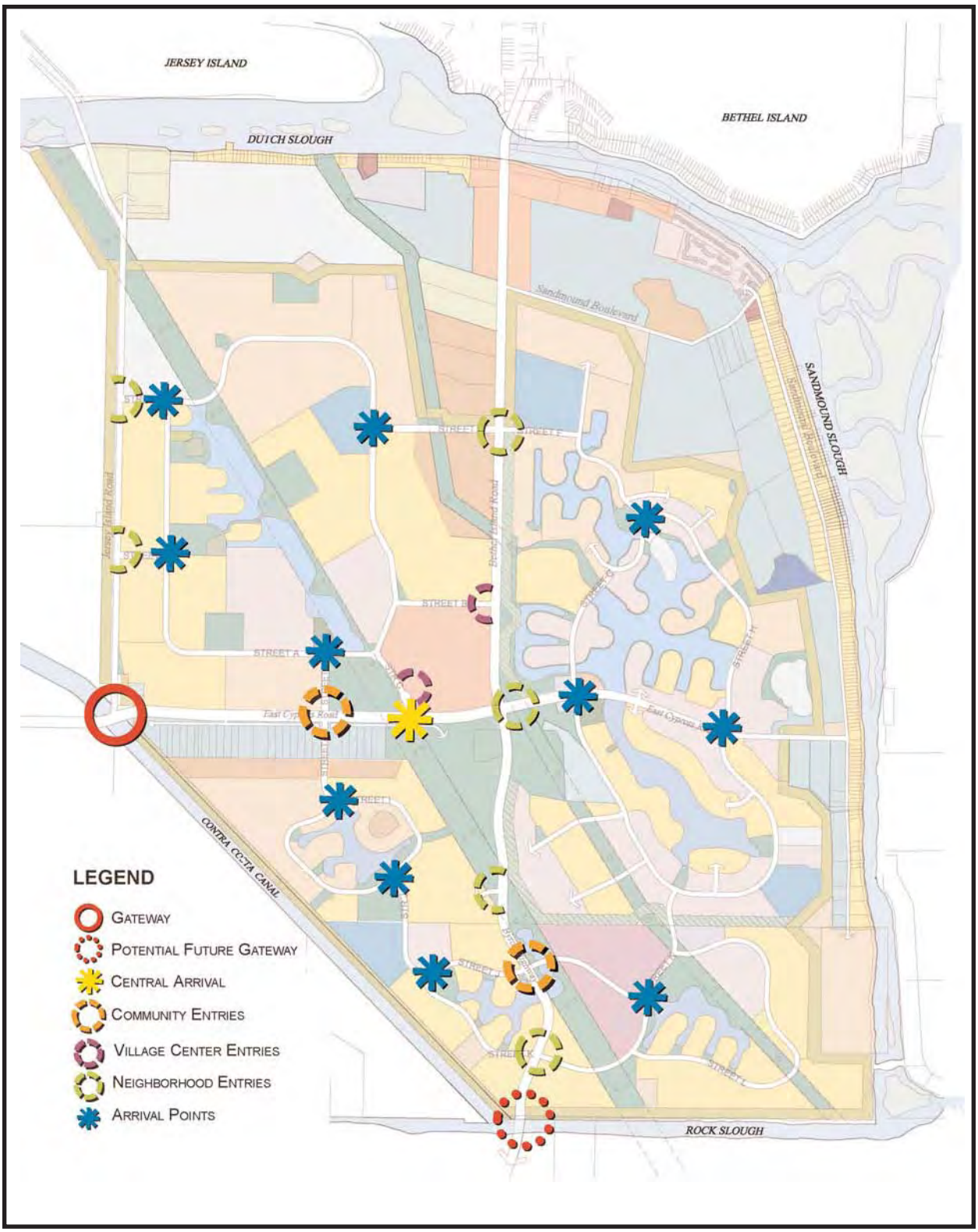
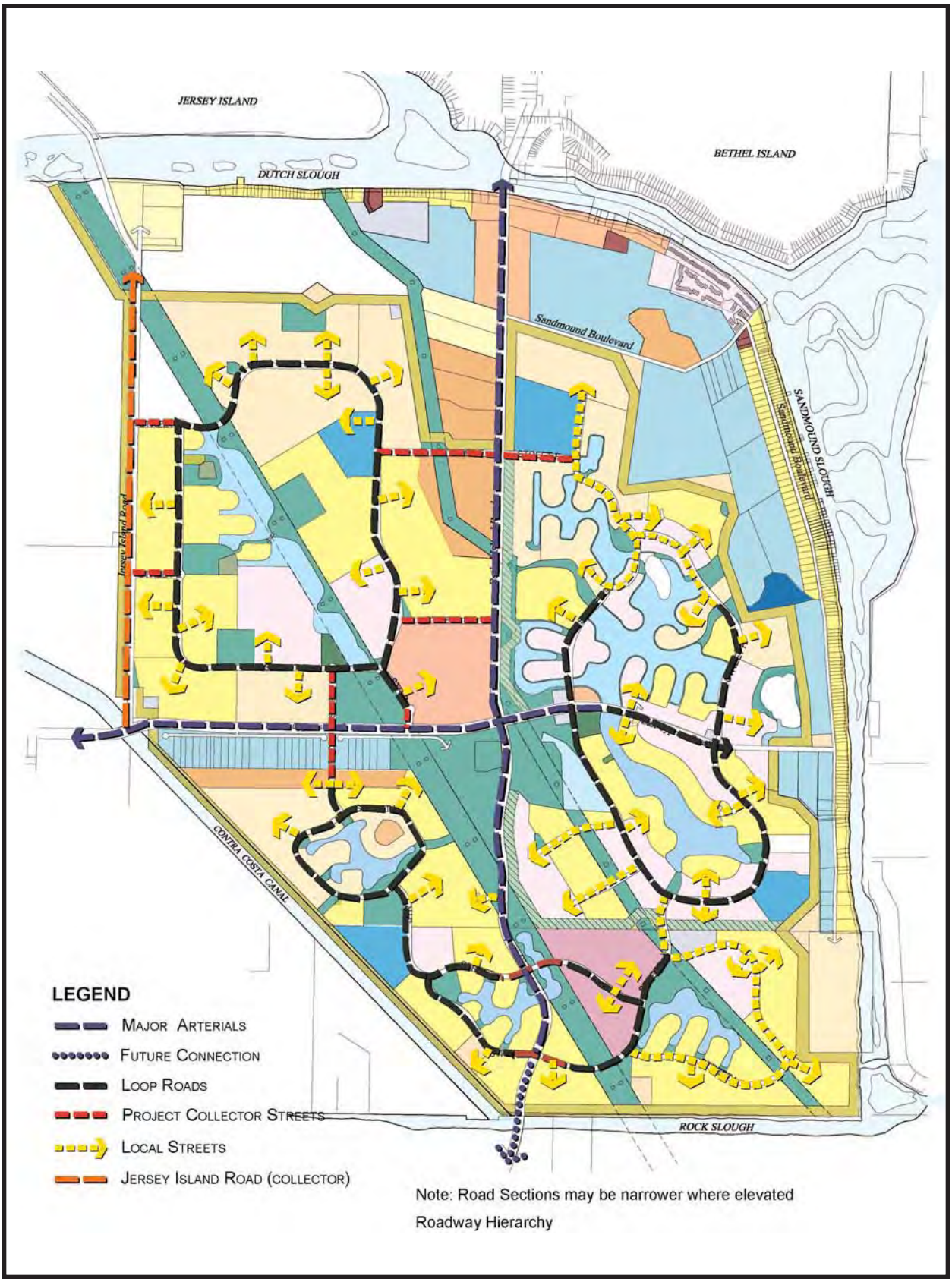


Figure 3.2-7
Project Entries and Arrivals

Source: Gates + Associates, 2005



Source: Gates + Associates, 2005

Figure 3.2-8
Road Hierarchy

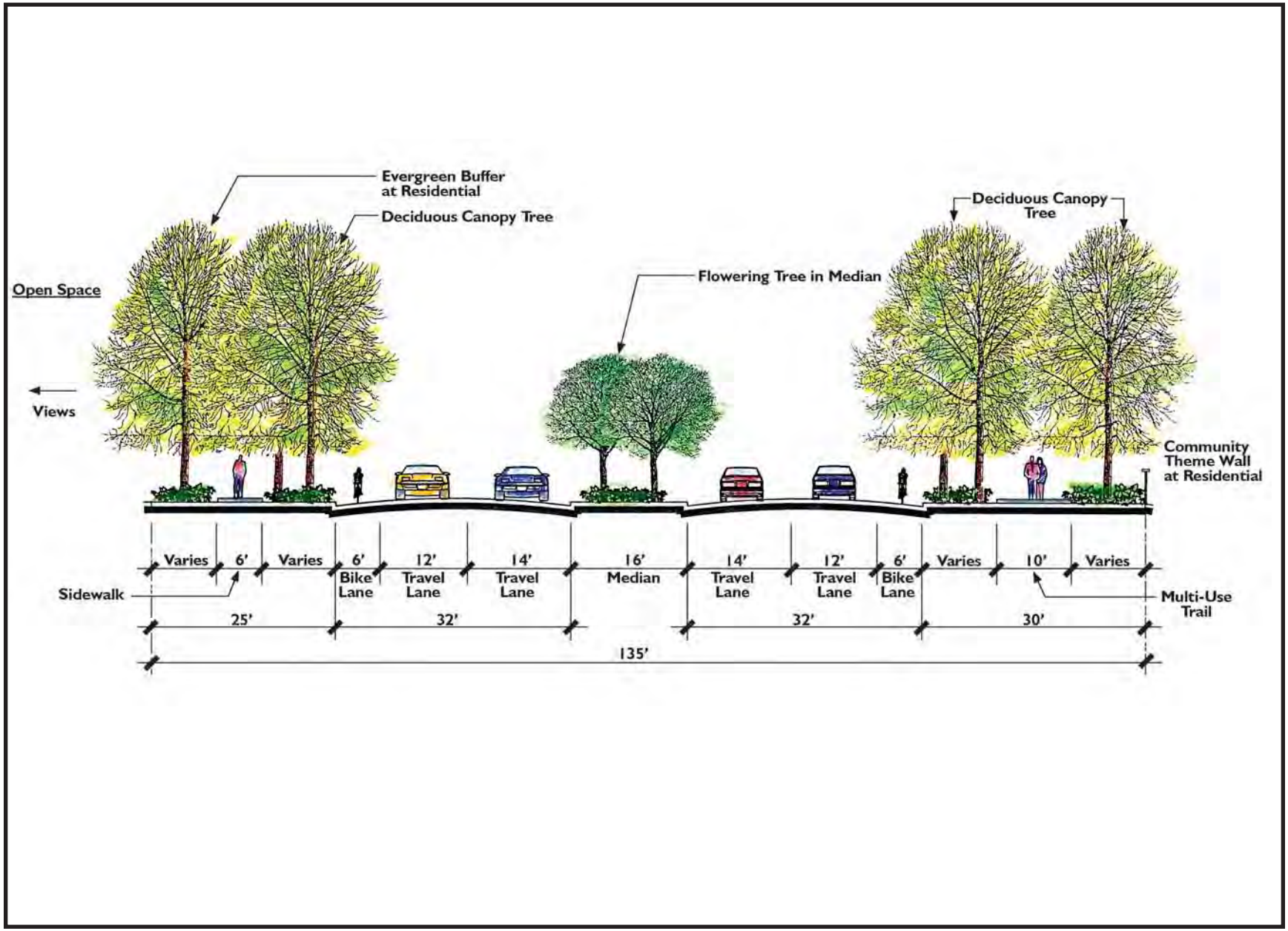
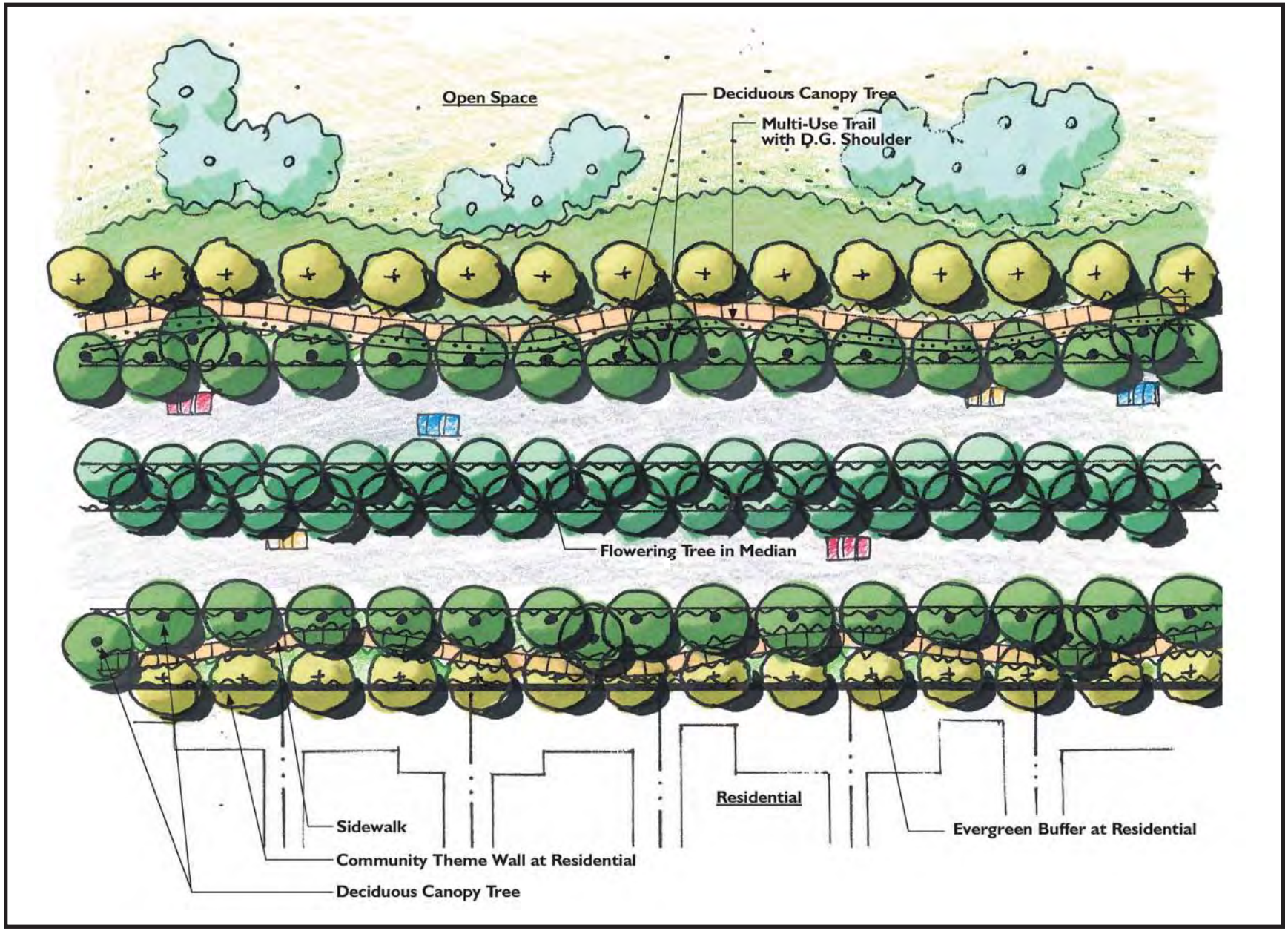


Figure 3.2-9
Collector Road Cross-Section

Source: Gates + Associates, 2005



Source: Gates + Associates, 2005

Figure 3.2-10
Bethel Island Road Landscaping

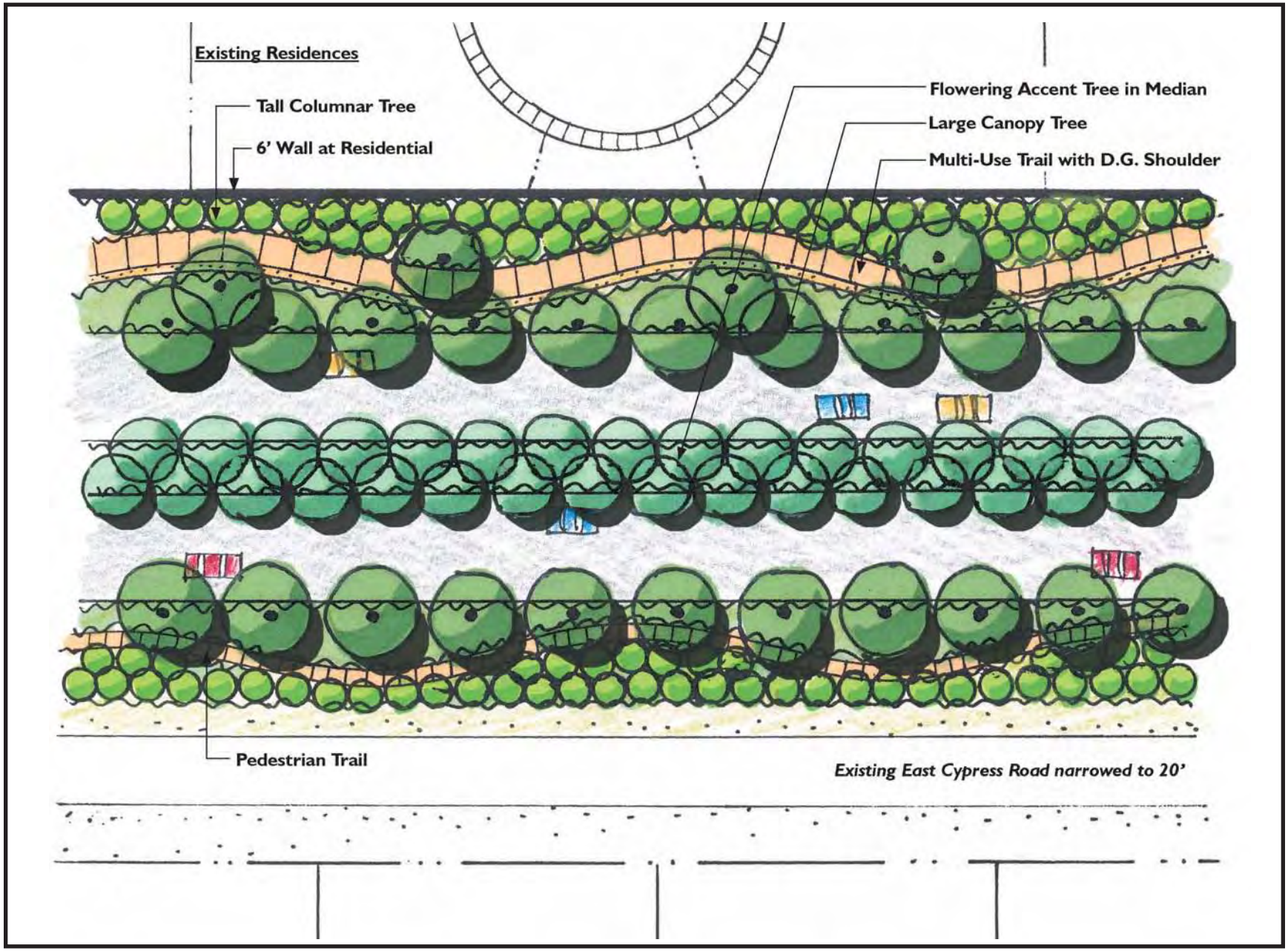
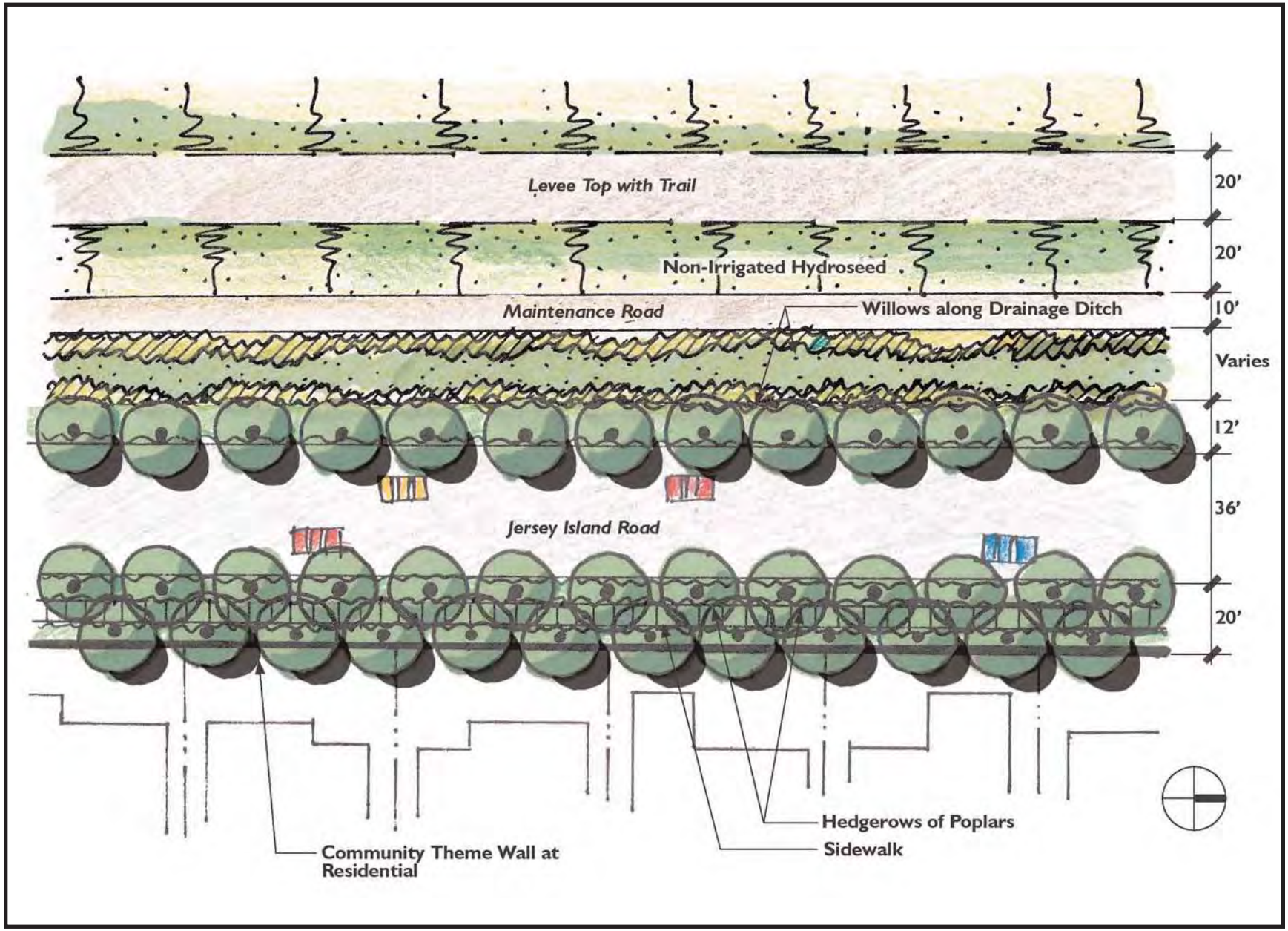


Figure 3.2-11
East Cypress Road Landscaping

Source: Gates + Associates, 2005



Source: Gates + Associates, 2005

Figure 3.2-12
Jersey Island Road Landscaping

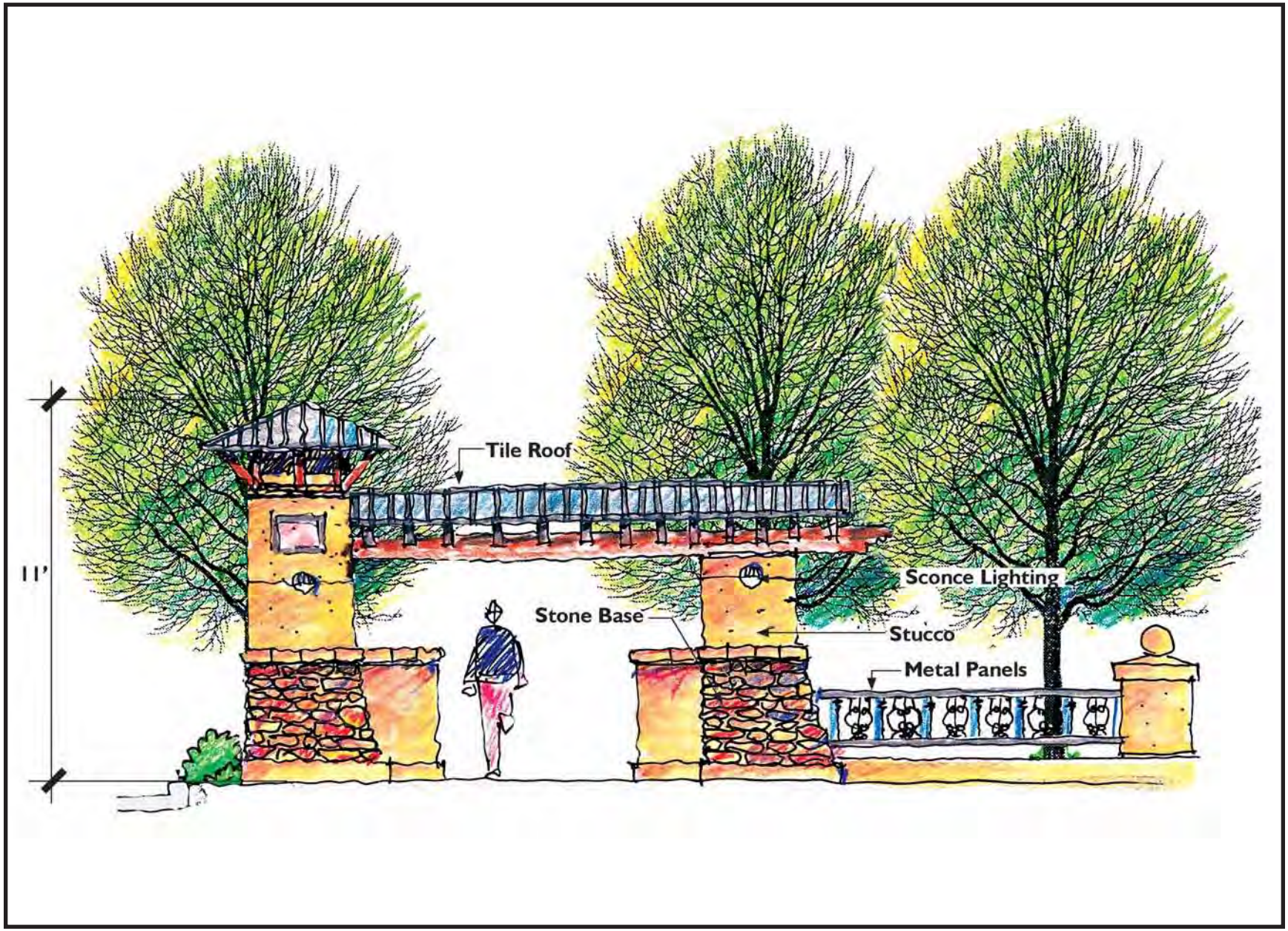
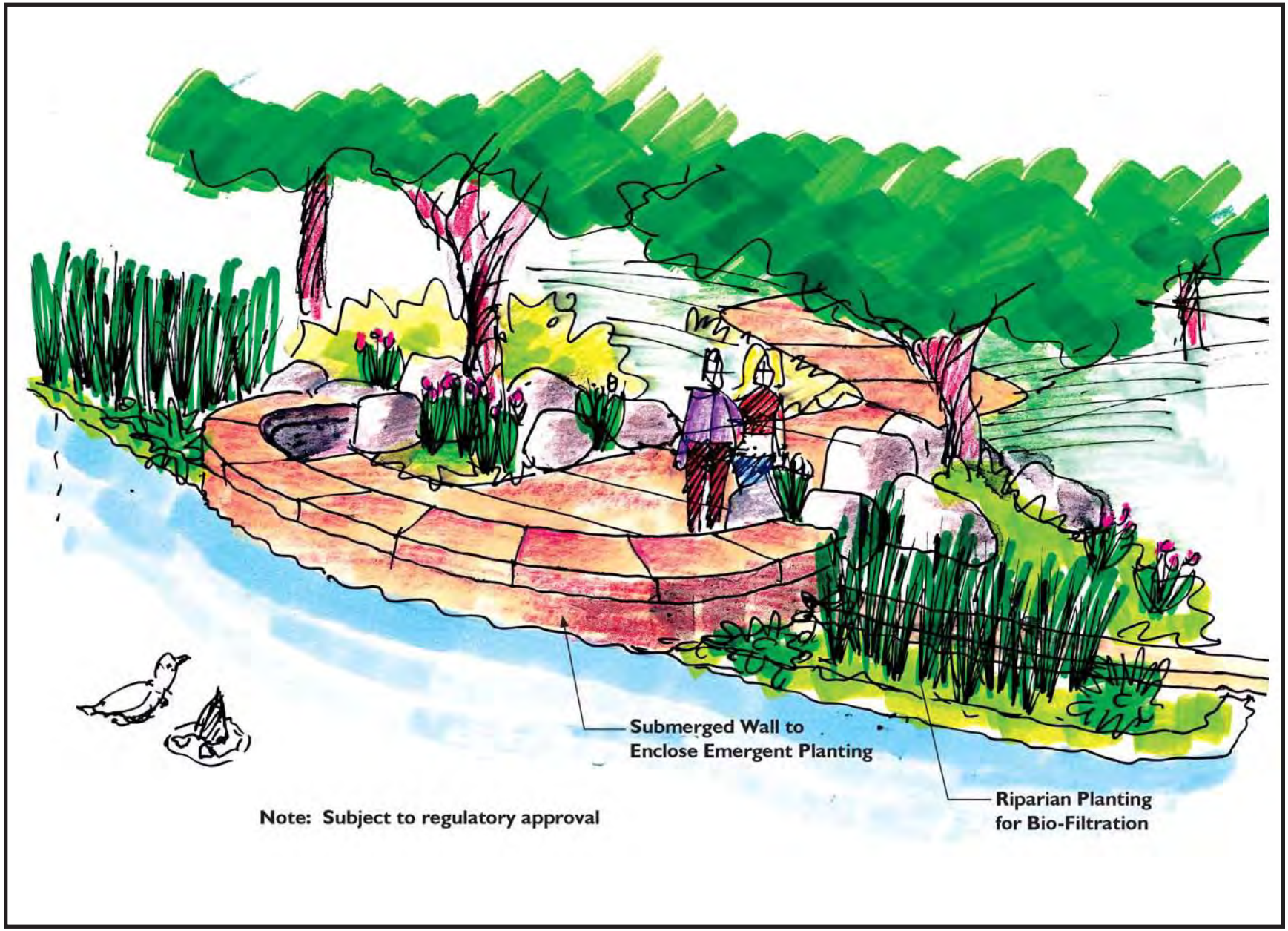


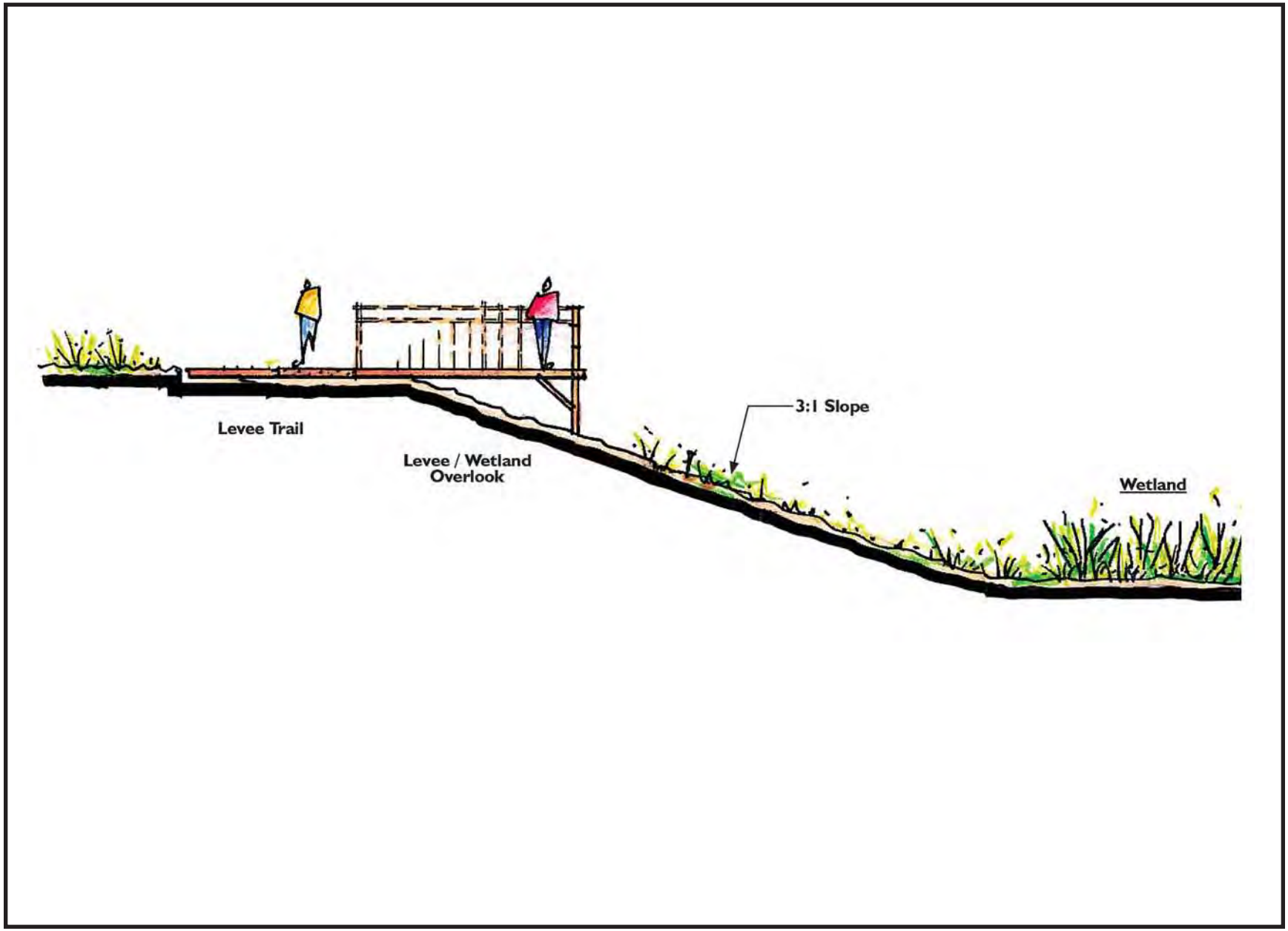
Figure 3.2-13
Neighborhood Entry Elevation - Typical

Source: Gates + Associates, 2005



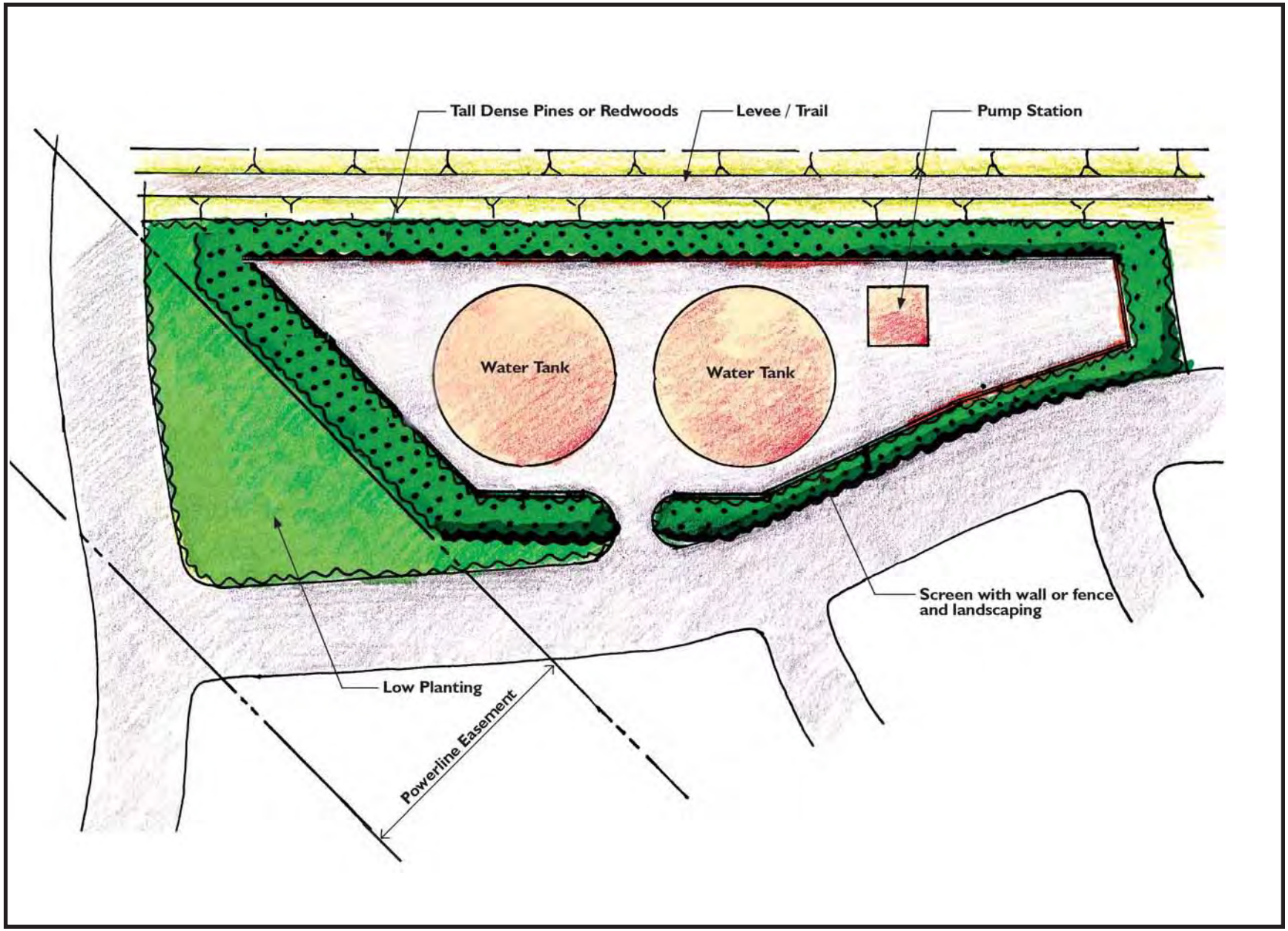
Source: Gates + Associates, 2005

Figure 3.2-14
Lake Overlook Typical



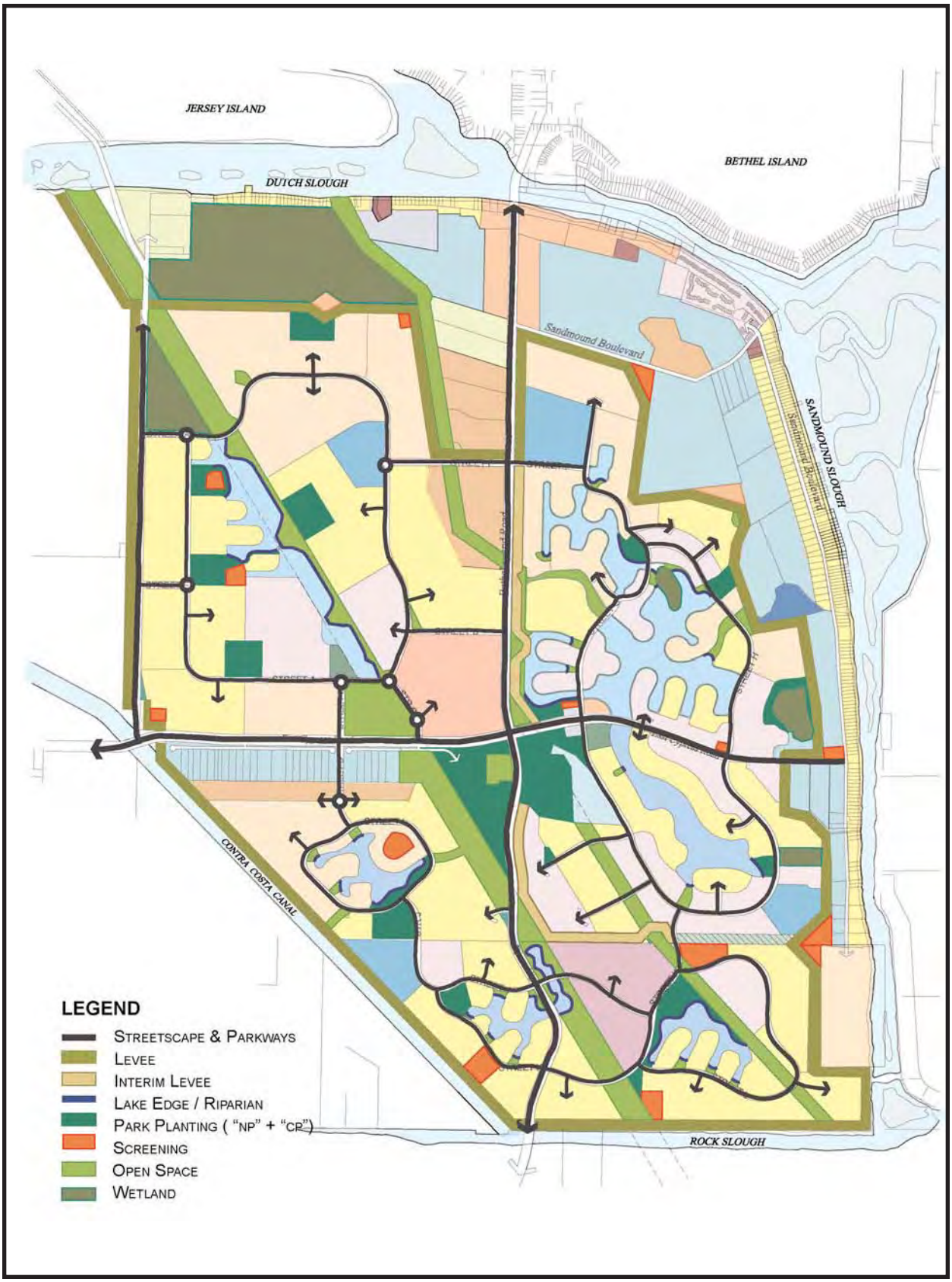
Source: Gates + Associates, 2005

Figure 3.2-16
Levee Trail



Source: Gates + Associates, 2005

Figure 3.2-17
Water Tank Screening



Source: Gates + Associates, 2005

Figure 3.2-18
Landscape Structure

3.3 AGRICULTURAL RESOURCES

3.3 AGRICULTURAL RESOURCES

3.3.1 INTRODUCTION

This chapter discusses the status of the existing agricultural resources on the site and the impact of developing this resource with urban uses. Using the current state model and data, this chapter includes a discussion of the conversion of prime/unique farmland or farmland of statewide importance to non-agricultural urban uses. This chapter also discusses any conflicts with existing zoning for agriculture use. Further, the chapter will identify thresholds of significance applicable to the proposed project including the loss of prime farmland. Possible impacts will be measured against the thresholds of significance and appropriate mitigation measures will be proposed which are consistent with the policies of the city.

3.3.2 ENVIRONMENTAL SETTING

The project site totals approximately 2,546 acres of which approximately 764 acres (30%) are considered prime farmland, 509 acres (20%) is farmland of statewide importance, and 1,018 acres (40%) is farmland of local importance. The remaining 255 acres (10%) is urban and other land that is either developed with residential or commercial use, entitled for urban development, or vacant and does not fit into one of the other categories.

FARMLAND CLASSIFICATIONS

The United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) uses two systems to determine a soil's agricultural productivity: the Soil Capability Classification and the Storie Index Rating System. The "prime" soil classification of both systems indicates the absence of soil limitation, which if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) to enhance production. The Farmland Mapping and Monitoring Program, part of the Division of Land Resource Protection, California Department of Conservation, uses the information from the USDA and the NRCS to create maps illustrating the types of farmland in the area.

SOIL CAPABILITY CLASSIFICATION

The Soil Capability Classification System takes into consideration soil limitations, the risk of damage when soils are used, and the way in which soils respond to treatment. Capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the rating of the capability classification system increases, the yields and profits are difficult to obtain. A general description of soil classification, as defined by the NRCS, is provided in Table 3.3-1, Soil Capability Classification.

Table 3.3-1
Soil Capability Classification

Class	*Definition*
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes.

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1977.

STORIE INDEX RATING SYSTEM

The Storie Index Rating system ranks soil characteristics according to their suitability for agriculture from Grade 1 soils (80 to 100 rating), which have few or no limitations for agricultural production to Grade 6 soils (less than 10), which are not suitable for agriculture. Under this system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. The six grades, ranges in index rating, and definition of the grades, as defined by the NRCS, are provided below in Table 3.3-2, Storie Index Rating System.

Table 3.3-2
Storie Index Rating System

Grade	Index Rating	Definition
1 – Excellent	80 through 100	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2 – Good	60 through 79	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3 – Fair	40 through 59	Soils are only fairly well suited to general agriculture use and are limited in their use because of moderate slopes; moderate soils depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.

Table 3.3-2
Storie Index Rating System

Grade	Index Rating	Definition
4 – Poor	20 through 39	Soils are poorly suited. They are severely limited in their agricultural potential because of shallow soil depths; less permeable subsoil; steeper slope; or more clayey or gravelly surface soil texture than Grade 3 soils, as well as poor drainage; greater flood hazards; hummocky micro-relief; salinity; or poor fertility levels, all acting alone or in combination.
5 – Very Poor	10 through 19	Soils are very poorly suited for agriculture, are seldom cultivated and are more commonly used for range, pasture, or woodland.
6 – Non-agriculture	Less and 10	Soils are not suited for agriculture at all due to very severe to extreme physical limitations, or because of urbanization.

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1977.

FARMLAND MAPPING AND MONITORING PROGRAM

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Soil Conservation Service (USDA-SCS). The intent of the USDA-SCS was to produce agriculture maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA-SCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability for agricultural production; suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland Maps are derived from the USDA-SCS soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the USDA-SCS with completing its mapping in the state. The FMMP was created within the State Department of Conservation (DOC) to carry on the mapping activity on a continuing basis, and with a greater level of detail. The DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilizes the SCS and Storie Index Rating systems, but also considers physical conditions such as dependable water supply for agricultural production, soil temperature range, depth of the ground water table, flooding potential, rock fragment content and rooting depth.

Important Farmland Maps for California are compiled using the modified LIM criteria (as described above) and current land use information. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into surrounding classifications. The Important Farmland Maps identify seven agriculture-related categories: prime farmland, farmland of statewide importance (statewide farmland), unique farmland, farmland of local importance (local farmland), grazing land, urban and built-up land (urban land), and other land. Each is summarized below, based on *A Guide to Farmland Mapping and Monitoring Program (1998)*, prepared by the Department of Conservation. Figure 3.3-1, Important Farmland, shows the classifications of farmland on the site.

Prime Farmland: Prime farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural

crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles (a cycle is equivalent to 2 years) prior to the mapping date of 1998 (or since 1994).

Statewide Farmland: Farmland of Statewide Importance is land similar to prime farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production or irrigated crops at sometime during the two update cycles prior to the mapping date (or since 1994).

Unique Farmland: Unique farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date (or since 1994).

Local Farmland: Farmland of local importance is land of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee. Sacramento County local farmland includes lands which do not qualify as Prime, Statewide, or Unique designation, but are currently irrigated crops or pasture or non-irrigated crops; lands that would meet the Prime or Statewide designation and have been improved for irrigation, but are now idle; and lands that currently support confined livestock, poultry operations and aquaculture.

Grazing Land: Grazing land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

Urban Land: Urban and built-up land is occupied with structures with a building density of at least one unit to one-half acre. Uses may include but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land: Other land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush, timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

PROJECT SITE CHARACTERISTICS

The project site consists mostly of irrigated pasture for cattle grazing. The three largest parcels of land under single ownerships have in the past and continue to be used largely for cattle grazing. The rest of the project site is either developed, in public utility right of way, entitled for development and under construction.

The Soil Survey of Contra Costa County, California published by the US Department of Agriculture, Soil Conservation Service (1977), identifies the near-surface soils within the project site as Egbert mucky clay loam (Ea), Rindge muck (Rd), Ryde silt loam (Rh), Sacramento clay (Sa), Delhi sand, 2 to 9 percent slopes (Dac), Kingile muck (Kb), Piper loamy sand (Pe), Sacramento clay, alkalai (Sb), Shima muck (Se), Marcuse clay (Mb), and Piper sandy loam (Ph). The soil types on the site are shown in Figure 3.3-2, USDA Soil Types. The soil capability classification (SCS) and Storie Index Rating (SIR) and grade for each of these soils is presented in Table 3.3-3, On-Site Soil Capability Classification and Storie Index Rating. As shown in the table none of the soils have a Soil Capability Classification or I or II, or a Storie Index Rating of greater than 50, which corresponds to a grade of 3 or below.

Table 3.3-3
On-site Soil Capability Classification and Storie Index Rating

Soil Map Symbol and Name	Soil Capability Classification	Storie Index Rating	Grade
Egbert mucky clay loam (Ea)	IIIw-2(16)	32	4
Rindge muck (Rd)	IIIw-10(16)	40	3
Ryde silt loam (Rh)	IIIw-2(16)	50	3
Sacramento clay (Sa)	IIIw-5(16)	49	3
Delhi sand, 2 to 9 percent slopes (Dac),	IIIs-4(17)	49	3
Kingile muck (Kb),	III-w-10(16)	32	4
Piper loamy sand (Pe),	IVw-4(16)	32	4
Sacramento clay, alkalai (Sb),	IVw-6(17)	39	4
Shima muck (Se)	IIIw-10(16)	32	4
Marcuse clay (Mb)	IVw-6(17)	16	5
Piper fine sandy loam (Ph)	IVe-9(16)	23	4

Source: USDA Soil Conservation Service, Soil Survey of Contra Costa County, 1977.

Four of the soils (Ea, Rd, Rh, Sa) present on the site are considered Prime Farmland. The California Department of Conservation identified these soils that "meet the criteria for Prime Farmland as outlined in the U.S. Department of Agriculture's Land Inventory and Monitoring Project."[1]

[1] California Department of Conservation, Farmland Mapping and Monitoring Program, Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Contra Costa County, July 1995, updated July 2004.

California Land Conservation Act - Williamson Act

The California Land Conservation Act, better known as the Williamson Act, has been the state's premier agricultural land protection program since its enactment in 1965. The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open-space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e. unless either party files a "notice of nonrenewal" the contract is automatically renewed annually for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.[2]

There is no property within the project boundary that is in a Williamson Act contract as shown in Figure 3.3-3, Williamson Act Land. There is Urban Built Up Land on the site, but no Williamson Act land.

REGULATORY CONTEXT

GENERAL PLAN

The following applicable goals and policies are from the Oakley 2020 General Plan: [6]

Goal 6.1 Allow agriculture to continue as a viable use of land that reflects the community's origins and minimizes conflicts between agricultural and urban uses.

Policy 6.1.1 Participate in regional programs that promote the long-term viability of agricultural operations within the city.

Policy 6.1.2 Reduce the negative impacts resulting from urban uses and neighboring agricultural uses in close proximity.

Policy 6.1.4 Incorporate parks, open space and trails between urban and agricultural uses to provide buffer and transition between uses.

The Oakley General Plan Land Use Map does not designate any agricultural use for the site. The site is designated for non-agricultural uses such as residential, commercial, utility energy, business park, agricultural limited, commercial recreation, public and semi-public. The Agriculture Limited land use is to accommodate light agriculture including vineyards, orchard, and row crops, animal husbandry and very low-density residential uses – reflections of the historic and continuing agrarian practices within Oakley.[3]

The Oakley General Plan includes many policies and programs that when implemented will reduce impacts associated with the removal and conversion of agricultural land to urban uses. The General

[2] California Department of Conservation, Division of Land Resource Protection, Williamson Act Questions and Answers

[3] Oakley 2020 General Plan, page 2-13.

Plan EIR[4] identifies 19 general plan policies and programs that would mitigate the impact of converting agriculture land in Oakley to urban uses. As stated in the Oakley 2020 General Plan EIR, "Implementation of the proposed General Plan would reduce this impact to less than significant level".[5]

SUMMER LAKE – SUPPLEMENTAL EIR

The Summer Lake site was disturbed during grading activities to construct the levee around the first two phases of development. The levee construction activity eliminated all agricultural activities on the site. There are no agriculture activities planned as part of the development of the Summer Lake project.

3.3.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance that are applicable to the proposed project are presented below. A project could have a significant impact on the environment if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping Program of the California Resources Agency, to non-agricultural use;

b. Conflict with existing zoning for agricultural use;

c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use; or

d. Any change in existing land uses which would conflict with adjacent agricultural use.

3.3.3.1 CONVERT PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE (FARMLAND), AS SHOWN ON THE MAPS PREPARED PURSUANT TO THE FARMLAND MAPPING PROGRAM OF THE CALIFORNIA RESOURCES AGENCY, TO NON-AGRICULTURAL USE

The project site comprises approximately 2,546 acres, which approximately 1,273 acres are considered Prime Farmland or Farmland of Statewide Importance by the State Department of Conservation. The project would convert the land on the site presently used for agriculture, which currently is restricted to cattle grazing to urban use. Therefore, the agricultural land that is currently used for cattle grazing would be converted to urbanized uses.

The certified Oakley 2020 General Plan EIR states that the General Plan accommodates agriculture while providing for the balanced needs of the City (General Plan DEIR, p. 3-77). The General Plan states that the City of Oakley through its General Plan is primarily completing the urbanization of the area as originally intended by Contra Costa County. Sixty-five (65) percent of the County is

[4] Oakley 2020 General Plan Draft EIR, page 3-76, 3-77.

[5] Oakley 2020 General Plan Draft EIR, page 3-77.

protected as undeveloped. The Oakley Planning Area falls in the thirty-five (35) percent that is designated for development. In addition, agricultural resources are currently fragmented and commercial agriculture is substantially compromised. The Oakley 2020 General Plan EIR found that the incremental environmental effect of the development of the city consistent with the General Plan would have a less-than-significant impact on agriculture, which includes the project site. The implementation of the General Plan goals and policies regarding agriculture land would reduce the impact of converting the agriculture land on the project site to urban use as designated by the Oakley 2020 General Plan. Therefore, in accordance with the findings of the certified Oakley 2020 General Plan EIR, the loss of Prime Farmland by the project for PAs 1, 3, 4, and 6 would be considered a ***less-than-significant*** impact because the project would be required to implement the General Plan, which includes policies and programs to preserve the agricultural heritage of Oakley.

Summer Lake – Supplemental Impact

The County of Contra Costa approved the Summer Lake project for development in 1993. The first two phases of the project (PA 5) are currently under construction, which included the construction of a flood control levee. The proposed revisions to PA 2 of the Summer Lake plan would not have any impact on agricultural uses since none exist on the site. The proposed revisions to PA 2 would have ***no impact*** to agricultural resources.

Mitigation Measures

Since no significant agricultural impacts have been identified for PAs 1, 2, 3, 4 or 6 no mitigation measures are required.

3.3.3.2 CONFLICT WITH EXISTING ZONING FOR AGRICULTURAL USE, OR WITH A WILLIAMSON ACT CONTRACT

Although the project site contains Prime and Unique Farmland, the Oakley 2020 General Plan EIR states that "The entire Oakley Planning Area is located inside the County ULL (Urban Limit Line) and was, therefore, determined generally for urban development. Furthermore, the General Plan EIR states "Whereas the General Plan Policies and Programs presented here and proposed to be implemented, do preserve a buffer between urban development and agricultural land, the Oakley General Plan is primarily completing the urbanization of this area as originally intended by the County. Sixty-five percent of the County is protected as undeveloped. The Oakley Planning Area falls in the thirty-five percent that is designated for development. In addition, currently agricultural resources are fragmented and commercial agriculture is substantially compromised. The Oakley General Plan accommodates agriculture, while providing for balanced needs of the City. The incremental environmental effects of the Proposed General Plan on agriculture is determined to be less than significant upon implementation of the previously mentioned Policies and Programs".[i] The Oakley 2020 General Plan and General Plan EIR conclude there would not be any significant impacts to agriculture or agricultural resources with development of the project and the loss of the Prime and Unique Farmland on the site. The project site is not zoned for agriculture by the City of Oakley; therefore the project would not conflict with agricultural zoning. The development of PA's 1, 3, 4, and 6 would have ***no impact*** to agricultural zoned land.

There is no property within the boundary of the project that is in a Williamson Act contract as shown in Figure 3.3-3, Williamson Act Land. Therefore, the project would have ***no impact*** to Williamson Act land.

Summer Lake – Supplemental Impact

There is no Williamson Act land on the Summer Lake site. The proposed revisions to the Summer Lake development plan would have ***no impact*** to Williamson Act land.

Mitigation Measures

Since no significant Prime or Unique Farmland impacts have been identified for PAs 1, 2, 3, 4 or 6 no mitigation measures are required.

3.3.3.3 Involve other changes in the existing environment, which due to their location or nature, could individually or cumulatively result in the loss of Farmland to non-agricultural use

The project is located in an area with agricultural uses to the south and southwest of the site. The existing agricultural uses adjacent to the site are not considered large farming or agricultural activities. The project area is rapidly changing from rural open space and agricultural use to urban development. There are several projects along the East Cypress Road corridor west of the project site that have been approved and change agricultural land to urban development. The proposed project reflects the current change of agricultural land to urban development that is occurring along East Cypress Road to and including the project site, as anticipated in the 2020 General Plan.

The Summer Lake project, as already approved, would result in the ultimate development of 1,330 residences throughout the site. The approved Cypress Grove project, which is located approximately one mile west of the East Cypress Corridor Specific Plan project totals approximately 147 acres and will result in the development of 637 residential homes. The Dutch Slough project that is located approximately one-half mile west of the site is in the planning stage and also proposes urban development. The East Cypress Corridor Specific Plan would convert the agricultural cattle grazing on a portion of the site to urban development, which is consistent with the type of development that is occurring in the area.

The Rock Slough and the Contra Costa Water District Canal serve as a buffer between the project and the agricultural uses that are located south and southwest of the site. The agricultural uses would not be significantly impacted by the project because of the buffer of the canal between the two sites. The agricultural uses south of the site could continue without being impacted by the project. The project itself would not cause the conversion of any agricultural operations to non-agricultural use.

The Oakley 2020 General Plan designates the site for urban development. The proposed East Cypress Corridor Specific Plan is similar to the type and intensity of development designated for the site by the general plan. The Oakley General Plan plans the use of the site for urban development. Therefore, changing farmland to urban use would be considered ***less-than-significant*** impact.

Summer Lake – Supplemental Impact

There are no existing agricultural uses on the Summer Lake site. The proposed revisions to PA 2 of Summer Lake do not add any agricultural uses. The proposed revisions to the Summer Lake project would have ***no impact*** to agriculture.

Mitigation Measures

Since no significant impacts to change agricultural use to non-agricultural use for PAs 1, 2, 3, 4 and 6 have been identified no mitigation measures are required.

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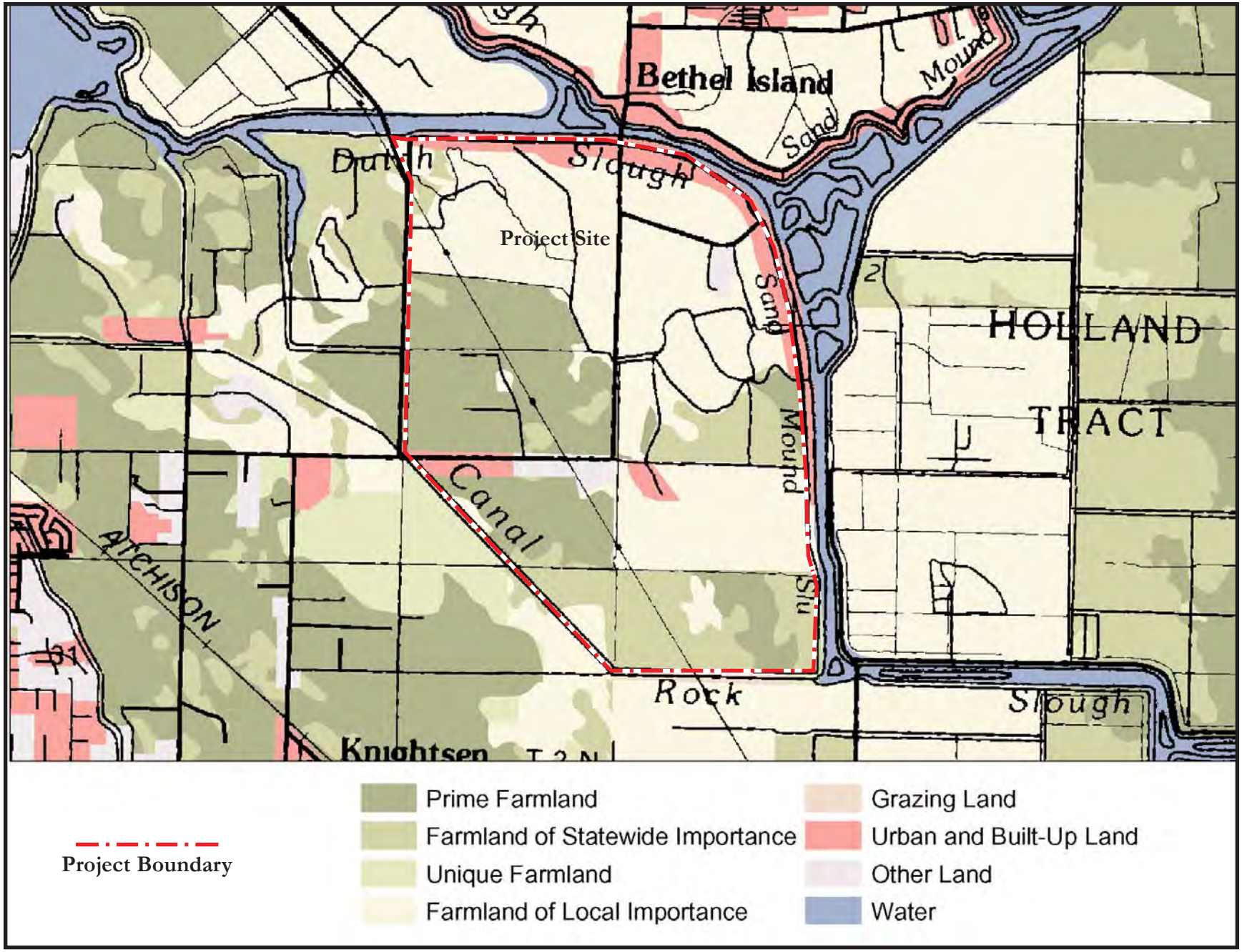
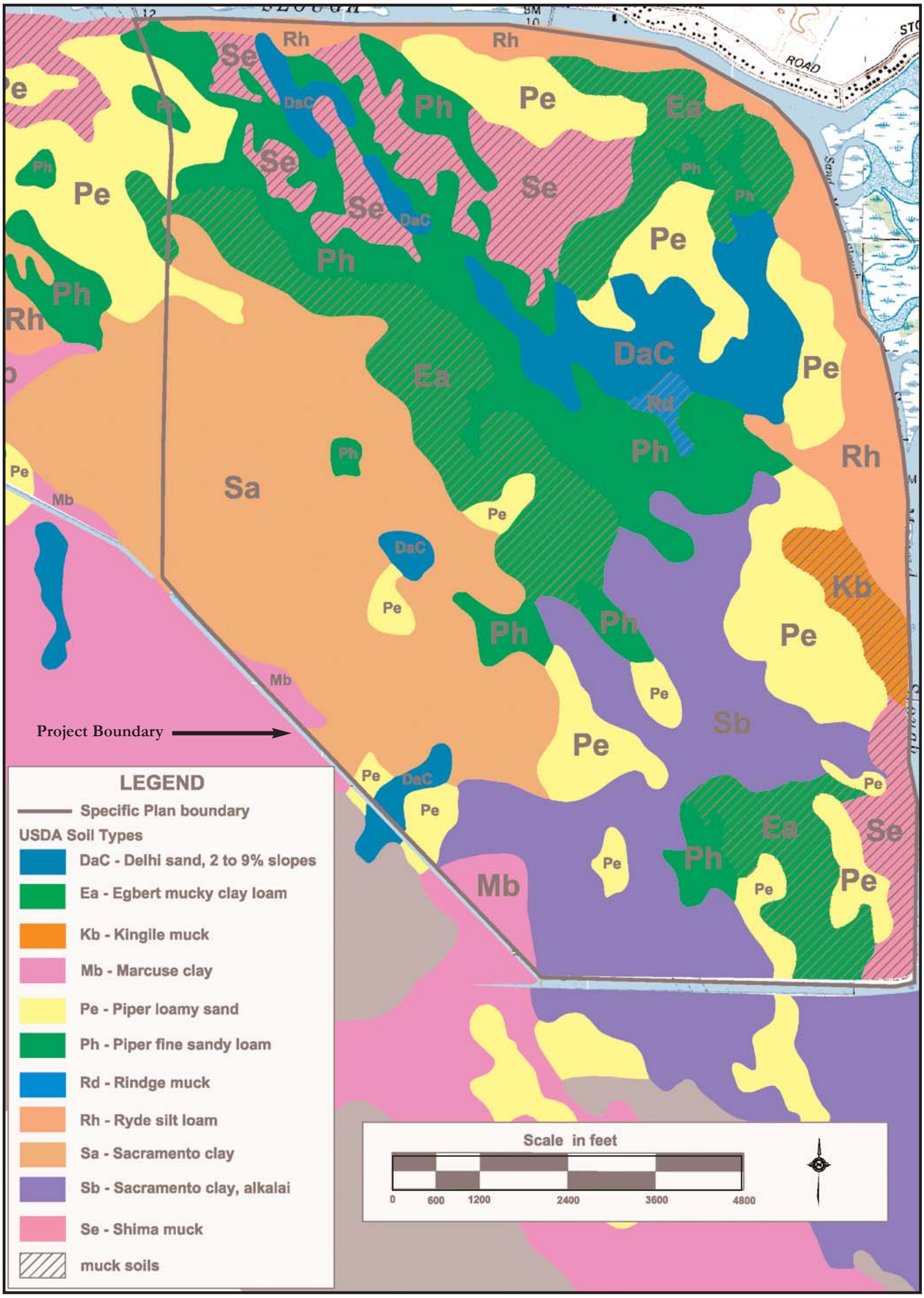
[6] Oakley 2020 General Plan, City of Oakley, August 30, 2002.

[i] Oakley 2020 General Plan Draft EIR, page 3-77.



Source: State of California, Department of Conservation, 2005

Figure 3.3-1
Important Farmland



Source: Balance Hydrologics, Inc., 2005

Figure 3.3-2
USDA Soil Types

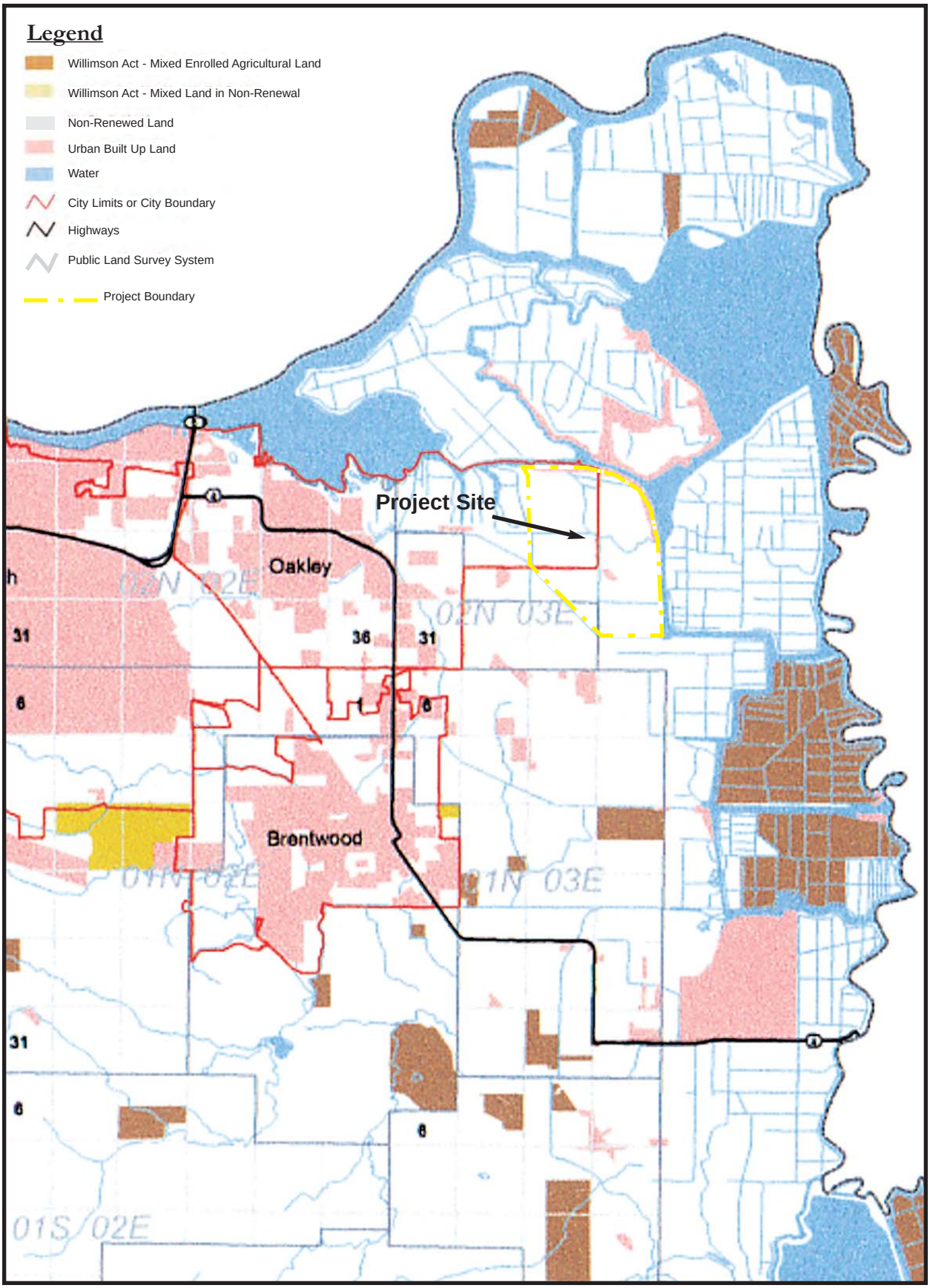


Figure 3.3-3
Williamson Act Land

Source: California Department of Conservation, 2005

3.4 Air Quality

3.4 AIR QUALITY

3.4 AIR QUALITY

3.4.1 INTRODUCTION

The Air Quality chapter describes the effects of the East Cypress Corridor Specific Plan project on local and regional air quality. This chapter includes a discussion of the existing air quality; construction-related air quality impacts resulting from grading and equipment emissions; direct and indirect emissions associated with the project; the impacts of the emissions on both the local and regional scale; and mitigation measures warranted to reduce or eliminate any identified significant impacts. The chapter is based on an air quality impact analysis provided by Donald Ballanti. A copy of the complete air quality report is included as Appendix G of this EIR.

3.4.2 ENVIRONMENTAL SETTING

AIR POLLUTION CLIMATOLOGY

Oakley is located on the south side of the San Joaquin River delta, east of the Carquinez Straits. Its location between the greater Bay Area and the Central Valley has great influence on the climate and air quality of the area. Oakley is located at the eastern boundary of the San Francisco Bay Area Air Basin.

Oakley has a relatively low potential for air pollution given the persistent and strong winds typical of the area. Wind records from the closest wind-measuring sites show a strong predominance of westerly winds. Average wind speed is relatively high and the frequency of calm winds is quite low.[1] These winds dilute pollutants and transport them away from the area, so that emissions released in the project area have more influence on air quality in the Sacramento and San Joaquin valleys than they do locally. There are, however, several major stationary sources in upwind cities that can influence local air quality and the project's location downwind of the greater Bay Area also means that pollutants from other areas are transported to the area.

AMBIENT AIR QUALITY STANDARDS

Criteria Pollutants

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants, which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 3.4-1 identifies the major criteria pollutants, characteristics, health effects, and typical sources. The federal and California state ambient air quality standards are summarized in Table 3.4-2.

[1]California Department of Water Resources, Wind in California, Bulletin No. 185, January 1978.

Table 3.4-1
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	• Eye Irritation • Respiratory function impairment.	The major sources ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Solid and liquid particles of dust, soot, aerosols and other matter, which are small enough to remain, suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 3.4-2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	0.12 PPM 0.08 PPM	0.09 PPM --
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual Average 1-Hour	0.05 PPM --	-- 0.25 PPM
Sulfur Dioxide	Annual Average 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.05 PPM 0.25 PPM
PM_{10}	Annual Average 24-Hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	20 $\mu g/m^3$ 50 $\mu g/m^3$
$PM_{2.5}$	Annual 24-Hour	15 $\mu g/m^3$ 65 $\mu g/m^3$	12 $\mu g/m^3$ --
Lead	Calendar Quarter 30 Day Average	1.5 $\mu g/m^3$ --	-- 1.5 $\mu g/m^3$
Sulfates	24 Hour	25 $\mu g/m^3$	--
Hydrogen Sulfide	1-Hour	0.03 PPM	--
Vinyl Chloride	24-Hour	0.01 PPM	--

PPM = Parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter
Source: California Air Resources Board, Ambient Air Quality Standards (7/9/03) http://www.arb.ca.gov.aqs/aaqs2.pdf

The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and particulate matter (PM_{10} and $PM_{2.5}$).

The State of California regularly reviews scientific literature regarding the health effects and exposure to particulate matter and other pollutants. On May 3, 2002, the California Air Resources Board (CARB) staff recommended lowering the level of the annual standard for PM_{10} and establishing a new annual standard for $PM_{2.5}$ (particulate matter 2.5 micrometers in diameter and smaller). The new standards became effective on July 5, 2003.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important, in terms of health risk, are diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

AMBIENT AIR QUALITY

The Bay Area Air Quality Management District has for many years operated a multi-pollutant monitoring site in nearby Bethel Island. Table 3.4-3 shows historical occurrences of pollutant levels exceeding the state/federal ambient air quality standards for the three-year period 2002-2004. The number of days that each standard was exceeded is shown.

Table 3.4-3
Air Quality Data Summary for Bethel Island, 2002-2004

Pollutant	Standard	Days Standard Exceeded During:		
		2002	2003	2004
Ozone	1-Hour State 1-Hour Federal 8-Hour Federal	5 0 3	0 0 0	1 0 0
Carbon Monoxide	8-Hour St. Fed. 1-Hour State	0 0	0 0	0 0
Nitrogen Dioxide	1-Hour State	0	0	0
Sulfur Dioxide	1-Hour State 24-Hour State	0 0	0 0	0 0
PM_{10}	24-Hour State 24-Hour Federal	3 0	1 0	0 0

Source: Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2004. (http://www.arb.ca.gov./adam/cgi-bin/adamtop/d2wstart)

Table 3.4-3 shows that all federal ambient air quality standards are met in the Oakley area with the exception of ozone, which was exceeded three days in 2002. The state ambient standards of ozone were exceeded five days in 2002 and one day in 2004. PM_{10} was exceeded three days in 2002 and one day in 2003.

ATTAINMENT STATUS AND REGIONAL AIR QUALITY PLANS

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

The Bay Area is currently nonattainment for the 1-hour ozone standard. However, in April 2004, U.S. EPA made a finding that the Bay Area has attained the national 1-hour ozone standard. The finding of attainment does not mean the Bay Area has been reclassified as an attainment area for the 1-hour standard. The region must submit a re-designation request to EPA in order to be reclassified as an attainment area.

The U. S. Environmental Protection Agency has classified the San Francisco Bay Area as a nonattainment area for the federal 8-hour ozone standard. The Bay Area was designated as unclassifiable/attainment for the federal $PM_{2.5}$ standards.

Under the California Clean Air Act Contra Costa County is a nonattainment area for ozone and particulate matter (PM_{10} and $PM_{2.5}$). The county is either attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule".

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals and medical clinics. Sensitive land uses near the project site include existing homes.

SUMMER LAKE – SUPPLEMENTAL EIR

The existing conditions information that is provided above, updates information provided in the Summer Lake (Cypress Lake and Country Club) EIR that was certified for the project in 1993. Specifically, the discussions under the headings below provide updated information on current conditions and changed regulatory standards.

- Ambient Air Quality Standards
- Ambient Air Quality
- Attainment Status and Regional Air Quality Plans

3.4.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

BAAQMD CEQA Guidelines[2] provide the following definitions of a significant air quality impact. These Guidelines are used to determine the significance of air quality impacts by the project.

[2] Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996 (Revised December 1999).

a. A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour would be considered to have a significant impact.

b. A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact. The current thresholds are 15 tons/year or 80 pounds/day for Reactive Organic Gases (ROG), Nitrogen Oxides (NO_x) or PM_{10}. Despite the establishment of both federal and state standards for $PM_{2.5}$ (particulate matter, 2.5 microns), the BAAQMD has not developed a threshold of significance for this pollutant. For this analysis, $PM_{2.5}$ impacts would be considered significant if project emissions of PM_{10} exceed 80 pounds per day. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

c. Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

d. Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

e. The BAAQMD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM_{10}.

3.4.3.1 CONTRIBUTION TO CARBON MONOXIDE (CO) CONCENTRATIONS EXCEEDING THE STATE AMBIENT AIR QUALITY STANDARD OF 9 PARTS PER MILLION (PPM) AVERAGED OVER 8 HOURS OR 20 PPM FOR 1 HOUR

The project would increase traffic on the local street network, changing carbon monoxide levels along roadways used by project traffic. Carbon monoxide is an odorless, colorless poisonous gas whose primary source in the Bay Area are automobiles. Concentrations of this gas are highest near intersections of major roads.

Carbon monoxide concentrations under worst-case meteorological conditions have been predicted for the intersections most impacted by project traffic and/or operating at the lowest Level of Service. PM peak traffic volumes were applied to the screening form of the CALINE-4 dispersion model to predict maximum 1-and 8-hour concentrations near these intersections under the worst-case assumption that project traffic changes would occur in 2005. The model results were used to predict the maximum 1- and 8-hour concentrations corresponding to the 1- and 8-hour averaging times specified in the state and federal ambient air quality standards for carbon monoxide.

Table 3.4-4 shows the results of the CALINE-4 analysis for the peak 1-hour and 8-hour traffic periods in parts per million (PPM). The 1-hour values are to be compared to the federal 1-hour standard of 35 PPM and the state standard of 20 PPM. The 8-hour values are to be compared to the state and federal standard of 9 PPM.

Table 3.4-4
Worst Case Carbon Monoxide Concentrations Near Selected Intersections, in Parts Per Million

Intersection	Existing (2005)		Existing + Approved (2005)		Existing + Approved+ Project (2005)		Cumulative + Project (2030)	
	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr
Main Street/ SR 160 NB Ramps	6.0	4.8	8.3	6.4	9.7	7.3	2.6	2.2
Main Street/ SR 160 SB Ramp	4.4	3.6	5.7	4.5	6.4	5.0	2.4	2.0
Laurel Road/ Main Street	3.9	3.3	5.2	4.2	5.2	4.2	2.4	2.1
E. Cypress Road/ Bethel Island Road	2.9	2.6	4.8	3.9	6.6	5.2	2.4	2.1
E. Cypress Road/ Jersey Island Road	3.1	2.7	4.4	3.6	8.0	6.1	2.5	2.1
E. Cypress Road/Sellers Avenue	4.9	4.0	5.4	4.3	8.5	6.5	2.6	2.2
E. Cypress Road/ Main Street	4.5	3.7	6.9	5.4	10.1	7.6	2.5	2.2
W. Cypress Road/ O'Hara Avenue	3.1	2.7	3.4	2.9	3.8	3.2	2.1	1.8
Main Street/ O'Hara Avenue	4.7	3.8	6.4	5.0	7.9	6.1	2.5	2.1
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0

Table 3.4-4 shows that existing predicted concentrations near the intersections meet the 1-hour and 8-hour standards. Traffic from approved development would increase concentrations by up to 2.4 parts per million (ppm). The project would further increase concentrations by up to 3.2 ppm, but concentrations would remain below the most stringent state or federal standard. Concentrations with project and cumulative traffic growth in 2030 would also not exceed the state/federal ambient air quality standards.

Since project traffic would not cause any new violations of the 8-hour standards for carbon monoxide, nor contribute substantially to an existing or projected violation, project impacts on local carbon monoxide concentrations are considered to be ***less-than-significant.***

Mitigation Measures

Since no carbon monoxide impacts have been identified no mitigation measures are required.

Summer Lake – Supplemental Impact

The Summer Lake EIR concludes that impacts on carbon monoxide concentrations would be less than significant based on a CALINE-4 analysis of carbon concentrations at major intersections. A similar analysis was performed for the East Cypress Corridor Specific Plan, including traffic generated by the Summer Lake projects as shown in Table 3.4-4 and reflects the proposed land use changes to PA 2. This more recent analysis confirms the 1993 EIR's conclusion that impacts on carbon monoxide concentrations would be ***less-than-significant***.

Mitigation Measures

Since no significant carbon monoxide impacts have been identified no mitigation measures are required.

3.4.3.2 GENERATION OF CRITERIA AIR POLLUTANT EMISSIONS IN EXCESS OF THE BAAQMD ANNUAL OR DAILY THRESHOLDS

Post Construction (Operational) Emissions

Vehicle trips generated by the project would result in air pollutant emissions affecting the entire San Francisco Bay Air Basin. Regional emissions associated with project vehicle use were calculated using the URBEMIS-2002 emission model.

The incremental daily emission increase associated with project land uses is identified in Table 3.4-5 for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10}. The Bay Area Air Quality Management District has established threshold of significance for ozone precursors and PM_{10} of 80 pounds per day. The estimated operational precursor emissions for the project as shown in Table 3.4-5 would exceed the thresholds of significance. Therefore, the proposed operations of the project would have an ***unavoidable adverse*** impact on regional air quality.

The following operational mitigation measures have the potential to reduce project-related regional emissions by 10-20%. Even with a reduction of this magnitude, project emissions of ozone precursors would remain well above the BAAQMD significance threshold of 80 pounds per day and exceed air emission thresholds. Even with implementation of the mitigation measures the project would have ***unavoidable adverse*** air emission impacts.

Table 3.4-5
Project Emissions in Pounds Per Day

Project	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
East Cypress Corridor SP	307.2	329.9	661.6
Summer Lake Changes	8.7	9.4	19.2
Total	**315.9**	**339.3**	**680.8**
BAAQMD Significance Threshold	80.0	80.0	80.0

Mitigation Measures

The following measures shall be implemented to reduce air emissions of the project.

Post Construction (Operations)

Mitigation Measure 3.4-1 All development shall be required to implement feasible BAAQMD mitigation measures for reducing vehicle emissions from suburban residential projects. The site is suburban in nature with only limited transit service available; feasible mitigation measures to reduce vehicle emissions for a suburban project include:

- Provide bicycle lanes, sidewalks and/or paths, connecting project residences to adjacent schools, parks, nearest transit stop and nearby commercial areas.
- Provide secure and conveniently placed bicycle parking and storage facilities at parks and other facilities.
- Implement feasible travel demand management (TDM) measures. This would include a ride-matching program, coordination with regional ride-sharing organizations, provision of transit information, and provision of shuttle service to major destinations such as the Pittsburg BART station.
- Allow only natural gas fireplaces, pellet stoves or EPA-Certified wood-burning fireplaces or stoves in single-family houses. Conventional open-hearth fireplaces should not be permitted. EPA-Certified fireplaces and fireplace inserts are 75 percent effective in reducing emissions from this source.
- Construct transit amenities such as bus turnouts/bus bulbs, benches, shelters, etc.
- Provide direct, safe, attractive pedestrian access from project land uses to transit stops and adjacent development.

- Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.

Mitigation Measure 3.4-2 All commercial uses shall apply Transportation System Management measures as feasible to reduce trips. Appropriate strategies include:

- Provide physical improvements, such as sidewalk improvements, landscaping and bicycle parking that would act as incentives for pedestrian and bicycle modes of travel.
- Connect site with regional bikeway/pedestrian trail system.
- Provide transit information kiosks.
- Implement feasible travel demand management (TDM) measures. This would include a ride-matching program, guaranteed ride home programs, coordination with regional ridesharing organizations and transit incentives program.
- Provide showers and lockers for employees bicycling or walking to work.
- Provide secure and conveniently located bicycle parking and storage for workers and patrons.
- Provide electric vehicle charging facilities.
- Provide preferential parking for Low Emission Vehicles (LEVs).
- Specialty equipment (utility carts, forklifts, etc.) shall be electrically, CNG or propane powered.
- Utilize reflective (or high albedo) and emissive roofs and light colored construction materials to increase the reflectivity of roads, driveways, and other paved surfaces, and include shade trees near buildings to directly shield them from the sun's rays and reduce local air temperature and cooling energy demand.

Summer Lake – Supplemental Impact

The Summer Lake EIR concludes that impacts on regional air quality would be significant and unavoidable based on estimated emissions from the URBEMIS-3 program. Emissions were compared to the BAAQMD's threshold of significance of 150 pounds per day in effect at the time the project was approved in 1993.

The BAAQMD revised their CEQA guidance document subsequent to the certification of the Summer Lake EIR. The threshold of significance for ozone precursors and PM_{10} has since been reduced from 150 pounds per day to 80 pounds per day. However, while the earlier 150 pounds per day was to be compared to both vehicular and area-source emissions, the new 80 pounds per day threshold is compared to vehicular emissions only. The current emissions are based on motor vehicle emissions only and do not include emissions from area-source emissions such as water heaters, furnaces, etc.

The URBEMIS-3 program utilized in the 1993 EIR has been modified and updated several times. The current version is URBEMIS-2002. URBEMIS-2002 reflects a number of emission control programs (oxygenated fuels, controls on diesel vehicles, Low Emission Vehicles) not included in the URBEMIS-3 program. Therefore, the estimated emissions using the latest URBEMIS program are much lower than previous emission estimates from the URBEMIS-3 program. The assumed year of the analysis also has a very strong influence on emissions, as emission factors diminish with time.

The current URBEMIS-2002 program was applied to the approved Summer Lake project description in the year 2015. The results are compared to those from the 1993 EIR in Table 3.4-6. Predicted daily emissions increases were 64.8 pounds per day for ROG 62.1 pounds per day for NOx and 124.2 pounds per day of PM_{10}. The incremental daily emission increase associated with the new proposed Summer Lake land uses has been estimated using the URBEMIS-2002 program and is identified in Table 3.4-6 above for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10}. Revised total emissions of ozone precursors for the Summer Lake development are 73.5 pounds per day for ROG, 71.5 pounds per day for NOx and 143.4 pounds per day for PM_{10}. These estimates are a less than the emissions shown in the 1993 EIR for ozone precursors (30.8% for ROG, 18.7% for NOx), which is accounted for mostly by the time difference between the two analyses. However, PM_{10} emission for Summer Lake exceeds that shown in the 1993 EIR by over 200%, primarily due to corrections to the emission rate for vehicles that occurred subsequent to 1993. This more recent air quality analysis confirms the Summer Lake 1993 EIR conclusion that impacts on regional air quality would be **significant**, although this conclusion is based on project emissions of PM_{10} that exceeds the PM_{10} threshold by 63.4 pounds, rather than on emissions of ozone precursors, as was the case in the 1993 EIR.

Table 3.4-6
Summer Lake Regional Emissions in Pounds Per Day

	Reactive Organic Gases	**Nitrogen Oxides**	**PM_{10}**
1993 EIR (URBEMIS-3, Automobile Only)	238.3	383.5	39.6
Current Estimate (URBEMIS-2002)			
Approved Uses	64.8	62.1	124.2
Proposed Uses	8.7	9.4	19.2
Total	73.5	71.5	143.4
BAAQMD Significance Threshold	80.0	80.0	80.0

The following mitigation measures will reduce PM_{10} emissions, but not enough to meet the BAAQMD threshold. The Summer Lake project would have ***unavoidable adverse*** air emission impacts.

Mitigation Measures

The following mitigation measures shall be implemented. With mitigation, the project would have an unavoidable adverse air quality impact.

Mitigation Measure 3.4-3 See Mitigation Measures 3.4-1 and 3.4-2.

3.3.4.3 POTENTIAL TO FREQUENTLY EXPOSE MEMBERS OF THE PUBLIC TO OBJECTIONABLE ODORS

There are no uses proposed that would expose the public to objectionable odors that could be deemed to have an unavoidable significant impact during either project construction or the long-term operation of the project.

Odors would be generated during project construction associated with paint, asphalt, and other construction activities required to develop the site as proposed. The odors would be localized and only be detectable by the public if they are adjacent to or in close proximity to the construction area. The construction areas are typically fenced to prevent public access, therefore, the public would not be allowed to be in close proximity to construction areas and unlikely that construction odors would significantly impact the public. Once the construction activities are completed the odors would cease. The odors that would be generated during construction are not anticipated to be any greater than other similar urban development in Oakley and thus, the public would not be exposed to odors that would be significantly objectionable.

The proposed man-made lakes could emit odors during summer months if the lakes are not properly maintained and managed would have a ***potentially significant*** impact. The project developers propose to implement a lake design, management, and operation plan that would reduce lake odors so the public is not impacted. In order to achieve the desired water quality for the lakes, the lake design features include the following:

- Suitable water depth
- Compressed air diffusion
- Vegetated wetland planters
- Storm water runoff detention pond best management practices (water quality filters)
- Upflow media biofilters
- Pumped water recirculation/irrigation turnover.

In addition to these designs, chemicals to control algae, insects, etc. will be used periodically to indirectly control odors. The City must approve a management and operation plan prior to the operation of the lakes. The City of Oakley proposes to manage the lakes of PAs 1, 3 and 4 to ensure the lakes are maintained to control odors. The operation of the man-made lakes in compliance with a City approved lake management plan to control odors would reduce lake odor impacts.

Mitigation Measures

The following mitigation measures shall be implemented to reduce lake odors to ***less-than-significant***.

Mitigation Measure 3.4-4 The project developer of Planning Areas 1, 3 and 4 shall submit lake management plans to the City for approval prior to the issuance of a grading permit for the lake. The lake management plan shall include lake design criteria, pollutant control, operations, mosquito control program, a list and description of all chemicals that would be used, and a lake maintenance program to control and minimize lake odors.

Mitigation Measure 3.4-5 The City of Oakley shall maintain all man-made lakes in PAs 1, 3 and 4 in compliance with an approved lake management plan.

There could be odors from restaurants in the proposed Village Center located at the intersection of East Cypress Road and Bethel Island Road. The cooking of foods in restaurants could generate odors that affect residents closest to and downwind of a restaurant. All restaurants would be required to install mechanical equipment to control odors as required by the county health department and building code. However, even with the installation of all required mechanical equipment, cooking odors could be detectable by people in the area closest to the restaurant(s). While odors from restaurants could occur, the level of the odors would be ***less-than-significant*** if all mechanical equipment to reduce odors is properly installed and maintained as required by the building code.

SUMMER LAKE – SUPPLEMENTAL IMPACT

Neither the proposed middle school nor the additional residences proposed for PA 2 would generate odors and impact the public.

The light industrial land use proposed for PA 2 allows a variety of uses including auto repair and painting, furniture manufacturing, pest control, warehousing and lumberyards. Some of the uses allowed for the light industrial land use could generate odors and have a ***potentially significant*** impact.

The man-made lake proposed for PA 2 would have the same ***potentially significant*** impact for odors as PAs 1, 3 and 4. It will also be designed and operated based on a City approved lake management plan. A homeowner association or the City will maintain the lake, once constructed. Mitigation Measures 3.4-4 and 3.4-5 above are applicable to the construction of the man-made lake proposed for PA 2 and are restated below.

Mitigation Measures

The following mitigation measures shall be implemented to reduce lake odors to ***less-than-significant***.

Mitigation Measure 3.4-6 The project developer shall submit lake management plans to the City for approval prior to the issuance of a grading permit for the lake. The lake management plan shall include lake design criteria, pollutant control, operations, mosquito control program, a list and description of all chemicals that would be used, and a lake maintenance program to control and minimize lake odors.

Mitigation Measure 3.4-7 A homeowners association or the City of Oakley shall maintain the man-made lake in compliance with an approved lake management plan.

Mitigation Measure 3.4-8 All projects in the light industrial area of PA 2 that emit odors shall install and maintain in proper working order the mechanical equipment necessary to eliminate odors from extending off-site.

3.3.4.4 POTENTIAL TO EXPOSE SENSITIVE RECEPTORS OR THE GENERAL PUBLIC TO SUBSTANTIAL LEVELS OF TOXIC AIR CONTAMINANTS

During construction various diesel-powered vehicles and equipment would be in use on the site. In 1998 the California Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant. CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[3] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stop) were identified as having the highest associated risk.

Health risks from toxic air contaminants are functions of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction related sources are mobile and transient in nature, and the bulk of the emission occurs within the project site at a substantial distance from nearby receptors. Because of its short duration, health risk impacts from construction emissions of diesel particulate would be ***less-than-significant***.

The project does not propose any use that would be considered a major stationary source of toxic air contaminants that could expose sensitive receptors or the general public to substantial levels of toxic air contaminants. The project would have ***less-than-significant*** impacts on sensitive receptors regarding their exposure to toxic air contaminants.

SUMMER LAKE – SUPPLEMENTAL IMPACT

The 1993 Summer Lake EIR did not identify any impacts with exposure of sensitive receptors or the public to toxic air contaminants, thus no mitigation measures were recommended. Similarly, the additional 113 residences and middle school proposed for PA 2 would not expose sensitive receptors or the general public to substantial levels of toxic air contaminants.

[3] California Air Resources Board, Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, October 2000.

There could be uses allowed in the light industrial area in PA 2 that generate toxic air contaminants and have a ***significant*** impact to residents and sensitive receptors closest to and downwind of the site.

Mitigation Measures

The following mitigation measure shall be implemented to reduce potential toxic air contaminant impacts with development of light industrial land uses to ***less-than-significant.***

Mitigation Measure 3.4-9 All uses in the light industrial area that would emit TACs shall obtain appropriate permits from the Bay Area Air Quality Management District. District regulations and procedures require that risks from new sources of TACs shall be below District thresholds before a permit from BAAQMD to operate or construct will be granted.

3.3.4.5 COMPLIANCE WITH BAAQMD GUIDELINES FOR FEASIBLE CONTROL MEASURES FOR CONSTRUCTION EMISSION OF PM_{10}.

According to the *BAAQMD CEQA Guidelines*, emissions of ozone precursors (ROG and NOx) and carbon monoxide related to construction equipment are included in the District's emission inventory of the regional air quality plan for the Basin. Thus, construction emissions are excluded and not calculated separately with regards to construction air emissions for individual projects. The ozone precursors generated by the project during construction have been estimated by the District and are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the District.4 Thus, the pollutant of primary importance during construction is particulates.

The construction activities required to develop the project including demolition of existing small structures, grubbing and clearing the site for development, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate fugitive particulate matter emissions that could affect local air quality.

The dust that would be generated during construction could affect the local air quality during development of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere. The project would require substantial excavation and earthmoving to construct the flood control levee as well as provide building pads, roads, schools, man-made lakes, etc. The movement of earth on the site is a construction activity with a high potential for creating air pollutants, including dust. Once grading of the site is completed dust would continue to affect the local air quality during the construction of residential units, road construction, etc.

The construction activities necessary to construct the project would generate exhaust emissions from vehicles/equipment and fugitive particulate matter emissions that would affect local air quality. Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-waterbase paints, thinners, some insulating materials and caulking materials would evaporate into the

4 Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, page 12, April 1996 (Revised 1999)

atmosphere and participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

The effects of construction activities would increase dust and locally elevated levels of PM_{10} downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties and is considered a ***significant impact***.

Mitigation Measures

The following measures shall be implemented to reduce PM_{10} emissions during project grading and construction to ***less-than-significant***.

Mitigation Measure 3.4-10 The following measures shall be implemented for PA's 1, 3, 4, and 6:

- All active construction areas shall be watered at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;
- All trucks hauling soil, sand, and other loose materials shall be covered or required to maintain at least 2 feet of freeboard;
- All unpaved access roads, parking areas, and staging areas at construction sites shall be paved or water applied three times daily, or a non-toxic soil stabilizer applied until the areas are developed or landscaped per final construction plans;
- All paved access roads, parking areas, and staging areas at construction sites shall be swept daily (preferably with water sweepers). Water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;
- All adjacent public streets shall be swept daily (preferably with water sweepers) if visible soil material is carried onto the street.
- A non-toxic soil stabilizer shall be applied to all inactive construction areas and maintained until the construction area is developed based on construction plans.
- All exposed stockpiles of dirt, sand, etc. shall be enclosed, covered, watered twice daily, or a non-toxic soil binder applied to minimize dust.
- The traffic speeds on all unpaved roads shall be limited to a maximum of 15 mph.
- Sandbags or other erosion control measures shall be installed and maintained to prevent silt runoff to public roadways.

- All disturbed areas shall be planted with vegetation as quickly as possible and the vegetation maintained in good condition until such area is developed.
- Wheel washers shall be installed for all exiting trucks, or the tires or tracks of all trucks and equipment leaving the site shall be washed.
- Excavation and grading activity shall be suspended when winds (instantaneous gusts) exceed 25 mph.

SUMMER LAKE – SUPPLEMENTAL IMPACT

The Summer Lake EIR concluded that construction air emission impacts would be potentially significant, but could be mitigated to a level of insignificance. This is consistent with current significance criteria contained within the *BAAQMD CEQA Guidelines*, which was published subsequent to the publication of the Summer Lake EIR.

Based on the current URBEMIS-2002 program applied to the approved Summer Lake project description in conjunction with the proposed uses for PA 2 as shown in Table 3.4-6, the project would have ***potentially significant*** impact to PM_{10} dust emissions.

Since the 1993 EIR, the BAAQMD has added additional dust control requirements for projects. Implementation of the measures in the Summer Lake 1993 EIR in conjunction with BAAQMD's latest dust control measures would further reduce PM_{10} dust emission impacts.

Mitigation Measures

In addition to the construction mitigation measures identified in the 1993 EIR, the following mitigation measure shall be implemented to reduce PM_{10} dust emissions of the Summer Lake project to ***less-than-significant.***

Mitigation Measure 3.4-11 The following measures shall be implemented:

- The traffic speeds on all unpaved roads shall be limited to a maximum of 15 mph.
- Sandbags or other erosion control measures shall be installed and maintained to prevent silt runoff to public roadways.
- Wheel washers shall be installed for all exiting trucks, or the tires or tracks of all trucks and equipment leaving the site shall be washed.

3.5 Biological Resources

3.5 BIOLOGICAL RESOURCES

3.5.1 INTRODUCTION

This chapter summarizes the biological resources known to occur and potentially occurring on the East Cypress Corridor Specific Plan site. The complete biological assessment prepared by Sycamore Associates LLC is included as Appendix F of this EIR.

Existing plant communities, wetlands, wildlife habitats, and potential for special-status species and communities are discussed for the overall site. The site consists of three categories of land: Planning Areas 1, 3, and 4; Planning Area 6 and potential off-site improvement areas; and Planning Area's 2 and 5. For the purposes of CEQA the three land categories are analyzed as follows: 1) Project sites in Planning Areas 1, 3 and 4 are analyzed at a project level as detailed project descriptions are available; 2) Program - level sites in Planning Area 6 and potential off-site improvement areas are analyzed at a program level using the East Cypress Corridor Specific Plan Land Use designations for development purposes since site access was not available for purposes of preparing this EIR, and 3) Summer Lake, including Planning Area 5, which is an approved Contra Costa County project (1993) and phases 1 and 2 are currently under construction, and Planning Area 2 which is analyzed at a program-level with respect to biological resources in this EIR.

PLANNING AREAS 1, 3, AND 4

The biological evaluation is based on a review of regional biological resource databases and other biological studies conducted in the vicinity, as well as focused habitat assessments and biological surveys according to accepted protocols and guidelines. Field surveys were conducted from March 2004 to the present time with specific on-going surveys. All distinct habitat types were visited, identified, and mapped and all plant and wildlife species observed or detected by sign were recorded.

PLANNING AREAS 2, 5, 6, AND POTENTIAL OFF-SITE IMPROVEMENT AREAS

Planning Areas 2 and 5 comprise the approved Summer/Cypress Lake project. No changes are proposed to PA 5; changes proposed in PA 2, which is analyzed at a program-level in this section, are set forth in the Project Description. Property in Planning Area 6 is analyzed at a program-level and includes existing development and several other undeveloped properties within the project. Project infrastructure improvement areas within PA 6 that are analyzed at a program–level include upgrades to existing pump stations 2, 3, and 4 and construction of a road and levee connection between PA 1 and Bethel Island Road. Potential off-site improvement areas are classified as program-level sites in this analysis and may include an exterior levee along the west side of Jersey Island Road, road improvements, sewer lines, a bridge across Rock Slough, and a potential pump station southwest of the Jersey Island and Cypress Road intersection. Potential biological resources for the program-level sites are evaluated through review of regional biological resource databases, other biological studies conducted in the vicinity, soil survey data, topographic maps, and aerial photos.

In addition, the Biological Resources section of the *Draft Environmental Impact Report for the Cypress Lakes and Country Club Project* (Public Affairs Management and Contra Costa County 1992) was reviewed with respect to phases 3, 4, and 5 of the Summer Lake development, which includes Planning Area 2. Access to properties in PA 6 and potential off-site improvement areas, which are on private property, was prohibited. The analysis for these properties is not considered sufficient for evaluation of project level impacts for future development proposals. Subsequent surveys, field evaluations, and analyses of potential biological impacts associated with development proposals for PA 6 would likely be required in the future. In addition, this analysis is not considered sufficient for evaluation of project level impacts for Planning Area 2. Subsequent surveys, field evaluations, and impact analyses will be necessary to evaluate potential impacts to biological resources within Planning Area 2 at a project level.

The proposed levee alignment for the Specific Plan project area includes lands outside of the Specific Plan boundary, such as the Burroughs property immediately west of Jersey Island Road, and lands within Planning Area 6, immediately east of Planning Area 1. For the proposed Preferred Levee Alignment #1 (Bellecci & Associates 2005) Sycamore conducted a reconnaissance-level site visit for the portions of the levee footprint outside of PA's 1-5 on the Burroughs property (off site) and Tamayo property (part of PA 6).

3.5.2 ENVIRONMENTAL SETTING

VEGETATION COMMUNITIES AND WILDLIFE HABITATS

The habitat on the Specific Plan site includes irrigated pasture, alkali meadow, and non-native annual grasslands, disturbed and ruderal areas, riparian scrub and forests, and aquatic environments within drainage and irrigation ditches, as well as natural freshwater marshes and the open waters outside of the levees along Rock Slough on the south, Dutch Slough on the north, and Sandmound Slough on the east. Sand mounds comprised of loose, sandy soils that have some potential to support certain wildlife species or plants characteristic of an interior dune community are located in several areas of the site. An interior dune community has been identified in a few locations. The habitat on the site is valuable to wildlife, especially species endemic to the region.

Planning Areas 1, 3 and 4

Based on site visits and extensive habitat mapping according to the methods described above, the approximate area of each habitat type is as follows: irrigated pasture, cultivated, and disturbed areas (966 acres), non-native annual grassland/ruderal habitat (26 acres), Sand mound (84 acres), interior dune community (24 acres), alkali meadow and grassland (10 acres), Great Valley riparian forest/willow scrub (1 acre), irrigation/drainage canals (22 acres), and Valley freshwater marsh/seasonal wetland (101 acres). The vegetation communities on Planning Areas 1, 3, and 4 are shown on Figure 3.5-1, Vegetation Communities/Habitat Types – Planning Areas 1, 3, and 4.

Planning Areas 2 and 6

Based on an analysis of aerial photos according to the methods described above, the approximate area of each habitat type is as follows: non-native annual grassland/ruderal habitat (288 acres), Sand mound with the potential to support an interior dune community (400 acres), alkali meadow (12

acres), Great Valley riparian forest/willow scrub (28 acres), irrigation/drainage canals (17 acres), and Valley freshwater marsh (21 acres). These habitat types appear to be present within potential off-site improvement areas, however approximate acreages have not been calculated as part of this analysis as specific boundaries and precise locations have yet to be defined. The vegetation communities on Planning Areas 2 and 6 are shown on Figure 3.5-2, Vegetation Communities/Habitat Types – Planning Areas 2 and 6.

Irrigated Pasture, Cultivated, and Disturbed Lands

Cultivated lands are comprised of irrigated fields used as pasture for livestock and support an assemblage of mostly herbaceous, non-native, annual and perennial grasses and forbs. These areas consist of altered lands on which the naturally occurring vegetation has been mostly or entirely removed by grading, levee construction, draining, irrigating, cultivation, and livestock grazing.

Irrigated pasturelands are present over much of the site within the levees. Common non-native plant species observed in irrigated pastures include tall fescue (*Festuca arundinacea*), Bermuda grass (*Cynodon dactylon*), Italian ryegrass (*Lolium multiflorum*), Dallis grass (*Paspalum dilatatum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), rabbitfoot grass (*Polypogon monspeliensis*), curly dock (*Rumex crispus*), bull thistle (*Cirsium vulgare*), broad-leaf peppergrass (*Lepidium latifolium*), bird-foot trefoil (*Lotus corniculatus*), strawberry clover (*Trifolium fragiferum*), white clover (*Trifolium repens*), and English plantain (*Plantago lanceolata*), among others. In places, some native species, including salt grass (*Distichlis spicata*), Baltic rush (*Juncus balticus*), pickleweed (*Salicornia virginica*), alkali heath (*Frankenia salina*), and meadow barley (*Hordeum brachyantherum*) are also present.

Disturbed lands are those on which the native vegetation has been completely removed by human activities. Disturbed areas on the site include dirt roadways, levees, berms, and spoils from the maintenance of ditches and canals, and the areas around development such as houses, barns, and corrals. The disturbed lands do not generally support natural vegetation, although invasive native and non-native plant species frequently colonize disturbed sites.

The disturbed lands on the site characteristically support non-native annual grasses and forbs that are typical of local grasslands. Plant species commonly found include non-native species such as hare barley (*Hordeum murinum* ssp. *leporinum*), rip-gut brome (*Bromus diandrus*), Italian ryegrass, yellow star-thistle (*Centaurea solstitialis*), common knotweed (*Polygonum arenastrum*), red-stemmed filaree (*Erodium cicutarium*), yellow sweet-clover (*Medicago indica*), milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephala*), bull thistle, horehound (*Marrubium vulgare*), and summer mustard (*Hirschfeldia incana*), among others. Native species include common spikeweed (*Centromadia pungens* ssp. *pungens*), willow herb (*Epilobium brachycarpum*), alkali mallow (*Malvella leprosa*), salt heliotrope (*Heliotropium curassavicum*), and hoary nettle (*Urtica dioica* ssp. *holosericea*), all common on disturbed habitats.

Cultivated fields, which generally consist of mono-crops of a uniform height, such as hay, provide more valuable habitat for birds than for mammals, reptiles, or amphibians. Birds are often more mobile and are able to forage or nest off site if the agricultural lands do not provide suitable habitat for these activities. Cultivated lands provide limited habitat values for mammals, reptiles, and amphibians due to the use of pesticides and/or irrigation and flooding resulting in a lack of prey base. The requirements of large herbivorous mammals for food and cover from predators and the elements in their territory, as well as those for suitable courting and pairing habitats are generally not

met by agricultural land uses. Large herbivores are likely to use cultivated fields along their travel corridors from one natural community to another, although supportive studies are lacking.

Wildlife species generally associated with disturbed lands include raccoon (*Procyon lotor*), opossum (*Didelphus virginianus*), European starling (*Sturnus vulgaris*), and mourning dove (*Zenaida macroura*). Killdeer (*Charadrius vociferus*) are also often associated with open disturbed substrates. Burrowing owls (*Athene cunicularia hypugea*) may nest in disturbed habitats, fallow fields, and on the margins of cultivated areas if they are characterized by short vegetation and ground squirrel activity. Wildlife species that feed on seeds or other parts of the vegetation, including finches, goldfinches, sparrows, and a variety of rodents, occur in this habitat type. Insects present in disturbed habitats provide food for species such as western meadowlark (*Sturnella neglecta*), blackbirds, loggerhead shrike (*Lanius ludovicianus*), and western fence lizard (*Sceloporus occidentalis*). This community can support a variety of predators, including snakes, various raptors, and red fox (*Vulpes vulpes*).

Raptors such as the red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), northern harrier (*Circus cyaneus*), burrowing owl (*Athene cunicularia hypugea*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*), white-tailed kite (*Elanus leucurus*), rough-legged hawk (*Buteo lagopus*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), short-eared owl (*Asio flammeus*), and golden eagle (*Aquila chrysaetos*) have the potential to forage in cultivated and disturbed lands. Other birds associated with cultivated and disturbed lands include Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeiceus*), western meadowlark, horned lark (*Eremophila alpestris*), long-billed curlew (*Numenius americanus*), killdeer, and various sparrows, among others.

Irrigated, cultivated, and disturbed lands as they occur on site are not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin *et al.* (1979). PAs 1, 3, and 4 support approximately 966 acres of this vegetation community/habitat type and it appears to be absent from the rest of the project site.

Non-Native Annual Grassland/ Ruderal Habitat

Non-native annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. This vegetation type is dominated by non-native annual grasses and weedy annual and perennial forbs, primarily Mediterranean origin, that have replaced native perennial grasslands as a result of human disturbance. Scattered native wildflower species, representing remnants of the original vegetation may also be common. Non-native annual grassland intergrades with alkali meadow and grassland on portions of the site as well as disturbed habitats dominated by non-native species.

Ruderal habitat is that from which the native vegetation has been completely removed by grading, cultivation, or other surface disturbances. Such areas, if left undeveloped, may become recolonized by exotic species as well as native species. The native vegetation may ultimately become at least partially restored if the soils are left intact and there is no further disturbance.

Characteristic non-native annual grasses commonly found within the site include soft chess (*Bromus hordeaceus*), hare barley, ripgut brome (*Bromus diandrus*), wild oats (*Avena fatua*), Italian ryegrass, and

annual fescue (*Vulpia* spp.). Common non-native forbs include bird-foot trefoil, red-stemmed filaree (*Erodium cicutarium*), crane's-bill (*Geranium dissectum*), mouse-ear chickweed (*Cerastium glomeratum*), white sweet-clover (*Medicago alba*), and black mustard (*Brassica nigra*), among others.

Grassland habitats, both native and non-native, attract reptiles and amphibians such as alligator lizard (*Gerrhonotus* spp.), western fence lizard, and Pacific slender salamander (*Batrachoseps attenuatus*), which feed on invertebrates found within and beneath fallen logs in the vegetation community. This habitat also attracts seed-eating and insect-eating species of birds and mammals. California quail (*Callipepla californica*), mourning dove, and western meadowlarks are a few granivores that nest and forage in grasslands. Insectivores such as the western scrub-jay (*Aphelocoma californica*), barn swallow (*Hirundo rustica*), and northern mockingbird (*Mimus polyglottos*) use the habitat for foraging only. Grasslands are important foraging grounds for insectivorous bats such as myotis (*Myotis* spp.) and pallid bats (*Antrozous pallidus*).

A large number of other mammal species such as the California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), Botta's pocket gopher (*Thomomys bottae*), Beechey (California) ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), red fox, striped skunk (*Mephitis mephitis*), and black-tailed hare (*Lepus californicus*) also forage and nest or den within grasslands. Small rodents attract raptors (*i.e.*, birds of prey) such as owls, which hunt at night, as well as day-hunting raptors such as the red-tailed hawk and red-shouldered hawk, among others. Burrowing owls nest in grassland habitats characterized by short vegetation and ground squirrel activity. Some amphibian species that breed in adjacent irrigation canals also aestivate (or spend the summer) in small mammal burrows within portions of these habitats on the site. Black-tailed deer (*Odoicoileus hemionus californicus*) can also use grasslands for browsing and resting.

Non-native annual grassland conforms to the California annual grassland series as described in Sawyer and Keeler-Wolf (1995), and would be classified as upland, following Cowardin *et al.* (1979). PAs 1, 3, and 4 support approximately 26 acres of this vegetation community/habitat type. Approximately 288 acres occur on the rest of the site.

Alkali Meadow and Grassland

Alkali meadow is typically a sparse to densely vegetated plant community consisting of relatively few low growing plant species. It occurs on fine-textured, seasonally or permanently moist alkaline soils. When dominated by annual grasses or forbs, such areas are sometimes referred to as alkali grassland. Alkali meadow or grassland is distributed in poorly drained valley bottoms and on the lower edges of alluvial slopes east of the Cascades and the Sierra Nevada as well as throughout the Sacramento and San Joaquin valleys and into the Livermore Valley. Although not specifically described in Holland (1986), features commonly referred to alkali scalds are frequently associated with alkali meadow or grassland. Alkali scalds are relatively barren areas with a saline or alkaline crust on the soil surface, supporting little or no vegetation.

Alkali meadows, grasslands, and scalds integrate with irrigated pasture and non-native annual grassland in low-lying depressions of the west-central portion of the site. Characteristic plant species of alkali meadows, grasslands, or scalds occurring on site include native species such as saltgrass, pickleweed, alkali weed (*Cressa truxillensis*), spearscale (*Atriplex triangularis*), silverscale (*Atriplex argentea* var. *mojavensis*), foxtail barley (*Hordeum jubatum*), alkali peppergrass (*Lepidium dictyotum* ssp. *acutidens*),

bush seepweed (*Suaeda moquinii*), nitrophila (*Nitrophila occidentalis*), alkali-mallow (*Malvella leprosa*), common spikeweed, and Nuttall's alkali grass (*Puccinellia nuttalliana*), as well as non-native species such as Mediterranean barley, sand-spurrey (*Spergularia rubra*), five-hook bassia (*Bassia hyssopifolia*), and sickle grass (*Parapholis incurva*), among others.

Several species of birds utilize alkali meadows and grasslands throughout the year. Savannah sparrows (*Passerculus sandwichensis*), western meadowlarks, and killdeer may build their nests directly on the ground in these grasslands. Seeds produced by grasses provide food for migrating and wintering songbirds, such as lesser goldfinches (*Carduelis psaltria*) and white-crowned sparrows (*Zonotrichia leucophrys*).

California voles, Beechey ground squirrels, and other small rodents use grass seeds and stalks as food sources. Raptors, such as the white-tailed kite and red-tailed hawk that nest and roost in nearby habitats, also hunt in these grasslands.

On site, alkali meadow and grassland does not correspond to any specific vegetation association as described in Sawyer and Keeler-Wolf (1995). Portions of this plant community would be classified as a palustrine persistent emergent saline wetland as described by Cowardin *et al.* (1979). PAs 1, 3, and 4 support approximately 10 acres of this vegetation community/habitat type with approximately 12 acres on the remaining portion of the site.

Interior Dunes and Sand Mounds

Within the region, interior dunes, which occur at low elevations in the vicinity of the Sacramento-San Joaquin Delta, can support a distinct vegetative community characterized by plant species that favor growth in sandy soils. This vegetation type occupies generally isolated deposits of sand or pockets of sandy soils formed from windblown stream deposits, on mounds and ridges that have become more prominent as the surrounding organic soils subsided. These areas are on locations often referred to as "Sand mounds," and are usually mapped as Delhi sand, Piper sand, and Piper fine sandy loam (USDA 1977). Typically, interior dunes support an open, primarily perennial, winter- and spring-growing herbaceous community, often with scattered low shrubs or live oaks. Shrubs are generally less than waist high and widely spaced. Annual forbs and grasses form a discontinuous ground canopy interspersed with an open ground layer.

Several highly disturbed Sand mound areas characterized by sandy soils are present on the site. Houses and corrals are often located on these sandy, elevated areas as are some of the electrical transmission towers. Vegetation of many of the Sand mounds is highly disturbed by cattle and past human activities and generally consists of a sparse cover of weedy, herbaceous species such as ripgut brome, hare barley, hoary nettle, and Russian thistle (*Salsola tragus*), among others. Native trees such as coast live oak (*Quercus agrifolia*), common on sand in the region, are absent from the Sand mounds and interior dunes on the PAs 1,3, and 4. Planted trees, including Northern California black walnut (*Juglans californica* ssp. *hindsii*) and black locust (*Robinia pseudoacacia*) are found on several of the sand mounds in the vicinity of habitations.

Within PAs 1, 3, and 4, two localized areas of well-developed specialized vegetation association's characteristic of the interior dune community occur. One is near the northwestern corner of PA 1 and the other is in the southern portion of PA 3. The dominant, native species occurring within this

community on the site include California croton (*Croton californicus*), silver bush lupine (*Lupinus albifrons*), telegraph weed (*Heterotheca grandiflora*), slender buckwheat (*Eriogonum gracile* var. *gracile*), Kellogg's tarweed (*Deinandra kelloggii*), valley lessingia (*Lessingia glandulifera* var. *glandulifera*), and small primrose (*Camissonia* sp.), among others. Associated weedy, herbaceous vegetation includes ripgut brome, Russian thistle, soft chess, and hare barley, among others. A small stand of tree of heaven (*Ailanthus altissima*) is also present on the northernmost dune on PA 1.

Wildlife species expected to utilize this habitat are primarily the same as described for cultivated lands and non-native annual grassland/ruderal habitat. For example, Beechey ground squirrel burrows are present throughout these areas and burrowing owls are often found inhabiting ground squirrel burrows within these elevated land features. In addition, the sandy substrate has at least some potential to support a distinct invertebrate fauna and native reptile species, including the silvery legless lizard (*Anniella pulchra pulchra*).

Most Sand mounds as they occur on site support vegetation similar to that described for disturbed lands, although these areas on the site characterized as interior dunes support an unusual plant species assemblage that is found in scattered locations within the region. Interior dunes as they occur on site are similar to stabilized interior dunes as classified by Holland (1986), although they do not support the unique endemic flora of the Antioch Dunes. On-site Sand mound vegetation is not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin et al. (1979).

U.S. Department of Agriculture soil survey (1977) data was utilized to map sandy soils within the project. In the case of PAs 1, 3, and 4, the soil survey information was field checked and differences were rectified based on field observations in the final maps of these habitat types. Based on this assessment, PAs 1, 3, and 4 support approximately 84 acres of disturbed Sand mound habitat and 24 acres of interior dune community. In addition, approximately 400 acres of Sand mounds occur on PAs 2 and 6. Areas mapped as sand mounds within PAs 2 and 6 were not field checked to determine the presence of interior dune community due to site access. Thus, sandy habitats on PAs 2 and 6 have the potential to support an interior dune community.

Valley Freshwater Marsh/ Seasonal Wetland

Valley freshwater marsh typically occurs in low-lying sites that are permanently flooded with fresh water and lack significant flow. It is found on nutrient-rich mineral soils that are saturated for all or most of the year. This vegetation community is most extensive where surface flow is slow or stagnant or where the water table is so close to the surface as to saturate the soil from below. Valley freshwater marsh is most extensive in the upper portion of the Sacramento-San Joaquin River Delta. It is common in the Sacramento and San Joaquin valleys in river oxbows and other areas on the flood plain, and occasionally along the Colorado River on the California-Arizona border. It is now much reduced in area throughout its range (Holland 1986). This vegetation community characteristically forms a dense vegetative cover dominated by perennial, emergent monocots 1-15 feet high that reproduce by underground rhizomes.

Within the project site, freshwater marsh vegetation is commonly found in irrigation and drainage ditches and canals, and in low-lying areas that are poorly drained. Characteristic native species present on site include cattails (*Typha* spp.), common tule (*Scirpus acutus* var. *occidentalis*), three-square

(*Scirpus americanus*), common reed (*Phragmites australis*), Baltic rush, creeping spike-rush (*Eleocharis macrostachya*), salt-marsh fleabane (*Pluchea odorata*), swamp knotweed (*Polygonum amphibium* var. *emersum*), and water smartweed (*Polygonum punctatum*), among others. Non-native species such as lady's thumb (*Polygonum persicaria*), rabbitfoot grass, swamp grass (*Crypsis schoenoides*), and Dallis grass are also common. In the southeastern corner of the site, outside of the eastern levee, freshwater marsh is also present on a small island at the confluence of Rock Slough and Sand mound Slough, and supports the highly invasive water-hyacinth (*Eichhornia crassipes*), as well as other species. Extensive freshwater marsh, representative of naturally occurring wetlands of the region, is present on the northwestern portion of PA 1 and intergrades with a complex of irrigated pasture and sand dune habitats.

Although not specifically described in Holland (1986), seasonal wetlands consist of annual and perennial native and non-native wetland indicator species. This plant association typically resembles a wetland community only following the wet season; it dries up rapidly with the onset of summer and the wetland indicator species go dormant. During the dry season, such sites may not be readily recognizable as wetlands as wetland species go to seed and typical upland grasses and forbs become established. On site, seasonal wetlands are found primarily in low-lying depressions scattered throughout irrigated pasture and non-native annual grasslands that pond water during the winter months due to poor soil drainage. Characteristic plant species include *Rumex salicifolius*, rabbitfoot grass, brass-buttons (*Cotula coronopifolia*), spiny buttercup (*Ranunculus muricatus*), creeping spike-rush, meadow barley, and annual bluegrass (*Poa anuua*).

Freshwater marsh and seasonal wetland habitat is very productive for wildlife in that it offers water, food, and cover for a variety of species. Reptiles and amphibians that commonly occur in this habitat include western aquatic garter snake (*Thamnophis couchii*), pacific treefrog (*Psuedacris regilla*), and American bullfrog (*Rana catesbeiana*). Red-winged blackbird (*Agelaius phoeniceus*), common yellowthroat (*Geothlypis trichas*), and killdeer often use these areas for foraging and nesting. Snowy egret (*Egretta thula*), green heron (*Butorides virescens*), black-crowned night-heron (*Nycticorax nycticorax*), and mallard (*Anas platyrhynchos*) also forage in this habitat, feeding on small fish, amphibians, and reptiles. Mammals commonly present in this habitat include California meadow vole (*Microtus californicus*), raccoon, striped skunk, and gray fox (*Urocyon cinereoargenteus*). This habitat provides important foraging and drinking areas for aerial and ground feeding insectivorous bats, such as *Myotis* species.

Portions of valley freshwater marsh as found on site closely correspond to the bulrush-cattail series following Sawyer and Keeler-Wolf (1995). Following Cowardin *et al.* (1979), this plant community is classified as palustrine semi-permanently flooded emergent wetland. On site, seasonal wetland habitat does not conform to any specific series as classified by Sawyer and Keeler-Wolf (1995); it would be classified as palustrine seasonally flooded wetland following Cowardin *et al.* (1979). PAs 1, 3, and 4 support approximately 101 acres of freshwater marsh/seasonal wetland habitat that intergrades with irrigated pasture and non-native annual grasslands and approximately 21 acres of this vegetation community/habitat type occur on PAs 2 and 6. PAs 1, 3, and 4 support approximately 22 acres of irrigation and drainage canals and approximately 17 acres occur on PAs 2 and 6, portions of which are characterized by Valley freshwater marsh vegetation.

Great Valley Riparian Forest/Willow Scrub

Great Valley willow scrub typically consists of a dense, shrubby, streamside thicket dominated by any of several species of willows. An herbaceous understory may be present or not. This native plant community occurs close to river channels on fine-grained sand and gravel bars with a high water table. It is distributed along all the major rivers and many smaller streams throughout the Great Central Valley watershed below 1,000 feet in elevation (Holland 1986). Where large, mature trees form dense stands, this community is more appropriately referred to as Great Valley riparian forest.

Within the site, Great Valley riparian forest/willow scrub is represented in isolated locations along some of the irrigation ditches by stands of mature, native trees such as Gooding's black willow (*Salix goodingii*), narrow-leaved willow (*Salix exigua*), red willow (*Salix levigata*), arroyo willow (*Salix lasiolepis*), and Fremont cottonwood (*Populus fremontii*). The non-native weeping willow (*Salix babylonica*) is also present. Within this habitat on site, non-native Himalayan blackberry (*Rubus discolor*) forms dense stands within and adjacent to the tree canopy. Also present in the understory are native species such as marsh baccharis (*Baccharis douglasii*), western goldenrod (*Euthamia occidentalis*), and numerous other species typical of freshwater marsh such as rushes and cattails.

Great Valley riparian forest/willow scrub forms dense thickets in several locations along the northern project boundary, immediately south of the Dutch Slough levee and adjacent residences. Numerous bird species can be found roosting and nesting within trees and shrubs in this habitat type.

Great Valley riparian forest/willow scrub on site conforms more or less to the black or red willow series as described in Sawyer and Keeler-Wolf (1995), and would be classified as palustrine shrub-scrub or forested wetland following Cowardin *et al.* (1979). PAs 1, 3, and 4 support approximately 1 acre of this vegetation community/habitat type and approximately 28 acres occur on PAs 2 and 6.

WILDLIFE SPECIES OBSERVED

Wildlife species observed during site visits and focused surveys on PAs 1, 3, and 4 include American kestrel (*Falco sparverius*), American avocet (*Recurviorstra americana*), American white pelican (*Pelecanus erythrorhynchos*), American bittern (*Botaurus lentiginosus*), American crow (*Corvus brachyrhynchos*), barn owl (*Tyto alba*), Brewer's blackbird (*Euphagus cyanocephalus*), black-crowned night heron (*Nycticorax nycticorax*), black pheobe (*Sayornis nigricans*), barn swallow (*Hirundo rustica*), double-crested cormorant (*Phalacrocorax auritus*), California quail (*Callipepla californica*), common raven (*Corvus corax*), ferruginous hawk (*Buteo regalis*), great egret (*Casmerodius albus*), great horned owl (*Bubo virginianus*), graylag (barnyard) goose (*Anser anser*), great blue heron (*Ardea herodias*), gull (*Larus* sp.), house finch (*Carpodacus mexicanus*), killdeer (*Charadrius vociferus*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus*), mourning dove (*Zenaida macroura*), mallard (*Anas platyrhynchos*), northern harrier (*Circus cyaneus*), northern mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), red-tailed hawk (*Buteo jamaicensis*), ring-necked pheasant (*Phasianus colchicus*), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), snowy egret (*Egretta thula*), Wilson's snipe (*Gallinago delicata*), Swainson's hawk (*Buteo swainsoni*), tree swallow (*Tachycineta bicolor*), tricolored blackbird (*Agelaius tricolor*), turkey vulture (*Cathartes aura*), violet-green swallow (*Tachycineta thalassina*), western meadowlark (*Sturnella neglecta*), white-tailed kite (*Elanus leucurus*), western kingbird (*Tyrannus verticalus*),

western burrowing owl (*Athene cunilaria hypugea*), yellow-rumped warbler (Dendroica coronata), bullfrog (*Rana catesbeiana*), western pond turtle (*Clemmys marmorata*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis melanoleucus*), racer (*Coluber constrictor*), mosquitofish (*Gambusia affinis*), crayfish (*Procambarus spp*), weasel (*Mustela* sp.), Beechey (California) ground squirrel (*Spermophilus beecheyi*), striped skunk (*Mephitis mephitis*), and river otter (*Lutra canadensis*).

SPECIAL-STATUS BIOLOGICAL RESOURCES

Prior to conducting fieldwork, the California Natural Diversity Data Base (CNDDB) (CDFG 2005) was reviewed for the most recent distribution information for special-status plant and animal species within the Brentwood, Jersey Island, and adjacent quadrangles.

Information on special-status plant species was compiled through a review of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001), the California Department of Fish and Game's (CDFG) *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFG 2004e) and *Special Vascular Plants, Bryophytes, and Lichens List* (CDFG 2004b), and the U.S. Fish and Wildlife Service's (USFWS) *Endangered and Threatened Wildlife and Plants; Proposed Rule* (USFWS 1996a, 1997, 2001). Also reviewed were *Status of Rare, Threatened and Endangered Vascular Plants in Alameda and Contra Costa Counties* (Olson 1994), *Unusual and Significant Plants of Alameda and Contra Costa Counties* (Lake 2001), and the *Plant Species of Concern* (USFWS 2004d) list of Federal Species of Concern and Federal Species of Local Concern, independently maintained by the Sacramento branch of the U.S. Fish and Wildlife Service.

Information on special-status animal species was compiled through a review of the CNDDB (CDFG 2005), California Department of Fish and Game's *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2004c) and *Special Animals List* (CDFG 2004a), the U.S. Fish and Wildlife Service's *Endangered and Threatened Wildlife and Plants; Proposed Rule* (USFWS 1996a, 1997, 2001), and the *Animal Species of Concern* (USFWS 2004a) list of Federal Species of Concern and Federal Species of Local Concern, independently maintained by the Sacramento branch of the U.S. Fish and Wildlife Service.

SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection (*i.e.,* §404 of the Clean Water Act and/or §1600 *et seq.* of the California Fish and Game Code). In addition, the CNDDB has designated a number of communities as rare; these communities are given the highest inventory priority (Holland 1986, CDFG 2003).

Three sensitive natural communities, alkali meadow and grassland, Great Valley riparian forest/willow scrub, and valley freshwater marsh, occur within the site. Alkali meadow, Great Valley riparian forest/willow scrub, and valley freshwater marsh are designated as sensitive natural communities by the CNDDB (Holland 1986). Additionally, the aquatic communities Great Valley riparian forest/willow scrub and valley freshwater marsh may fall under state and/or federal jurisdiction as wetlands or other waters.

A formal wetland delineation and preliminary jurisdictional determination was conducted for PAs 1, 3, and 4 in accordance with the procedures outlined in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987). Verification requests were submitted to the U.S. Army Corps of Engineers in October 2004 for PA 4 (Sycamore 2004e), PA 1 (Sycamore 2004g), and PA 3 (Sycamore 2004f) properties and in November 2004 for the Dal Porto North property that is part of PA 1 (Olberding Environmental 2004b). Mr. William Guthrie of the U.S. Army Corps of Engineers field inspected the PA 4, PA 3, and PA 1 (Lesher) delineations on November 22, 2004. Final verification of the jurisdictional determinations by the U.S. Army Corps of Engineers for these properties is pending. Final U.S. Army Corps of Engineers verification was obtained in March 2005 for the Dal Porto North property, which is part of PA 1.

Huffman and Associates, Inc. completed a wetland delineation of the Cypress Lakes property in 1991 as part of the original environmental review for the project. The delineation was verified by the U.S. Army Corps of Engineers in September 2001 (USACE File Number 199100843). Within PA 2, 6.78 acres of wetlands were verified as jurisdictional. These areas include the main drainage canal and several seasonal wetlands. Most wetland fill activities were completed in 2002 under Nationwide Permit 26 (Monk and Associates 2004b). As mitigation for wetland impacts to develop Summer Lake, 2.28 acres of seasonal wetlands and 0.60 acre of new channel have been constructed within the central area of PA 2 (Monk and Associates 2004b). Monk and Associates have completed two years of monitoring (2002-2004) of the mitigation wetlands as described in the Habitat Mitigation and Monitoring Plan (ECORP 2000). Monk and Associates report that the created wetlands are meeting performance standards and are functioning as intended (Monk and Associates 2003b, 2004a).

Alkali Meadow and Grassland

Alkali meadow is a terrestrial natural community that is recognized by California Department of Fish and Game's CNDDB as rare or having a high priority for inventory (Todd Keeler-Wolf, Pers. Comm.). Alkali meadow, grassland, and scalds occur among irrigated pasture on the Lesher property in PA 1 and within pastures or non-native annual grassland areas of PA 3. A small alkali area that may support plant species typical of alkali meadow and grassland was identified on PA 6 from adjacent properties and there is at least some potential for the presence of additional areas of alkali meadow within PA 6. The mitigation wetlands on PA 2 are mapped as alkali meadow based on the plant species identified by Monk and Associates during their annual monitoring visits (Monk and Associates 2003b, 2004a), which are characteristic of an alkali plant community. Alkali meadows are often characterized by wetland hydrology, as in the case of the Summer Lake mitigation wetlands.

Great Valley Riparian Forest /Willow Scrub

Great Valley riparian forest/willow scrub occurs in small isolated patches on PAs 1, 3, and 4 within the irrigation canals and on the inboard side of the Sandmound Slough levee. These areas, which total approximately 1 acre, lack wetland hydrology and are not expected to fall under the jurisdiction of the U.S. Army Corps of Engineers, however they may be regulated as riparian vegetation by the State of California. Great Valley riparian forest/ willow scrub potentially falling under the jurisdiction of the U. S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Game is also present on property in PAs 2 and 6.

Valley Freshwater Marsh/Seasonal Wetlands

Wetlands such as the valley freshwater marsh and seasonal wetland found on site serve important biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory animal species. Wetlands also provide for the movement of water and sediments, ground-water recharge, water purification, storage of storm runoff, and recreation and transport.

The Dal Porto North property, located in PA 1 supports extensive naturally occurring wetlands consisting of a mosaic of plant species characteristic of Valley freshwater marsh and seasonal wetlands (Olberding Environmental 2004b). The Dal Porto North wetland delineation was verified by the U. S. Army Corps of Engineers in March 2005 and approximately 80 acres were verified as falling under their jurisdiction (Olberding Environmental 2005). In addition, the U. S. Army Corps of Engineers verified approximately 2 acres of drainage ditches on the Dal Porto North property of PA 1 as jurisdictional. It is anticipated that the Regional Water Quality Control Board will also exert jurisdiction over these wetlands. Final verification of the remaining approximately 21 acres of potentially federal and state jurisdictional freshwater marsh and seasonal wetlands on the Lesher, Dal Porto South, and Biggs properties in PA 1, PA 3, and PA 4, respectively, is pending. This anticipated jurisdictional wetland area includes portions of Rock Slough and Sandmound Slough located outside of the levee within PA 4. Drainage ditches present in PAs 1, 3, and 4 will likely be considered jurisdictional and total approximately 9 acres. The Federally Jurisdiction Wetlands on the site are shown on Figure 3.5-3, Federally Jurisdictional Wetlands. The map prepared for the EIR reflects the most recent accurate information, accounting for new information received after the USACE verification of the Dal Porto North property. The deviation is on the order of less than an acre.

In total approximately 112 acres of state and federally jurisdictional wetlands are present on PAs 1, 3, and 4 (pending final verification). Valley freshwater marsh and drainage canals potentially falling under the jurisdiction of the U. S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Game are also present on property in PAs 2 and 6.

Because of the lack of natural connectivity of the irrigation ditches present on PAs 1, 3, and 4 to jurisdictional features and given that they were constructed for agricultural purposes, they are not expected to fall under U.S. Army Corps of Engineers, Regional Water Quality Control Board, or California Department of Fish and Game jurisdiction.

SPECIAL-STATUS PLANTS

Special-status plant species include those listed as Endangered, Threatened, Rare or those species proposed for or meeting the criteria for listing by the U. S. Fish and Wildlife Service (1996a, 1997, 2001, 2004c, 2004d), and the California Department of Fish and Game (2004b,d). California Native Plant Society List 1B and List 2 species may also be eligible for state listing as endangered or threatened under the California Fish and Game Code. California Native Plant Society List 3 and List 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and the California Native Plant Society and California

Department of Fish and Game recommend that these species be evaluated for consideration during the preparation of CEQA documents.

Based on a literature review and a familiarity with the flora within the boundary of the project, a total of 43 special-status plant species were considered to have at least some potential to occur within the region or have been recorded historically in the vicinity of the project site. Of these, 14 can be ruled out due to an absence of suitable habitat such as coastal saltmarsh, coastal scrub, cismontane woodland, broadleaf upland forest, chaparral, and serpentinitic soils. Certain additional species would have been detectable during summer 2004 and early spring 2005 botanical surveys of PAs 1, 3, and 4.

The remaining 27 species are considered to have at least some potential to occur within PAs 1, 3, and 4 based on the presence of suitable habitat such as Sand mounds, interior dune community, freshwater marsh, Great Valley riparian forest and willow scrub, mesic grassland, and alkali meadow. Some of the species which have potential to occur on PAs 1, 3, and 4 include Delta button-celery (*Eryngium racemosum*), state-listed Endangered, crownscale (*Atriplex coronata* var. *coronata*), CNPS List 4, showy madia (*Madia radiata*), CNPS List 1B, large-flowered fiddleneck (*Amsinckia grandiflora*), federally- and state-listed Endangered, and San Joaquin spearscale (*Atriplex joaquiniana*), CNPS List 1B, among others. A full list of special-status plant species considered to have at least some potential to occur within the boundary of the project is presented in the biological survey in Appendix H.

Focused seasonal botanical surveys have been completed on PA 1, PA 3, and PA 4. Focused seasonal botanical surveys were not conducted for PA 2 or PA 6 as part of the studies for this EIR. Surveys were conducted during the blooming period for each target species in accordance with California Department of Fish and Game's (CDFG) *Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities* (2000) and the U.S. Fish and Wildlife Service's (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* to ensure that all potentially occurring special-status plant species were identifiable in the field. Late summer and spring surveys were conducted in September, October, and November 2004 (Sycamore 2005a and Olberding Environmental, Inc. 2004a) and March, April, May, and June 2005 for PA 1, PA 3, and PA 4 (Sycamore 2005a and Olberding Environmental, Inc. 2005b). A single special-status plant species, Suisun Marsh aster (*Aster lentus*), California Native Plant Society List 1B, was detected along Rock Slough during a survey of the Biggs property (PA 4) (Sycamore 2005a). In addition, a small population of crownscale (*Atriplex coronata* var. *coronata*), CNPS List 4, was found within alkali meadow habitat on the Dal Porto South property (PA 3) (Sycamore 2005a). No special-status plant species were found on PA 1 during seasonal focused surveys (Sycamore 2005a and Olberding Environmental, Inc. 2005b).

SPECIAL-STATUS WILDLIFE

Special-status animal species include those listed by the U. S. Fish and Wildlife Service under the federal Endangered Species Act (1996a, 1997, 2001) and by the California Department of Fish and Game under the California Endangered Species Act (2004a,c). The U.S. Fish and Wildlife Service officially lists species as either Threatened, Endangered, or as Candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act (*e.g.*, bald eagle, golden eagle), and the Migratory Bird Treaty Act (MBTA), and may be treated as endangered, rare, or threatened

for purposes of this environmental review if they meet the criteria set forth under CEQA §15380(d). All birds, except European starlings, English house sparrows, and rock doves (pigeons), are protected under the Migratory Bird Treaty Act. The Sacramento branch of the U.S. Fish and Wildlife Service independently maintains their *Animal Species of Concern* (USFWS 2004a) list of Federal Species of Concern and Federal Species of Local Concern. In addition, many other species are considered by the California Department of Fish and Game to be California Species of Special Concern; these are listed in Remsen (1978), Williams (1986), and CDFG (2004a). Although such species are afforded no official legal status, they may receive special consideration during the CEQA review process. The California Department of Fish and Game further classifies some species under the following categories: "Fully Protected", "Protected birds" (CDFG Code §3511), "Protected mammals" (CDFG Code §4700), "Protected amphibian" (CDFG Code §5050 and Chapter 5, §41), "Protected reptile" (CDFG Code §5050 and Chapter 5, §42), and "Protected fish" (CDFG Code §5515). The designation "Protected" indicates that a species may not be taken or possessed except under special permit from California Department of Fish and Game; "Fully Protected" indicates that a species can be taken for scientific purposes by permit only (CDFG 2004d). The Fish and Game Code §§3503, 3505, and 3800 prohibits the take, destruction or possession of any bird, nest or egg of any bird except English house sparrows and European starlings unless express authorization is obtained from the California Department of Fish and Game.

Based on a literature review and a familiarity with the fauna within the project region, a total of 69 special-status animal species were considered to have at least some potential to occur within the region or have been recorded historically in the project vicinity. Special-status wildlife species associated with habitats not present within the project site are not discussed. A complete list of wildlife species including their potential to occur on the project site, their legal status and their habitat affinities, reviewed for the assessment is included in the biological report in Appendix H. Based on a coarse evaluation of potential habitat, all of the wildlife species discussed herein and identified as having potential to occur on PAs 1, 3, and 4 could also potentially occur on PA 2 and PA 6. Unless specifically noted, the following discussion pertains to potential habitats present on PAs 1, 3, and 4. Those species that have been detected within the boundary of the project, have some potential to occur, and/or are prominent in today's regulatory environment are discussed herein. The Special-Status species found on the site are shown in Figure 3.5-4, Special-Status Species Occurrences.

Invertebrates

Vernal Pool Crustaceans

Fairy shrimp and tadpole shrimp are aquatic crustaceans associated with vernal pools, grassy swales and other temporarily ponded bodies of water in California. As a taxonomic group, they are collectively referred to as branchiopods. Fairy shrimp and tadpole shrimp represent two different orders, Anostraca and Notostraca respectively, within the crustacean class Branchiopoda. Most branchiopods are small freshwater organisms with limited specialization of their appendages as compared to other crustacean groups.

Vernal pools form in regions with Mediterranean climates, where shallow depressions fill with water during fall and winter rains, and then evaporate in the spring (Holland and Jain 1988). Downward percolation is prevented by the presence of an impervious subsurface layer, such as claypan,

hardpan, or volcanic stratum. Fairy shrimp and tadpole shrimp are ecologically dependent upon these seasonal fluctuations in their environment. After pools become inundated with water, these crustaceans hatch from eggs that have been dormant in the soil from previous wet seasons. The eggs are highly tolerant of heat, cold, and prolonged desiccation. In general, two to three weeks of inundation are required for eggs to hatch and for completion of development, although this time period varies by species. When the pool dries, the eggs survive as cysts among the soil and detritus at the bottom of the pool. Generally, there is one generation per rainy season, but in some locations and in some years, depending on weather patterns and rainfall amounts, conditions may permit two or more generations to complete their development. Egg cysts are dispersed from one pool to another via wind, water, or animals such as birds that may ingest them, or cattle that may pick them up on their feet.

Fairy shrimp are found in vernal pools, seasonal wetlands, and swales of various sizes ranging from small puddles to Boggs Lake (40 ha), 90 miles north of San Francisco. The water chemistry characteristics [pH, turbidity, total dissolved solids (TDS), conductivity, and alkalinity] of these habitats vary widely as well (Eng et al. 1990). Generally, fairy shrimp have a broad tolerance range for physical and chemical attributes.

Potential vernal pool crustacean habitat is present in the extensive freshwater marsh wetland located on the northern portion of PA 1, as well as in alkali meadow and grassland habitats and other small, low-lying depressions within irrigated pastures and non-native annual grasslands that may pond water for some duration due to poor soil drainage. There is a single reported occurrence of the vernal pool fairy shrimp (*Branchinecta lynchi*), federally-listed Threatened, approximately five miles south of the Specific Plan site adjacent to Indian Slough (CDFG 2005). Other occurrences have been reported from the Sand Creek area to the southwest of the site over seven miles away and from the Cowell Ranch State Park area over 6.5 miles to the south. Dr. Dick Arnold conducted an assessment of potential habitat for special-status invertebrate species on the Lesher Property in PA 1 in 1993 (Dains and Arnold 1993) and identified potential habitat for the vernal pool fairy shrimp and California linderiella (*Linderiella occidentalis*), a Federal Species of Concern. Dr. Dick Arnold's recent assessment of PAs 1, 3, and 4 also identifies that potential habitat is present for these species (Entomological Consulting Services, Ltd. 2005). The aquatic features, irrigated pastures, and irrigation ditches on PAs 1, 3, and 4 are less suitable as habitat for the longhorn fairy shrimp (*Branchinecta longientenna*), federally-listed Endangered, as they typically occur in sandstone depression pools in the region. Vernal pool tadpole shrimp (*Lepidurus packardi*), federally-listed Endangered, and Conservancy fairy shrimp (*Branchinecta conservatio*), federally-listed Endangered, are not expected to occur because the project site is outside of the species' known range.

The potential for occurrence of other special-status vernal pool crustacean species was considered low based on a lack of occurrences in the vicinity. Due to the presence of potentially suitable habitat within PAs 1, 3, and 4 for the vernal pool fairy shrimp, midvalley fairy shrimp (*Branchinecta mesovallensis*), a Federal Species of Concern, and California linderiella, focused surveys were conducted according to U.S. Fish and Wildlife Service protocol guidelines (USFWS 1996b) on PAs 1, 3, and 4. Wet season protocol surveys were completed between November 2004 and April 2005 with negative findings. The habitat was further evaluated during the protocol wet season surveys and the fairy shrimp biologist concluded that the potential habitat present is of marginal quality (Condor Country Consulting 2005). Based on the recent negative findings and the lack of suitable habitat on site, listed vernal pool branchiopods are not expected to be present and further surveys

are not necessary. Surveys were not conducted for property in PAs 2 and 6, however the presence of grassland areas, which may be characterized by seasonal wetlands, indicate that potential habitat may be present.

Valley Elderberry Longhorn Beetle

The Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), federally-listed Threatened, inhabits elderberry (*Sambucus* spp.) shrubs and trees in a variety of habitats, but most often occurs in riparian, elderberry savannah or moist oak woodlands in the Sacramento River Valley and northern San Joaquin Valley low hills of central California. Elderberry beetle larvae feed on the soft core of elderberry stems and excavate passages in the wood as they feed. Eggs are laid in May on elderberry stems greater than 1 inch in diameter. Elderberry beetles may remain in larval stage for as long as two years before emerging from the host elderberry plant as adults. Additionally, the adult life-stage is short lived, with the entire life cycle taking approximately one to two years to complete. Exit holes are usually on stems greater than 0.5 inch in diameter, with 70 percent of the exit holes at heights of 4 feet, or greater (Stienhart 1990). Holes are circular to slightly oval, with a diameter of 7 to 10 mm (Barr 1991). In March and early June, adults feed in riparian areas in which they breed on the foliage and possibly the flowers of elderberry trees or shrubs. Threats to elderberry beetles include urbanization, insecticides, herbicides, and fluctuations in stream water levels (Stienhart 1990). Numbers of Valley elderberry longhorn beetle have drastically declined due to the widespread elimination of streamside woodlands that support elderberry, which have been developed or converted to agricultural uses.

No elderberry shrubs are present in PAs 1, 3, or 4. Given the absence of suitable host plants, Valley elderberry longhorn beetle are not expected to occur on PAs 1,3, or 4. Surveys for elderberry shrubs were not conducted on property in PAs 2 and 6; however, there is some potential for elderberry shrubs to be present, particularly in the areas mapped as Great Valley riparian forest/willow scrub.

Antioch Dunes Insects

Several special-status invertebrate species are known from sandy substrate at the Antioch Dunes, situated approximately 7 miles northwest of the project site. These include Antioch dunes anthicid beetle (*Anthicus antiochensis*), a Federal Species of Concern, Molestan blister beetle (*Lytta molesta*), a Federal Species of Concern, San Joaquin dune beetle *(Coelus gracilis*), a Federal Species of Concern, Antioch efferian robberfly (*Efferia antiochi*), a Federal Species of Concern, Middlekauf's shieldback katydid (*Idiostatus middlekauft*), a Federal Species of Concern, Antioch multilid wasp (*Myrmosula pacifica*), a Federal Species of Concern, yellow-banded andrenid bee (*Perdita hirticeps luteocincta*), a Federal Species of Concern, Antioch andrenid bee (*Perdita scituta antiochensis*), a Federal Species of Concern, and Antioch specid wasp (*Philanthus nasalis*), a Federal Species of Concern, Sacramento anthicid beetle (*Anthicus sacramento*), a Federal Species of Concern, and Ciervo Aegialian scarab beetle (*Aegialia concinna*), a Federal Species of Concern.

The Sand mounds and interior dunes located on the site provide potential habitat for these species. Dr. Dick Arnold conducted a habitat assessment of PAs 1, 3, and 4 in winter and early spring 2005 (Entomological Consulting Services, Ltd. 2005). Although potentially suitable habitat is present for these Antioch dunes insect species, most are not expected to occur as past and current land use

practices have converted native plant communities to grazing lands or substantially degraded their habitat value. In addition many of these species were documented at the Antioch Dunes over 25 years ago and there are no recently reported occurrences in the region. In 2002, special-status insect and invertebrate surveys for 21 species, including those species described herein, were conducted on the Cypress Grove property 1.5 miles west of the project site, which is characterized by similar dune habitats (Entomological Consulting Services 2002); however no special-status insect or invertebrate species were observed. Nonetheless, San Joaquin dune beetle, Antioch dunes anthicid beetle, Sacramento anthicid beetle, and Ciervo Aegialian scarab beetle have some potential to occur , and as recommended by Dr. Dick Arnold additional surveys for these dune-dwelling insects are being conducted for PAs 1, 3, and 4 (Entomological Consulting Services, Ltd. 2005). Surveys were not conducted for properties in PA 6, however sandy soils that may support suitable habitat are present. Sandy soils are present on Summer Lake and the Cypress Lakes DEIR (Contra Costa County 1992) states that Antioch dune insects were considered to have a low probability of occurrence on the site within the interior dune community present on the northern portion of the site (PA 2).

The Lange's metalmark butterfly (*Apodemia mormo langei*), federally-listed Endangered, is known only to the Antioch dunes. This butterfly is an obligate associate with the larval host plant naked-stem buckwheat (*Eriogonum nudum* var. *auriculatum*). Although marginally suitable habitat for naked-stem buckwheat is present in sandy soils in PAs 1, 3, and 4, this plant species was not detected during any of the site visits or focused plant surveys. Based on an absence of the larval host plant and the restricted range of the butterfly, the Lange's metalmark butterfly is not expected to occur in PAs 1, 3, and 4. Its potential for occurrence cannot be ruled out for PAs 2 and 6 without field surveys for the larval host plant.

Curved-Foot Hygrotus Diving Beetle

The curved-foot hygrotus diving beetle (*Hygrotus curvipes*), a Federal Species of Concern, typically inhabits seasonal ponds, pools, streams, and drainages. They are usually found in temporary wetlands characterized by salt-tolerant plant species such as saltgrass. However, at present, the curved-foot hygrotus diving beetle is afforded no formal protection under state or federal law.

Potential habitat is present in PAs 1, 3, and 4 in seasonally ponded areas, particularly those areas characterized by alkali soils (Entomological Consulting Services, Ltd. 2005). Additionally, they are known to occur approximately 3.7 miles to the west of the project (CDFG 2005). The curved-foot hygrotus diving beetle is considered to have a low potential to occur in PAs 1, 3, and 4 and suitable habitat may be present in PAs 2 and 6.

Fish

The project site is bordered on the west by the Contra Costa Canal, to the south by Rock Slough, to the north by Dutch Slough, and to the east by Sandmound Slough, all of which provide connectivity to the Big Break area and the Delta. The irrigation and drainage canals throughout much of the site may be accessible to fish from the sloughs through floodgates, pumps, and siphons. Water levels in most of the ditches on the site may be too variable for most fish species, but permanent water is indicated in the larger ditches due to the presence of aquatic vegetation such as cattails (*Typha* spp.) and bullfrogs.

Chinook salmon (*Oncorhynchus tshawytscha*), winter-run, federally- and state-listed Endangered; Central Valley fall/late run, a Federal Candidate species, and spring-run, federally- and state-listed Threatened; and steelhead (*Oncorhynchus mykiss*), Central Valley ESU, federally-listed Threatened, may have historically used Marsh Creek, located approximately 2 miles west of the Specific Plan site, for spawning and rearing (Sycamore, Hanson Environmental, and Balance Hydrologics 2003). However, Marsh Creek is not hydrologically connected to the project site. Chinook and steelhead might stray into Big Break during peak migration periods or to forage, but the likelihood of them occurring in Dutch Slough or connecting sloughs is considered to be low. Even though the Contra Costa Canal, Rock Slough, and Sandmound Slough are hydrologically connected to Big Break via Dutch Slough, Chinook and steelhead do not spawn within the Delta (Sycamore, Hanson Environmental, and Balance Hydrologics 2003). Central Valley fall/late fall-run Chinook salmon have the potential to rear in these adjacent sloughs, therefore they are considered to have a very low potential for occurrence.

As part of the Big Break-lower San Joaquin River complex, Dutch Slough is considered Essential Fish Habitat for Chinook salmon, and has been designated by the U.S. Fish and Wildlife Service as Critical Habitat for delta smelt. Sacramento perch (*Archoplites interruptus*), a Federal Species of Concern and a California Species of Special Concern, delta smelt (*Hypomesus transpacificus*), federally- and state-listed as Threatened, and Sacramento splittail (*Pogonichthys macrolepidotus*), a California Species of Special Concern, have been documented within the waters of Big Break as recently as 1994 (Sycamore, Hanson Environmental, and Balance Hydrologics 2003). Although the U.S. Fish and Wildlife Service has indicated that Sacramento perch are not present in the sloughs of the Delta (Sycamore, Hanson Environmental, and Balance Hydrologics 2003), both Sacramento splittail and delta smelt have a low potential to be present within the sloughs adjacent to the project site.

Amphibians

California Red-Legged Frog

Optimal habitat for the California red-legged frog (*Rana aurora draytonii*), a federally-listed Threatened and a California Species of Special Concern, includes ponds, stream courses, permanent pools (Storer 1925), and intermittent streams fed by drainage areas no larger than 300 km^2 (Hayes and Jennings 1988) between sea level and 1,500 meters (5,000 feet) in elevation (Bulger *et al.* 2003). Habitat characteristics include water depth of at least 0.7 meters (2.5 feet), largely intact emergent or shoreline vegetation, *e.g.* cattails (*Typha* spp.), tules (*Scirpus* spp.) or willows (*Salix* spp.), and absence of competitors/predators such as bullfrogs and largemouth bass (*Micropterus salmoides*) (Hayes and Jennings 1988). However, according to Jennings (Pers. Comm. 2003), California red-legged frogs will use a wide variety of habitats, including temporary pools and streams, permanent watercourses, wells, and ponds. Outside of an ideal habitat, California red-legged frogs have been found in concrete-lined pools, isolated wells, stock ponds absent of shoreline vegetation, and refuse piles near ponds. In order to survive, permanent ponds and neighboring aquatic habitat that lasts for at least 6 months a year must be nearby. Less optimal habitat is most likely used during wet periods, but a permanent water source is essential to the survival of the population.

Adults are highly aquatic and are most active at night (Storer 1925). However, California red-legged frogs do make use of terrestrial habitat, especially after precipitation events, for non-migratory forays into upland habitats and migratory overland movements between aquatic sites. California red-legged

frogs have been documented to migrate between aquatic sites at distances up to 3,200 meters (approximately 2 miles) (Bulger *et al.* 2003).

Within PAs 1, 3, and 4, potentially suitable breeding habitat is present within the irrigation and drainage ditches that traverse the length and width of the properties. Portions of the ditches periodically have a combination of habitat characteristics described above including sufficient water depth, and a combination of open pools and interrupted stands of wetland vegetation, including tule (*Scirpus* spp.) and other hydrophytic species. Potential upland retreat habitat including levees, Sand mounds, and irrigated pastures, is also present.

The closest reported occurrence of California red-legged frog was reported south of Byron in 1982 approximately 8 miles south of the project. Most of the other occurrences within ten miles occur in the Sand Creek area approximately 8 miles to the west and within the upper Marsh Creek watershed approximately 8 miles southwest of the project (CDFG 2005). Connectivity to both of these populations could occur through Marsh Creek located approximately 2 miles west of the project site and the adjacent Contra Costa Canal; however the habitat quality of Marsh Creek downstream of these populations has been degraded through channelization in the City of Brentwood and northward by urban development. Due to the lack of reported occurrences in the immediate vicinity, lack of connectivity to known populations, and due to the presence of a breeding population of bullfrogs within the canals in PAs 1, 3, and 4, which are hydrologically connected to canals in PAs 2 and 6, the California red-legged frog is not expected to occur within the boundary of the project.

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) is a California Species of Special Concern and was recently listed throughout its range as Threatened under the Federal Endangered Species Act (Effective September 3, 2004; USFWS 2004b). The California tiger salamander requires seasonal pools or ponds, both natural or man-made, for breeding and adjacent grasslands and oak savanna habitats containing small mammal burrows or other suitable refugia for aestivation. Beechey ground squirrel burrows typically provide the most utilized burrow habitat for this species.

Ground squirrel burrows were observed over most of PAs 1, 3, and 4, including drier portions of irrigated fields, levees, berms, roadsides, and Sand mounds. In addition, low-lying depressions throughout the irrigated pastures may hold water long enough to ensure metamorphosis of larval salamanders, although the presence of predatory bullfrogs could preclude successful breeding. Numerous occurrences of California tiger salamander have been reported within ten miles of the project site in the Sand Creek and Cowell Ranch State Park areas to the south and southwest (CDFG 2005). However they are separated from the site by extensive urbanization and habitat modification. Therefore, California tiger salamanders are not expected to occur within the boundary of the project due to lack of connectivity with known populations, the distance from the closest occurrences (approximately 8.0 miles south/southwest), and the history of agricultural disturbance on the site.

Reptiles

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*), federally-listed Threatened and state-listed Threatened, historically occurred throughout the Central Valley of California, from Kern County in the south to Butte County in the north, within the boundaries of the Coastal and Sierra Nevada ranges (Hansen and Brode 1980). The current range of the giant garter snake is confined to the Sacramento Valley and isolated parts of the San Joaquin Valley (Stebbins 2003, USFWS 1999b), with scattered sightings in the Sacramento-San Joaquin Delta. Currently the highest densities of giant garter snake are found in the Sacramento Valley within the American Basin, where the species persists largely in seasonally flooded agricultural fields, primarily rice, and irrigation ditches (CDFG 2000). Loss of habitat has occurred throughout the range as a result of urban expansion (USFWS 1993, Dickert 2003), agricultural practices such as intensive vegetation control along canal banks that potentially fragment available habitat and changes in crop composition, and livestock grazing at waters edge, which can degrade the habitat available to giant garter snakes.

The giant garter snake is highly aquatic and primarily feeds on fish, tadpoles, and frogs (Fitch 1941). Historically these prey items included thick-tailed chub (*Gila crassicuada*) and the Sacramento blackfish (*Orthodox microlepidus*), both of which have been extirpated from the giant garter snake's current range (Dickert 2003). The habitat requirements of the giant garter snake include wetland areas such as sloughs, streams and other waterways, ponds or small lakes, marshes, and agricultural wetlands, with sufficient emergent vegetation for cover, openings in vegetation for basking, relatively low water flow, and access to high ground with abandoned rodent burrows for shelter and winter periods of reduced activity (USFWS 1993). The giant garter snake has been found to use altered habitats such as irrigation ditches and rice fields (CDFG 2000) in addition to more natural waterways. Furthermore, it has been noted that giant garter snakes tend to be absent from larger rivers that support populations of invasive or introduced predatory fish as well as wetlands that have sand, gravel, or rocky substrates (Hansen 1980).

Giant garter snakes are less active (Wylie et al 1997), or dormant from October until April when they emerge to breed and forage. They are viviparous, giving birth to as many as 10 to 46 young from late July through early September (Hansen and Hansen 1990). The giant garter snake is the largest member of its genus, reaching lengths of 120 cm (Stebbins 2003), and become sexually mature in 3 (males) to 5 (females) years (USFWS 1993). Giant garter snakes are vulnerable to predation from both native (raccoons, skunks, opossums, foxes, hawks, egrets and herons) and invasive (bullfrogs, catfish, large mouth bass, and feral cats) species (USFWS 1993, Carpenter et al 2002). Additionally they face threats from parasites and contaminants. Giant garter snakes are found sympatrically with the western terrestrial garter snake (*Thamnophis elegans*) and the common garter snake (*Thamnophis sirtalis*).

The giant garter snake is known to occur within the marshes and sloughs associated with the Sacramento and San Joaquin Rivers as recently as August 1998. Based on the most recent data available (CDFG 2005), the closest giant garter snake occurrence was reported in 2002 approximately three miles north of the project along Webb Tract Island. Two additional occurrences have been reported approximately five miles northwest of the project at the north end

of the Antioch Bridge prior to 1986, and approximately six miles northwest of the project, south of the Brannan Island State Recreation Area in 1998. These recent occurrences in the region suggest that populations of giant garter snake may persist.

Unidentified minnows (Cyprinidae) and bullfrog tadpoles are present in the irrigation and drainage ditches in PAs 1, 3, and 4 and may provide an adequate prey base for giant garter snake. Giant garter snakes are known to inhabit irrigation ditches in agricultural areas such as those found on the site (CDFG 2000) which are characterized by a combination of open pools and interrupted stands of wetland vegetation, including tule (*Scirpus* spp.) and other hydrophytic species. The presence of potential aquatic habitat and suitable upland escape and widespread refugia habitat in the form Beechey (California) ground squirrel burrows; indicates that PAs 1, 3, and 4 could potentially be used by giant garter snakes. Irrigated pastures that may also provide movement opportunities for giant garter snakes when fields are flooded, characterize much of the project site. Additionally, there is hydrological connectivity to the documented occurrences in the canals and sloughs of the Delta, although the project site is situated at the western edge of the currently documented range (CDFG 2005).

Karen Swaim, of Swaim Biological Consulting, conducted field trapping and visual surveys during 2003 for the Cypress Grove project that is located approximately 1.5 miles west of the East Cypress Corridor Specific Plan project. Aquatic trapping surveys extended along the portion of the Contra Costa Canal between Marsh Creek and Sellers Avenue. Aquatic traps were also deployed along Marsh Creek near the confluence of Big Break. Visual surveys included the portion of Dutch Slough adjacent to the northern boundary of the project site (Swaim Biological Consulting 2004a). These surveys found no evidence of giant garter snake presence within the Contra Costa Canal or the Cypress Grove site. However, due to recent occurrences in the region, the adjacency of Dutch Slough, Rock Slough, Sandmound Slough, and the Contra Costa Canal, and the presence of suitable habitat in the form of irrigation and drainage ditches characterized by potential prey items and emergent vegetation, the giant garter snake is considered to have a low potential to occur in PAs 1, 3, and 4.

Karen Swaim completed a habitat assessment for PAs 1, 3, and 4 in March 2005 and identified potential aquatic habitat on all four properties. The assessment identified the main irrigation canal on the west side of the Lesher property, Sand Mound Slough, and portions of the Reclamation District 799 drainage canal as the areas with the greatest potential to support giant garter snake, if present (Swaim Biological Consulting 2005). Trapping and visual surveys are in progress on PAs 1, 3, and 4, coinciding with the mating season, which is when giant garter snakes are most active. The presence of freshwater marsh and irrigation/drainage canals in PAs 2 and 6 indicates that potential giant garter snake habitat may be present.

Western Pond Turtle

The western pond turtle (*Clemmys marmorata*), a California Species of Special Concern, originally inhabited many of the pacific drainage basins in California (Stebbins 2003). This medium sized turtle ranges in size to just over 8 inches (21cm) with a low carapace that is generally olive, brownish or blackish (Stebbins 2003, Jennings and Hayes 1994). Primary habitats include permanent water sources such as ponds, streams and rivers. It is often seen basking on logs, mud banks or mats of vegetation, although wild populations are wary and individuals will often flee after detecting

movement from a considerable distance. Although it is an aquatic species with webbed feet, it can over-winter on land or in water or remain active during the winter, depending upon environmental conditions (Rathbun *et al.* 1993, Jennings and Hayes 1994). Females travel from aquatic sites into open, grassy areas to lay eggs in a shallow nest 2-400 meters (7-1300 feet) or more away from water bodies (Holland 1992, Rathbun *et al.* 1992, Jennings and Hayes 1994). It appears that most hatchlings overwinter in the nest (Holland 1992, Jennings and Hayes 1994), and placing nests away from watercourses makes young less susceptible to death by flood events that commonly occur during the winter (Rathbun *et al.* 1992). Additional explanations for placing nests away from watercourses include avoidance of predators such as raccoon, and sex determination, which may be affected by temperature (Rathbun *et al.* 1992).

Western pond turtles may live for 40 years or more (Jennings and Hayes 1994), and are therefore sometimes found in degraded areas. Adults appear to be able to persist for several years in poor aquatic habitat without any successful recruitment, presumably due to introduced predators or unsuitable conditions for egg deposition.

During recent site surveys, western pond turtles have been observed in Sandmound Slough and within the RD 799 drainage canal in close proximity to RD 799 pump station numbers 2 and 3. In all cases, several turtles were seen basking in the open channels atop emergent logs and along muddy banks. Additionally, an individual western pond turtle was observed in 2000 basking on a log in Rock Slough, located immediately west of the confluence of Rock Slough and Sandmound Slough (CDFG 2005). Much of the project site along the canals, sloughs, and irrigated pastures provides potential nesting habitat for adults and overwintering habitat for hatchlings, despite historical agricultural practices. The CNDDB (CDFG 2005) further identifies several occurrences of western pond turtle in the sloughs less than five miles east of the project site, and several more occurrences north of Dutch Slough and Big Break on Jersey Island, one mile north of the Specific Plan site. Sycamore has also observed western pond turtles along Marsh Creek as recently as 2004, and has confirmed a western pond turtle nest within sand mound habitat adjacent to the Contra Costa Canal approximately 1.5 miles west of the project. Based on the availability of suitable nesting and overwintering, habitat on and adjacent to the project site, the close proximity of recently reported occurrences, and the hydrologic connectivity between Dutch Slough, Rock Slough, Sandmound Slough, the Contra Costa Canal, and the irrigation and drainage canals throughout the site, western pond turtles have a high potential to occur in PAs 1, 3, and 4 and also have potential to occur in PA 6.

Monk and Associates conducted a biological assessment for the Cypress Lakes property (PA 2), which identifies that potential habitat for western pond turtle is present (Monk and Associates 2003a). Western pond turtles were observed in the main canal on PA 2 during field surveys conducted as part of the biological resources analysis for the Cypress Lakes DEIR (Public Affairs Management and Contra Costa County 1992).

Silvery Legless Lizard

The silvery legless lizard (*Anniella pulchra pulchra*), a California Species of Special Concern and a Federal Species of Concern, is a limbless lizard approximately 4 to 7 inches long with a seemingly polished skin typically silvery gray or beige in color and a yellow belly. It is differentiated from snakes by its smaller size and the presence of eyelids and ears. The silvery legless lizard ranges from

San Francisco to Baja, Mexico along coastal mountains and foothills (Stebbins 2003). The Central Coast dunes, interior dunes and coastal scrub provide favorable habitat, which are typically characterized by shrubby vegetation and loose soils. This species is also associated with streamside growths of sycamores, cottonwoods and oaks with plenty of ground litter. The species uses burrows it creates in loose soil near the base of slopes and near temporary or permanent streams. A diurnal species (active during the day), the silvery legless lizard forages in leaf litter under the overhang of trees and bushes on sunny slopes and under rocks and logs (Jennings and Hayes 1994). Bush lupine *(Lupinus arboreus)* and mock heather *(Ericameria ericoides)* often grow in areas that are suitable for this lizard. A highly fragmented distribution and widespread threats, mainly habitat conversion, have made them vulnerable to localized extirpations.

Potentially suitable silvery legless lizard habitat exists in PAs 1, 3, and 4 within the Sand mounds and interior dunes. Interior dunes located on the Dal Porto North property in PA 1 and on the Dal Porto South Property in PA 3 provide highly suitable habitat for silvery legless lizards given the presence of shrubs and trees that generate leaf litter. Sand mounds found on the remainder of the property in PAs 1, 3, and 4 are considered marginal habitat due to the lack of vegetative cover. A population of silvery legless lizards is known to occur within 4 miles of the project site, north of the City of Oakley in the East Bay Regional Park Legless Lizard Preserve as recently as May 2000 (CDFG 2004a). In addition, Sycamore biologists observed several individuals on two interior dunes, one on the Cypress Grove project site and one just off-site approximately 1.5 miles west of the project in 2004 and 2005 (Sycamore 2004e, 2005e). Based on the recent occurrences within the vicinity and the presence of suitable habitat, the silvery legless lizard is considered to have a moderate potential to occur in PAs 1, 3, and 4.

Focused surveys for this species were completed on the Lesher property in PA 1, PA 3, and PA 4 between October 2004 and April 2005 (Sycamore 2005e). Dr. Mark Jennings conducted surveys for silvery legless lizards in October and November 2004 on the Dal Porto North property within PA 1 (Olberding Environmental, Inc. 2004c). The surveys resulted in negative findings; however, silvery legless lizards can burrow up to 1.5 feet into sandy soils and can be difficult to detect. Surveys were not conducted for PAs 2 and 6, however sandy soils that may support suitable habitat are present. Sandy soils are present on PA 2and the Cypress Lakes DEIR (Public Affairs Management and Contra Costa County 1992) states that the interior dune habitat present on the northern portion of Summer Lake (PA 2) may provide habitat for the silvery legless lizard.

California Horned Lizard

The California horned lizard (*Phrynosoma coronatum frontale*), a California Species of Special Concern and a Federal Species of Concern, occupies a variety of open habitats including coastal scrub, oak savanna and grasslands (Stebbins 2003). Historically, the species ranged throughout the Central Valley and Coast Range from Sonoma County south to Santa Barbara, Kern and Los Angeles Counties where it likely intergrades with the San Diego horned lizard (*P. c. blainvillei*). Despite a wide-ranging distribution, the species appears to be restricted to localized populations because of its close association with loose soils that have a high sand content (Jennings and Hayes 1994). However, local abundance and geographic distribution are poorly understood for this region. Horned lizards require open areas to forage and feed primarily on native harvester ants (*Pogonomyrmex barbatus*) species. The spread of introduced Argentine ants (*Linepithema humile*), which are toxic to horned lizards and eliminate native ants, has probably contributed significantly to

localized extirpations in urban and semi-rural areas. The species cannot exist in areas that have been converted to agriculture, so its current distribution throughout the Central Valley is highly restricted.

Marginally suitable habitat exists within the Sand mounds and interior dunes in PAs 1, 3, and 4. Although the surrounding fields have been subject to intensive disturbance by agricultural activities, the interior dunes appear relatively undisturbed. The project site is isolated from other similar dune-type habitats due to the surrounding historical land use. According to Jennings and Hayes (1994), and based on museum records, this species is considered extirpated in this area. Therefore, the California horned lizard is not expected to occur within the boundary of the project.

Birds

Raptors

Most raptors such as kites and hawks nest in large trees and use twigs or branches as nesting material. Smaller raptors such as American kestrel and screech owls nest in cavities in anthropogenic structures and trees. Short-eared owls and northern harriers nest on the ground in grasslands, agricultural fields, and marshes with moderate ground cover. Northern harriers, short-eared owls, and ferruginous hawks (winter resident only) typically forage over open terrain in plains and foothills. Burrowing owls typically use small mammal burrows in open dry lands for shelter and nesting, but have been known to utilize any ground cavity of similar size as well as anthropogenic structures. The nesting period for raptors generally occurs between December 15 and August 31.

Suitable nesting and foraging habitat is present on site for many raptor species, especially those that can withstand high levels of disturbance such as red-tailed hawks, American kestrels, and burrowing owls. Cultivated lands can provide a rich source of food and cover for a wide range of small mammal species, which in turn can be utilized as a prey base by raptors. Several mature trees occur along the roads and around the homesites, and provide highly suitable nesting habitat for raptors. Furthermore, ground squirrel burrows were observed over most of PAs 1, 3, and 4, including drier portions of irrigated fields, levees, berms, roadsides, and Sand mounds.

Special-status raptors with the potential to nest, winter, or forage on PAs 1, 3, and 4 and possibly PAs 2 and 6 include the golden eagle (*Aquila chrysaetos*), a California Fully Protected Species, sharp-shinned hawk (*Accipiter striatus*), a California Species of Special Concern, Cooper's hawk (*Accipiter cooperii*), a California Species of Special Concern, white-tailed kite (*Elanus leucerus*), a California Fully Protected Species and a Federal Species of Concern, Swainson's hawk (*Buteo swainsoni*), state-listed Threatened, northern harrier (*Circus cyaneus*), a California Species of Special Concern, short-eared owl (*Asio flammeus*), a California Species of Special Concern, ferruginous hawk (*Buteo regalis*), a Federal Species of Concern and a California Species of Special Concern, merlin (*Falco columbarius*), a California Species of Special Concern, and western burrowing owl (*Athene cunicularia hypugea*), a California Species of Special Concern. Other raptors potentially nesting within the boundary of the project include red-tailed hawk, red-shouldered hawk, American kestrel, great horned owl, barn owl, and western screech owl. Several of these species have been observed foraging on site. All raptors are protected under the Federal Migratory Bird Treaty Act and California Fish and Game Code 3503 and 3503.5, which prohibits the taking or destroying of nest or eggs of any bird, except European starlings, English house sparrows, and rock doves (pigeons), and prohibits the taking or destroying of any bird or nest in the order of Falconiformes (falcons, kites, and hawks) and Strigiformes (owls).

September and October 2004 (Olberding Environmental, Inc. 2004d). The majority of the Dal Porto North property supports suitable burrowing owl burrow and/or foraging habitat and one burrowing owl was observed on site during the habitat assessment (Olberding Environmental, Inc. 2004d). An additional survey for burrowing owls was conducted in March and May on the Dal Porto North property within PA 1 (Olberding Environmental, Inc. 2005a). No additional observations of burrowing owl were made during these two surveys (Olberding Environmental, Inc. 2005a). Based on the presence of potentially suitable grassland habitat and burrowing owls within the region (CDFG 2004a, Sycamore personal observation) there is a high potential for burrowing owls to occupy property in PAs 2 and 6. Monk and Associates conducted a biological assessment for the Cypress Lakes property, which identified that potential habitat for burrowing owl is present on PA 2 (Monk and Associates 2003a). Burrowing owls were observed on the Summer Lake property during field surveys conducted as part of the biological resources analysis for the Cypress Lakes DEIR (Public Affairs Management and Contra Costa County 1992).

Swainson's Hawk

The Swainson's hawk, state-listed Threatened, occurs in open habitats throughout much of the western United States, Canada, and northern Mexico. Swainson's hawks breed in North America and winter in the open grassland areas of southern South America (pampas) as well as parts of Mexico. In the Central Valley, Swainson's hawk arrive at nesting areas in late February and early March, 4-6 weeks earlier than they arrive at nesting sites in northeastern California. They begin to depart for wintering areas in early September. In California, they breed in desert, shrub steppe, agricultural, and grassland habitats. Swainson's hawk construct their nests in a variety of tree species in existing riparian forests, remnant riparian trees, shade trees at residences and alongside roads, planted windbreaks, and solitary upland oaks. However, they typically do not nest in large continuous patches of woodland other than along edges next to open habitats (England *et al.* 1997).

The diet of Swainson's hawk varies considerably during breeding and non-breeding seasons. They depend largely on small mammals during the breeding season and shift to feeding on insects during the non-breeding season, particularly crickets and grasshoppers. During the breeding season, Swainson's hawk will travel long distances (up to 18 miles) in search of suitable foraging habitat that provides abundant prey (Estep 1989). The vegetation types/agricultural crops considered suitable foraging habitat for Swainson's hawk due to the availability of small mammals and insects include alfalfa, fallow fields, beet, tomato, and other low-growing row or field crops, dry land and irrigated pasture, rice land (when not flooded), and cereal grain crops (including corn after harvest) (CDFG 1994).

Suitable nesting habitat for Swainson's hawk is present within the large trees along roads, levees, irrigation canals, within Great Valley riparian habitat concentrated along the northern portion of the project site, and around the homesites scattered throughout the site. Irrigated pastures and non-native annual grassland/ruderal habitats within the site provide suitable foraging habitat for Swainson's hawks. Sycamore biologists have observed Swainson's hawks in the vicinity of the site on multiple occasions and six active Swainson's hawk nests have been identified within ten miles of the site within the last five years (CDFG 2005). A Swainson's hawk nest confirmed to be active as recently as 2004 is located in a eucalyptus tree just east of Machado Lane and south of Cypress Road, approximately one mile west of the project site (CDFG 2005). Swainson's hawks have been observed foraging within the project site and have a moderate potential to nest in PAs 1, 3, and 4. There is

potential for Swainson's hawks to nest and forage in PAs 2 and 6. Monk and Associates identify potential nest trees on Summer Lake (PA 2) (Monk and Associates 2004b).

An evaluation of the availability of potential foraging habitat for Swainson's hawks nesting in the regional vicinity of the project has been completed to evaluate potential project impacts to Swainson's hawks (Sycamore 2005f). The analysis found that with development of the East Cypress Corridor Specific Plan and conversion of agricultural lands to urban use (assuming conversion rates remain the same as calculated between 1993 and 2002), between 60,679 and 115,576 acres of foraging habitat will remain over the next 20 years for the nesting pairs known to occur within ten miles of the site (Sycamore 2005f).

White-Tailed Kite

The white-tailed kite, a California Fully Protected species, is a medium-sized raptor that is distributed across much of the western part of California. The white-tailed kite occupies low-elevation grassland, agricultural, wetland, oak woodland and savanna habitats and nests in a wide variety of trees and shrubs, either isolated or in larger stands. Nearby open areas are required for foraging, including certain types of agricultural fields. Food habit studies have demonstrated that voles make up a large proportion of its diet, although other small mammals, birds and insects are also preyed upon (Alsop 2001). The species hunts during the day primarily by hovering and searching for prey. White-tailed kites in California are generally resident, although they may occupy different areas during the non-breeding and breeding seasons. Typically, four eggs are laid in February and March and chicks hatch after 30-32 days. Juveniles are dependent on parents for two to three months before they fledge. During the non-breeding season, the species roosts communally.

White-tailed kites have been observed overhead during the site reconnaissance visits, and suitable breeding and foraging habitat for white-tailed kite is present within the boundary of the project. In 2004, a pair of white-tailed kites was observed nesting and successfully fledged two young within 1.5 miles northwest of the site along Cypress Road. Due to the suitability of the habitat and the study area's close proximity to a breeding pair, white-tailed kites are considered to have a moderate potential to nest and a high potential to forage within the boundary of the project.

Short-Eared Owl

The short-eared owl, a California Species of Special Concern, is a large owl that inhabits coastal areas of California. It is a winter resident of the Central Valley of California. The species occupies open habitats including annual and perennial grasslands, meadows, irrigated lands, and saline and fresh emergent marshes. Short-eared owls feed primarily on voles and other small mammals, as well as small birds, amphibians and arthropods. Nests are built on the ground in a shallow depression among dense vegetation. Fledging takes place at 31-36 days (Sibley 2000).

Irrigated pastures such as those found in PAs 1, 3, and 4 provide suitable foraging habitat for short-eared owls and marginally suitable nesting habitat. Raptor species such as northern harriers and short-eared owls are well suited to foraging in tall grasses and often nest in agricultural fields cultivated in grain crops that grow tall in height. Vegetation is generally of low stature due to cattle grazing, making it less suitable for short-eared owl nest sites. However, tall emergent freshwater

marsh vegetation such as cattails and tules occurs adjacent to sloughs and canals. There are no recorded observations in the vicinity; therefore, short-eared owls have a low potential to occur on PAs 1, 3, and 4 and may also occur on the portions of PAs 2 and 6 that are mapped as grassland habitat.

Northern Harrier

The northern harrier, a California Species of Special Concern, inhabits grasslands, agricultural fields, scrub habitats, and marshes. Breeding typically occurs in tall vegetation near marshes and in grasslands and agricultural fields from March to July. It feeds primarily on voles and other small mammals, birds, frogs and insects (Sibley 2000). Northern harriers have been observed over PA 3during the site visits, and are known to occur in the vicinity of the project site. Suitable foraging and marginally suitable nesting habitat is present within the project. Although available data searches did not reveal any northern harrier nest sites, Sycamore biologists have observed northern harriers in the vicinity on multiple occasions. Although northern harriers typically prefer to nest in tall grassy vegetation, given the presence of tall emergent freshwater marsh vegetation and their observed presence on PA, 3 they are considered to have a moderate potential to nest and forage and may also nest and forage on the portions of PAs 2 and 6 that are mapped as grassland habitat.

Passerines and Nonpasserine Landbirds

Passerines (perching birds) are a taxonomic grouping that consists of several families including swallows (*Hirundinidae*), larks (*Alaudidae*), crows, ravens and jays (*Corvidae*), shrikes (*Laniidae*), vireos (*Vireonidae*), finches (*Fringillidae*) and Emberizids (*Emberizidae*, warblers, sparrows, blackbirds, *etc.*), among others. Non-passerine land birds are a non-taxonomic based grouping typically used by ornithologists to categorize a loose assemblage of birds. Families grouped into this category include kingfishers (*Alcedinidae*), woodpeckers (*Picidae*), swifts (*Apodidae*), hummingbirds (*Trochilidae*) and pigeons and doves (*Columbidae*), among others. Habitat, nesting and foraging requirements for these species are wide ranging, therefore outlining generic habitat requirements for this grouping is difficult. These species typically use most habitat types and are known to nest on the ground, in shrubs and trees, on buildings, under bridges, and within cavities, crevices and manmade structures. Many of these species migrate long distances and all species except starlings, English house sparrows, and rock doves (pigeons), are protected under the Federal Migratory Bird Treaty Act. The nesting period for passerines and non-passerine land birds occurs between February 1 and August 31.

The ruderal habitat, irrigated pasture, and Sand mounds provide suitable nesting habitat for many ground-nesting passerine and nonpasserine landbird species. Additionally, trees and shrubs along the roadways and around homesites provide suitable nesting habitat for many other passerine and nonpasserine landbird species. Special-status passerine species have the potential to occur in PAs 1, 3, and 4, including California horned lark and loggerhead shrike. California horned lark and loggerhead shrike are discussed in more detail below.

Suitable nesting and foraging habitat is present in PAs 1, 3, and 4 and is likely present in Pas 2 and 6 for special-status passerines found in open habitats such as California horned lark (*Eremophila alpestris actia*) and loggerhead shrike (*Lanius ludovicianus*). Both species are California Species of Special Concern and are considered to have a high potential to nest and forage in PAs 1, 3, and 4. The

California horned lark breeds in open grasslands throughout the Central Valley and adjacent foothills and along the central and southern California coast region. Feeding on insects and seeds, this bird is a ground nesting species that prefers shorter, less dense grasses and areas with some bare ground. The California horned lark forms flocks in the summer and winter months that are often observed foraging and roosting in cultivated fields and along dirt roads. The loggerhead shrike is a wide-ranging species that occupies open habitats including grassland, scrub and open woodland communities. The species typically nests in densely vegetated, isolated trees and shrubs and occasionally man-made structures and at the margins of open grasslands. Loggerhead shrikes feed on a variety of small prey including arthropods, mammals, amphibians, reptiles and birds (Alsop 2002). Because it lacks talons, the loggerhead shrike often impales prey on thorns or barbed wire. In California, the species does not migrate and is resident year-round. Loggerhead shrikes are highly territorial, with pairs maintaining territories during the breeding season and individuals maintaining territories during the winter (Alsop 2002). Loggerhead shrikes have been observed on PAs 1, 3, and 4 by Sycamore biologists.

Suitable breeding and foraging habitat exist within PAs 1, 3, and 4 for the salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), a Federal Species of Concern and a California Species of Special Concern. In April 2004, Sycamore biologists observed a pair of salt marsh common yellowthroats on the Lesher property in PA 1. The salt marsh common yellowthroat is considered to have a high potential to nest within Great Valley riparian forest/willow scrub in PAs 1, 3, and 4 and also has the potential to nest within this type of habitat in PAs 2 and 6.

California Black Rail

The California black rail (*Laterallus jamaicensis coturniculus*), state-listed Threatened, occurs in damp areas with dense grass, including low elevation tidal salt marsh heavily vegetated with pickleweed, and freshwater and brackish marshes. Typical nesting habitat is characterized by relatively constant water levels at a depth of less than 3 cm, and dense vegetative cover.

Suitable nesting and foraging habitat is present within the project along the sloughs. The nearest sighting was reported approximately three miles east of the project site along the "old river" in 1992. Two additional sightings were reported in 1992 approximately five miles east and 5.5 miles southeast of the project, adjacent to Bacon Island. Given the lack of documented occurrences in the immediate vicinity, California black rail is considered to have a low potential to occur within the site.

Long-Billed Curlew

The long-billed curlew (*Numenous americanus*), a California Species of Special Concern, is a California winter resident that inhabits coastal areas of California and farmlands in the Central Valley. Nesting occurs in the Great Plains where nests are found on the ground in dry areas near rivers and in farmlands. Breeding is monogamous, and can be either colonial or semicolonial with males defending large territories prior to nesting during a courtship period (Allsop III 2001). Long-billed curlews forage for invertebrates on mudflats where they use their long decurved bill to probe into sand and mud sediments to find prey that consists of mollusks, aquatic insects, small amphibians, and crustaceans (Sibley 2001). Recent declines are thought to be primarily due to habitat loss and overgrazing due to livestock in nesting habitat (Allsop III 2001). Potential overwintering and foraging habitat is present along irrigation canals, in wetlands, and in the irrigated pasture found

throughout the project site. Sycamore biologists observed a small flock of long-billed curlews foraging on PAs 3 and 4 in 2004 and they have the potential to occur in PAs 2 and 6 given the presence of suitable habitat types.

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*), a California Species of Special Concern, inhabits coastal areas of central and southern California and the Central Valley. The species typically requires freshwater marshes with emergent vegetation surrounded by water for nesting, although thorny brambles, nettles, dense willows or grain fields near water are also used. The microhabitats selected for nesting must provide protection from numerous avian, mammalian, and reptilian predators. The species is highly colonial. Historically, tricolored blackbirds congregated in large colonies during the breeding season.

Breeding is highly synchronous. The species is nomadic and smaller colonies will often nest in different areas from year to year. Juveniles are not likely to return to the sites where they were born (DeHaven *et al.* 1975). Tricolored blackbirds are regularly observed foraging and roosting in mixed flocks with other blackbird species, especially during the non-breeding season. Tricolored blackbirds forage on seeds and insects in grassland and cropland, the latter primarily during the breeding season (Skorupa *et al.* 1980). Nesting colonies can be highly susceptible to human disturbance; in extreme cases, disturbances can result in entire colonies abandoning their nests. Agricultural activities in particular can threaten entire colonies.

Suitable nesting habitat for tricolored blackbird is present in PAs 1, 3, and 4 along the sloughs and irrigation and drainage canals and irrigated pastures provide foraging opportunities. Although the exact occurrence locations for tricolored blackbird are listed as sensitive by the CNDDB, occurrences have been reported in the Union Island, Byron Hot Springs, Brentwood, and Clifton Court Forebay quads. Sycamore biologists observed tricolored blackbirds foraging on PA 4 in 2004. Therefore, they have a moderate potential to nest in PAs 1, 3 and 4 and have the potential to occur in PAs 2 and 6.

Mammals

Special-Status Bat Species

There are 24 known species of bats in California. Of those, 13 are Federal Species of Concern and 11 are California Species of Special Concern (CDFG 2004b). Bats use a wide variety of roost sites in California and are site-faithful, rarely abandoning an established roosting area unless disturbed. Hibernation and roosting areas depend on the location of the roost and the species. Natural roost sites include caves, tree hollows, rock crevices, exfoliating tree bark, and rotting wood in snags. Suitable man-made roost sites include buildings, mines and bridges (Constantine 1961, Davis and Cockrum 1963, Fenton 1983, Kunz 1982).

Roost sites provide thermoregulation for bats as they sleep, rest while foraging, hibernate, mate, socialize, and consume prey. Most of these activities occur at particular times of the day and roosts are generally classified as either day or night roosts (Kunz 1982). Since bats are nocturnal, day roosts typically provide resting sites, while night roosts are associated with temporary resting and

intra-specific communication throughout periods of foraging. Depending on the species, day roosts, generally consist of crevices and cavities where males roost separate from females, and where breeding and maternal care may take place in addition to rest.

Three special-status bat species have at least some potential to occur within the site, including pallid bat (*Antrozous pallidus*), a California Species of Special Concern, Townsend's big-eared bat (*Corynorhinus (Plecotus) townsendii)*, a Federal Species of Concern and California Species of Special Concern, and Yuma myotis (*Myotis yumanensis*), a Federal Species of Concern. These species use mature trees, snags, crevices and man-made structures (such as buildings) for roosting, either for winter roosting (hibernacula) or for forming nursery colonies. Most bat species that occur in California are ubiquitous in a variety of habitats, although not in large numbers.

Potential roost areas in PAs 1, 3, and 4 include abandoned barns and residences. In addition, there are several mature trees that may provide suitable roosting habitat for special-status bat species. These potential habitats are also present in portions of PAs 2 and 6. Based on a review of the CNDDB (CDFG 2005) these species are considered to have a low potential to occur within the boundary of the project.

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*), federally-listed Endangered and state- listed Threatened, is one of seven subspecies of kit fox and is considered the most genetically distinct (Mercure *et al.* 1993). The San Joaquin kit fox is the smallest North American canid (member of the dog family, Canidae). Adult males weigh approximately 2.3 kilograms (approximately 5 lbs.) and adult females weigh 2.1 kilograms (about 4.6 lbs.), on average (Morrell 1972). Historically, the San Joaquin kit fox occurred extensively throughout California's Central Valley and parts of the Salinas and Santa Clara valleys. Kit fox currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and near La Grange, Stanislaus County on the east side of the Valley and some of the larger scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced Counties (taken from the Recovery Plan for Upland Species of the San Joaquin Valley, California, USFWS 1998).

A number of reviews of the distribution of kit fox in the northern portion of their range have been prepared (Laughrin 1970, Swick 1973, Morrell 1975, USFWS 1983, Orloff *et al.* 1986, Wesler 1987, Bell 1994, H.T. Harvey and Associates 1997, USFWS 1998). Detection of kit fox in the past decade in the Black Diamond Mines East Bay Regional Park have extended the kit fox range farther north than earlier descriptions. San Joaquin kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and to a lesser extent valley oak woodlands. In the southern and central portion of the Central Valley, San Joaquin kit foxes are found in valley sink scrub, valley saltbrush scrub, Upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). San Joaquin kit foxes are also found in grazed grasslands, urban settings and in areas adjacent to tilled or fallow fields (USFWS 1998). The San Joaquin kit foxes require underground dens to raise pups in order to avoid predators (Golightly and Ohmart 1984) and to regulate temperature and avoid other adverse environmental conditions. In the northern

portion of their range, burrowing mammals, primarily ground squirrels usually provide these holes. Dens are usually located on loose-textured soils on slopes less than 40 degrees (O'Farrell 1980).

The project site does contain potentially suitable habitat for the San Joaquin kit fox. However, San Joaquin kit foxes are highly unlikely to access the site for foraging or denning due to the lack of connectivity to known occurrences due to urbanization within the region. The nearest sightings occur approximately 7 miles south and 8.5 miles southwest of the site along Vasco Road (1996) and within Contra Loma Regional Park (1995), respectively. San Joaquin kit fox are not expected to occur on the site based on the occurrence information and because the project site is outside of the species' known range.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse (*Reithrodontomys raviventris*), state- and federally-listed Endangered, inhabits tidally influenced, saline or brackish marshes dominated by dense stands of pickleweed, but will use adjacent upland habitats for foraging and escape cover. They are highly dependent on cover and are most abundant in areas of tall, dense vegetation dominated by pickleweed, especially when mixed with fat hen (*Atriplex patula*), Australian salt bush (*Atriplex semibaccata*), alkali heath (*Frankenia salina*), and saltgrass (*Distichlis* spp.) (Fisler 1965).

Although PAs 1, 3, and 4 provide marginally suitable habitat for salt marsh harvest mouse given the presence of disjunct stands of pickleweed throughout the irrigated pastures and wetland areas, the project site lies outside of their documented range, and no occurrences have been reported within ten miles (CDFG 2005). Furthermore, there is a lack of connectivity to known occurrences due to urbanization within the region. The Salt marsh harvest mouse is not expected to occur within the Specific Plan Area based on the occurrence information and because the site is outside of the species' known range.

WILDLIFE MOVEMENT CORRIDORS AND HABITAT FRAGMENTATION

Wildlife movement includes migration, usually one direction per season), inter-population movement (long-term genetic exchange) and small travel pathways (daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations.

These linkages between habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, *i.e.* migration corridors and movement corridors.

Depending on the condition of the corridor, gene flow between populations may be high in frequency, thus allowing for high genetic diversity within the population, or may be low in

frequency. Potentially low frequency gene flow may lead to complete isolation and, if pressures are strong, potential local extinction (McCullough 1996, Whittaker 1998).

Habitat fragmentation, by definition, is an event that creates a greater number of habitat patches that are smaller in size than the original contiguous tract(s) of habitat. Fragmentation of primary habitat types can hinder regional wildlife movements. The resulting reduced interaction between individuals changes the long-term dynamics of populations distributed among fragments and an inability to genetically adapt or respond to environmental pressures. This increases the probability of extinction for these populations compared to those associated with non-fragmented landscapes (Kupfer *et al.* 1997, Zuidema *et al.* 1996). Effects of fragmentation on the movement or dispersal of organisms is crucial to composition and diversity (Opdam 1990, Tiebout III & Anderson 1997). Considering the impacts resulting in potential fragmentation of primary habitat types and loss of valuable dispersal corridors is imperative when assessing the biological impacts of a project.

Dutch Slough, the Contra Costa Canal, Sandmound Slough, and associated irrigation canals are potential movement corridors, which may facilitate the movement of animals to and from the project site and may provide safe refuge for species that may forage within the site during various times of the year, including the giant garter snake (if present) and western pond turtle. Lands and hydrologic features surrounding the project are not suitable to facilitate movement and dispersal of many other special-status species as described in the above section due to agricultural practices, the isolated nature of habitats (*i.e.* Sand mounds), introduction of exotic predators, and suburban development. The project site does not provide a key movement corridor for wildlife in the region given the present agricultural practices and surrounding land uses.

REGULATORY CONTEXT

A number of federal, state and local policies provide the regulatory framework that guides the protection of biological resources. The following discussion summarizes those laws that are most relevant to biological resources on the project site.

Riparian areas, wetlands, waters of the U.S., and special-status species and communities are considered sensitive biological resources and fall under the jurisdiction of several regulatory agencies. Impacts to these areas often require federal, state, and/or local permits or agreements. The permits required vary depending upon the location of the project and the type and extent of impacts. However, prior to the issuance of any permit for actions that would result in impacts to wetlands, waters, or special-status species or communities, notification to all or some of the following agencies may be required:

- U.S. Army Corps of Engineers (USACE), Sacramento District
- California Department of Fish and Game (CDFG)
- California Regional Water Quality Control Board (RWQCB)
- U.S. Fish and Wildlife Service (USFWS)

An overview of the jurisdiction, application requirements and required permits for each of the above-listed agencies is provided in the following sections.

Federal Jurisdiction – United States Army Corps of Engineers, Sacramento District

Section 404 of the Clean Water Act (CWA) of 1972 regulates activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. The primary intent of the CWA is to authorize the United States Environmental Protection Agency (EPA) to regulate water quality through the restriction of pollution discharges, which includes sediments. The USACE has the principal authority to regulate discharges of dredged or fill material into waters of the United States. However, EPA has oversight authority over the United States Army Corps of Engineers (USACE) and retains veto power over the USACE's decision to issue permits.

Waters of the United States include: 1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide; 2) all interstate waters including interstate wetlands; 3) all other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; 4) tributaries of the above; and 5) territorial seas.

Federally jurisdictional wetlands are defined as those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, vernal pools, seeps, marshes and similar areas.

Because of the recent Supreme Court *Solid Waste Agency of Northern Cook County* v. *U.S. Army Corps of Engineers* (SWANCC) decision, the USACE no longer takes jurisdiction over "isolated wetlands." The USACE does take jurisdiction over "adjacent wetlands," which are hydrologically connected wetlands that may in some cases appear "isolated." The Regional Water Quality Board (RWQCB) has authority over "waters of the State" under the Porter-Cologne Water Quality Control Act. Furthermore, RWQCB typically, in practice, asserts jurisdiction similar to California Department of Fish and Game (CDFG) in creek or river systems, from top of bank to top of bank. The RWQCB asserts that it has authority over all wetlands, including isolated wetlands.

Any discharge of dredged or fill material into waters of the United States must be approved by the USACE pursuant to Section 404 of the CWA. Two permit types are possible:

1) Discretionary Individual Permits; or

2) Nationwide Permits (NWPs) which are already in place, non-discretionary, and generally less time-consuming than the Individual Permit. NWPs may be grouped together or "stacked" with certain limitations.

A standard Individual Permit is required if there are:

1) Discharges that will result in the fill of any tidal waters or wetlands; or

2) Impacts to more than one-half acre of non-tidal waters or wetlands, and/or impacts to greater than 300 linear feet of non-tidal waters or wetlands, including creeks (either perennial or ephemeral and generally intermittent as well), arroyos or vegetated and unvegetated tributaries.

3) In contrast, projects that result in impacts of less than one-half acre and/or less than 300 linear feet may be authorized under one of the existing USACE Nationwide Permits (NWPs) if they meet all of the NWP General Conditions.

A portion of the jurisdictional waters on the project site are tidally influenced and are subject to Section 10 of the Rivers and Harbors Act. This permitting can be done in conjunction with the 404 permitting.

State Jurisdiction - California Department of Fish and Game

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under California Fish and Game Code Sections 1600 to 1607. The CDFG has the authority to regulate work that will:

1) Divert, obstruct, or change the natural flow of a river, stream, or lake;

2) Change the bed, channel, or bank of a river, stream, or lake; or

3) Use material from a streambed.

CDFG typically asserts that its jurisdictional area along a river, stream or creek is bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFG under Sections 1600-1607 authority include installing outfalls, stabilizing banks, creek restoration, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, logging operations and jack-and-boring.

Careful project design, including the minimization of impacts and reduction of hard structure surface area (*i.e.*, minimal amounts of cement or rip-rap), is critical for CDFG approval. The CDFG emphasizes the use of biotechnical or bioengineered creek-related components (emphasis on natural materials, sometimes in conjunction with hard materials) that minimize the need for hard structures in creeks.

As a responsible agency, the California Department of Fish and Game comments on the adequacy of an Environmental Impact Report (EIR).

State Jurisdiction - Regional Water Quality Control Board

Pursuant to Section 401 of the Clean Water Act and EPA 404b)(1) guidelines, in order for a USACE federal permit applicant to conduct any activity which may result in discharge into navigable waters, they must provide a certification from the RWQCB that such discharge will comply with the state water quality standards. The RWQCB has a policy of no-net-loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before it will issue a water quality certification thereof.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code §§13000-14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (*i.e.*, a NWP from the USACE), it may still require review and approval of the RWQCB. As a result of the U.S. Supreme Court's SWANNC decision, the State Water Resources Control Board issued *Guidance for Regulation of Discharges to Isolated Waters* to assist the regional boards in regulating isolated waters (State Water Resources Control Board 2004). These guidelines are intended to ensure that isolated wetlands that do not fall under federal jurisdiction or state jurisdiction via CDFG are still regulated under the Porter-Cologne Water Quality Control Act (Cal. Water Code §§13000-14920) and as such are treated on a priority basis by the RWQCB.

When reviewing applications, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, the RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, the RWQCB seeks to protect these beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best Management Practices (BMPs). In many cases, proper use of BMPs, including bioengineering detention ponds, grassy swales, sand filters, modified roof techniques, drains, and other features, will speed project approval from RWQCB. Development setbacks from creeks are also requested by RWQCB as they often lead to less creek-related impacts in the future.

Federal Jurisdiction - United States Fish and Wildlife Service (USFWS)

The Federal Endangered Species Act (FESA) prohibits "take" of Federally-listed Threatened or Endangered wildlife species. The FESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct" 16 U.S.C. §1532(19). The FESA requires that actions authorized, funded or carried out by federal agencies do not jeopardize the continued existence of a Federally-listed species or adversely modify designated Critical Habitat for such species. If a federal agency determines that a proposed federal action (*i.e.*, issuance of a Clean Water Act Section 404 permit for wetland fill) "may affect" a listed species and/or designated Critical Habitat, the agency must consult with the USFWS and/or NOAA Fisheries for protected marine and anadromous fish species in accordance with Section 7 of the FESA. If, on the other hand, the federal agency concludes that its action will have "no effect" or is "not likely to adversely effect" any listed species, formal consultation is not required. In the latter case (i.e., a "not likely to adversely effect" situation), the federal action agency must secure the concurrence of the Service through "informal consultation." In these circumstances, no further regulatory action is needed and no permit is required from the federal government.

If take of a Federally-listed species may occur, the applicant may be required to obtain Incidental Take authorization from the USFWS and/or NOAA Fisheries under the ESA section 7 (by securing a biological opinion and Incidental Take Statement) or under Section 10 (with an Incidental Take Permit).

For purposes of reviewing the inclusion application for PA 2, the U.S. Bureau of Reclamation ("USBR") evaluated the potential effects of the Summer Lakes project as presented in a biological

assessment prepared by Monk & Associates (which determined that no federally-listed species are present within PA 2), and USBR concluded the project would have "no effect" on any federally-listed species. Although USBR was not required under the ESA itself to seek the concurrence of the Service in this determination, an earlier programmatic biological opinion issued by the Service to the USBR required USBR to ensure that those projects that receive USBR water (e.g., Summer Lake) are in compliance with the ESA. Thus, USBR notified the Service in writing of its "no effect" determination, and the Service (which reviewed both the Monk report and other prior biological studies conducted in the area) thereafter notified USBR that it was in compliance with the terms of the biological opinion (i.e., because the USBR's approval of water service for the Summer Lake project would have no effect on federally-listed species). Moreover, consistent with its prior land use entitlements, much of the habitat in PA 2 has already been highly disturbed in association with the construction of Summer Lake such that it is no longer suitable habitat for any federally-listed species. Based on the previous federal agency conclusions and the present condition of PA 2, this EIR assumes that, where federally-listed species are also special status species under the MBTA, CESA, or other similar regulations, such species are not present within PA 2

CITY OF OAKLEY GENERAL PLAN: LAND USE ELEMENT

General Land Use

Goal 2.1: Guide development in a manner that creates a balanced and desirable community, maintains and enhances the character and best qualities of the community, and ensures that Oakley remains an economically viable City.

Policies

2.1.5 - Preserve open space areas, of varying scales and uses, both within development projects and at the City's boundary.

2.1.6 - Ensure a strong physical connection to the Delta and the waterfront, including convenient public access and recreational opportunities.

2.1.10 - When considering large-scale development projects, the City may, at its discretion, authorize a Specific Plan (SP) or Planned Unit Development (PUD) approach that allows flexibility within a project area. Under this approach, the distribution of land uses may vary from the land uses as designated on the Land Use Diagram. The SP/PUD approach shall not allow either an overall greater development density than allowed under the Land Use Diagram, or a combination of uses that undermines the overall intent of the project area as established under the General Plan policies and Land Use Diagram.

Implementation Programs

2.1.F - Provide public access to the Delta and the Oakley waterfront through discretionary approvals of development projects, coordinated efforts with involved agencies and organizations, and the improvement of City public facilities.

2.1.G - Establish within the Oakley Zoning Code appropriate regulations to guide the Specific Plan (SP) and/or Planned Unit Development (PUD) process, including the extent to which development patterns may vary from land use patterns as depicted upon the Land Use Diagram.

Residential

Goal 2.2 – Create new residential developments and preserve existing neighborhoods to reflect the high quality of life in Oakley.
Policies:

2.2.12 - Restrict or require increased setbacks for residential development proposed and adjacent to industrially or agriculturally designated or developed land to minimize conflicts.

Open Space

Goal 2.6 – Ensure that open space areas are properly managed and designed to conserve natural resources and enhance the community's character and provide passive recreational activities.

Policies

2.6.1 - Provide public access to the Delta and the waterfront wherever appropriate and feasible. Typically, such access should be unobstructed to the public by foot or bicycle, and where appropriate by horse, automobile and/or boat.

2.6.2 - Preserve, enhance and/or restore selected existing natural habitat areas, as feasible.

2.6.3 - Create new wildlife habitat areas in appropriate locations, which may serve multiple purposes of natural resource preservation and passive recreation, as feasible.

2.6.4 - All public recreational areas and facilities shall be accessible by a publicly maintained road.

Implementation Programs

2.6.A - Pursue opportunities, including grants to purchase rights of way, easements or other instruments to provide public access to the Delta and the waterfront, parkland, open space, waterfront or waterways.

2.6.B - Through the development review process, ensure that development projects provide increased public access to the Delta and the waterfront. Consider the appropriate type of access (pedestrian, equestrian, vehicular, etc.) and require developer improvements to support such access.

Trails

Goal 2.7: Provide a system of multi-use trails that connects residential districts, parks and schools, employment centers and natural areas, throughout Oakley and the region, including the Delta.

Policies

2.7.1 - Promote a comprehensive trail program throughout the Oakley community and give preference to developments that incorporate the design of the trails, including trails of neighboring communities where feasible, and associated open space into their design.

Implementation Programs

2.7.A - Adopt and regularly update a City of Oakley Comprehensive Trail Plan within 2 years.

2.7.B - Require dedications from developers proposing projects located adjacent to designate trail alignments.

2.7.C - Seek grant funding and participation from regional, state and federal entities and agencies to support implementation of the City's Trail Plan.

2.7.D - Coordinate Oakley's trail system with regional trail programs through the review of plans and programs of neighboring communities, the County and associated agencies that provide trails within the region.

City of Oakley General Plan: Open Space Conservation

Agricultural Resources

Goal 6.1: Allow agriculture to continue as a viable use of land that reflects the community's origins and minimizes conflicts between agricultural and urban uses.

Policies

6.1.1 - Participate in regional programs that promote the long-term viability of agricultural operations within the City.

6.1.2 - Reduce the negative impacts resulting from urban uses and neighboring agricultural uses in close proximity.

6.1.4 - Incorporate parks, open space and trails between urban and agricultural uses to provide buffer and transition between uses.

Programs

6.1.A - Identify and map those properties that include prime productive agricultural soils (Class I and II capability according to the U.S. Soil Conservation Service) for use in the review of development applications.

6.1.B - Encourage consolidated development; with appropriate land use buffers of parks, open space and trails, for proposed major subdivisions adjacent to prime agricultural lands.

6.1.C - Modify the land use classifications and allowed use provisions and development standards to reflect current agricultural uses and land use compatibility.

6.1.D - Require adequate setbacks for any non-agricultural structures adjacent to cultivated agriculture.

Biological Resources

Goal 6.3: Encourage preservation of important ecological and biological resources.

Policies

6.3.1 - Encourage preservation of important ecological and biological resources as open space.

6.3.2 - Develop open space uses in an ecologically sensitive manner.

6.3.3 - Use land use planning to reduce the impact of urban development on important ecological and biological resources identified during application review and analysis.

6.3.4 - Encourage preservation and enhancement of the natural characteristics of the San Joaquin Delta and Dutch Slough in a manner that encourages public access.

6.3.5 - Encourage preservation and enhancement of Delta wetlands, significant trees, natural vegetation, and wildlife populations.

6.3.6 - Encourage preservation of portions of important wildlife habitats that would be disturbed by major development, particularly adjacent to the Delta.

6.3.7 - Preserve and expand stream corridors in Oakley, restoring natural vegetation where feasible.

Programs

6.3.A - Prior to development within identified sensitive habitat areas, the area shall be surveyed for special status plant and/or animal species. If any special status plant or animal species are found in areas proposed for development, the appropriate resource agencies shall be contacted and species-specific management strategies established to ensure the protection of the particular species. Development in sensitive habitat areas should be avoided or mitigated to the maximum extent possible.

6.3.B - Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.

6.3.C - Investigate and implement as appropriate a tree-planting program. Consider similar existing programs such as the Sacramento Tree Foundation.

6.3.D - Continue to implement (and update as needed) the City's Heritage Tree Preservation Ordinance.

6.3.E - As funding becomes available, prepare a detailed inventory of ecological resource areas, along with detailed maps showing the location of significant resources. Resources should include, but not be to, unique natural areas, wetland areas, habitats of rare, threatened, endangered, and other uncommon and protected species.

6.3.F - As funding becomes available, prepare a Wetland Protection Ordinance.

6.3.G - Evaluate the feasibility of expanding drainage easements along waterways and modifying banks and/or levees to increase the width of stream corridors.

6.3.H - Investigate and implement as appropriate City Zoning regulations requiring expanded setbacks, and land dedications along waterways to allow expansion and enhancement of waterways.

Tree Protection and Preservation Ordinance

The City of Oakley is currently working on its Heritage Tree Preservation Ordinance. Until that ordinance is finalized and adopted by City Council, the City is utilizing the Contra Cost County Tree Protection and Heritage Tree Ordinances:

Contra Costa County Code Title 16, Chapter 816-4 Heritage Trees

"Heritage tree" means:

A tree seventy-two inches or more in circumference measured four and one-half feet above the natural grade; or

1) Any tree or a group of trees particularly worthy of protection, and specifically designated as a heritage tree by the board of supervisors pursuant to the provisions of this chapter, because of:

    a) Having historical or ecological interest or significance, or

    b) Being dependent upon each other for health or survival, or

    c) Being considered an outstanding specimen of its species as to such factors as location, size, age, rarity, shape, or health. (Ord. 88-83).

A protected tree is any one of the following described under the *Contra Costa County Code Title 16, Chapter 816-6 Protected trees*:

1) On all properties within the unincorporated area of the county:

    a) Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the following list of indigenous trees: *Acer macrophyllum* (Bigleaf Maple), *Acer negundo* (Box Elder), Aesculus

califonica (California Buckeye), Alnus Rhombifolia (White Alder), *Arbutus menziesii* (Madrone), *Heteromeles arbutifolia* (Toyon), *Juglans Hindsii* (California Black Walnut), *Juniperus californica* (California Juniper), *Lithocarpus densiflora* (Tanoak or Tanbark Oak), *Pinus attenuata* (Knobcone Pine), *Pinus sabiniana* (Digger Pine), *Platanus Racemosa* (California Sycamore), *Populus fremontii* (Fremont Cottonwood), *Populus trichocarpa* (Black Cottonwood), *Quercus agrifolia* (California or Coast Live Oak), *Quercus chrysolepis* (Canyon Live Oak), *Quercus douglasii* (Blue Oak), *Quercus kelloggii* (California Black Oak), *Quercus lobata* (Valley Oak), *Quercus wislizenii* (Interior Live Oak), *Salix lasiandra* (Yellow Willow), *Salix laevigata* (Red Willow), *Salix lasiolepis* (Arroyo Willow), *Sambucus callicarpa* (Coast Red Elderberry), *Sequoia sempervirens* (Coast Redwood), *Umbellularia californica* (California Bay or Laurel);

b) Any tree shown to be preserved on an approved tentative map, development or site plan or required to be retained as a condition of approval;

c) Any tree required to be planted as a replacement for an unlawfully removed tree.

2) On any of the properties specified in subsection (3) of this section:

a) Any tree measuring twenty inches or larger in circumference (approximately six and one-half inches diameter), measured four and one-half feet from ground level including the oak trees listed above;

b) Any multistemmed tree with the sum of the circumferences measuring forty inches or larger, measured four and one-half feet from ground level;

c) And any significant grouping of trees, including groves of four or more trees.

3) Specified properties referred to in subsection (2) of this section includes:

a) Any developed property within any commercial, professional office or industrial district;

b) Any undeveloped property within any district;

c) Any area designated on the general plan for recreational purposes or open space;

d) Any area designated in the county general plan open space element as visually significant riparian or ridgeline vegetation and where the tree is adjacent to or part of a riparian, foothill woodland or oak savanna area. (Ords. 94-59, 94-22).

816-6.1004 Proposed Development

a) On any property proposed for development approval, tree alterations or removal shall be considered as a part of the project application.

b) All trees proposed to be removed, altered or otherwise affected by development construction shall be clearly indicated on all grading, site and development plans. Except where the director otherwise provides, a tree survey shall be submitted as a part of the

project application indicating the number, size, species and location of the dripline of all trees on the property. This survey shall be overlaid on the proposed grading and development plans. The plan shall include a tabulation of all trees proposed for removal.

c) The granting or denial of a tree removal program which is a part of a development proposal covered by this section shall be subject to Sections 816-6.8008 and 816-6.8014. A separate tree removal permit shall not be required. (Ords. 94-59, 94-22).

816-6.8012 Decision

The director shall grant or deny tree permits in accordance with this chapter and code. If a permit is granted, the director may attach conditions to insure compliance with this chapter and code. These conditions may include a requirement to replace any or all trees on a comparable ratio of either size or quantity. Single tree permits shall be valid for a period of ninety days and may be renewed for additional periods by the director upon request by the applicant. Collective tree permits shall be valid for a period of time to be determined by the director based upon individual circumstances.

If a permit is denied, the director shall state the reason for denial. Notice of decision shall be mailed to the applicant. (Ords. 94-59, 94-22).

3.5.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if: the project would:

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

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

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, *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, regional, or state habitat conservation plan.

CEQA Guidelines Section 15380 further provides that a plant or animal species may be treated as "rare or endangered" for purposes of environmental review even if it is not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

METHOD OF ANALYSIS

This biological analysis is based on a review of documents pertaining to the natural resources of the project site as listed above; examination of aerial photography, biological resources and vegetation maps; and field investigations. Species-specific focused surveys and protocol-level assessments have been completed and are on-going on Planning Areas 1, 3 and 4 allowing a project-level analysis of impacts and mitigation measures.

Potential impacts analyzed and mitigation identified at the program-level applies to potential off-site improvement areas identified in the introduction as well as PA 2 and the remaining properties in PA 6. Summer Lake Phases 1 and 2 (Planning Area 5) are excluded from this analysis. The evaluation of whether or not an impact on biological resources would be substantial considers both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would substantially conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important, but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

Planning Areas 1, 3 and 4

Impact 3.5.3.1: Jurisdictional Waters of the U.S. and Waters of the State

Freshwater marshes, seasonal wetlands, and drainage ditches such as those found in PAs 1, 3, and 4 are regarded as jurisdictional waters of the U.S. by the U.S. Army Corps of Engineers (pending verification). Similarly, such features are regarded as waters of the State under jurisdiction of the Regional Water Quality Control Board. USACE and state-jurisdictional wetlands and waters within PAs 1, 3, and 4 are estimated to total approximately 112 acres (pending verification).

Construction of the project would require permanent placement of fill material or culverts within approximately 68 acres of wetlands and waters anticipated to fall under USACE and state jurisdiction. The impacts to jurisdictional wetlands due to the project are shown in Figure 3.5-5,

Impacts to Jurisdictional Wetlands and Sensitive Natural Communities. Implementation of the proposed project may have a ***potentially significant*** impact on jurisdictional waters of the U.S. and State.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-1 To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to waters of the United States or jurisdictional waters of the State of California within the project.

Mitigation Measure 3.5-2 A Section 404 permit for fill of jurisdictional wetlands and a Section 10 permit for fill of tidal waters shall be sought and mitigation for impacts to jurisdictional waters that cannot be avoided shall conform with the USACE "no-net-loss" policy and the USACE Regulatory Guidance Letter No. 02-2 establishing policies and guidance on appropriate mitigation for impacts to jurisdictional waters. Mitigation for impacts to both federal and state jurisdictional waters shall be addressed using these guidelines. Mitigation shall be implemented at a watershed scale and shall be compatible with adjacent land uses. This may include the preservation of vegetated buffers that clearly benefit functions of the aquatic ecosystem to be preserved, enhanced and/or avoided. The Mitigation and Monitoring Plan would take a watershed approach and account for the regional requirements of sensitive species and habitats. Mitigation will be reviewed by USACE on a case-by-case basis and take into account the use of vegetated buffers as well as the functions of the preserved/avoided/created and enhanced habitat. A functional assessment of the existing wetlands, waters, and habitats shall be compared with a functional assessment of the proposed mitigation to ensure no overall net loss to habitat functions.

Mitigation Measure 3.5-3 Mitigation shall include creation of wetlands at a minimum 1:1 ratio. If a greater mitigation ratio is necessary, preservation/enhancement would count towards mitigation. For purposes of this document "on-site mitigation" refers to the entire project site. Creation opportunities within the avoided wetland and dune habitat area on the northern portion of PA 1, designated for preservation and mitigation for project impacts, shall be evaluated for hydrology and topography suitable to support creation of wetlands. Preservation/enhancement of wetland habitat shall also be evaluated within the designated wetland and dune habitat area. Public access to this area shall be limited and it shall be managed for the purpose of habitat mitigation according to the Mitigation and Monitoring Plan (MMP) described

below. Accomplishment of the wetland creation, preservation, and enhancement on site shall be given first priority. If the total wetland creation, preservation, and enhancement acreage cannot be accomplished within the designated open space area, second priority shall be given to creation and preservation at an off-site location within the City of Oakley that will be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside the City of Oakley. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP). Off-site mitigation habitat shall be presented for approval to the City of Oakley, USACE, RWQCB and CDFG.

Mitigation Measure 3.5-4 If, in accordance with the above mitigation measure, the applicant implements onsite or offsite mitigation, a Mitigation and Monitoring Plan (MMP) shall be prepared that provides guidance on managing and monitoring the mitigation habitat to ensure its long-term viability. The MMP shall include elements and standards deemed appropriate and acceptable by the applicable approving agency or agencies (e.g., City of Oakley, USACE, RWQCB, and/or CDFG). Such MMP shall be prepared prior to development plan or tentative map approval.

Planning Areas 2 and 6

Wetlands and waters falling under the jurisdiction of the U.S. Army Corps of Engineers and the State of California may occur within PAs 2 and 6. Aerial photo analysis revealed that approximately 21 acres of freshwater marsh, 28 acres of Great Valley riparian forest/willow scrub, and 12 acres of alkali meadow and grassland are present. The aerial photo analysis conducted as part of this EIR is considered preliminary and cannot be relied upon to determine impacts and mitigation. If these areas are state and/or federally jurisdictional wetlands or waters, the proposed project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-5 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for property in PAs 2 and 6, a formal jurisdictional determination conducted according to USACE guidelines (Environmental Laboratory 1987) shall be completed by a qualified biologist and submitted to the USACE for verification and to assess potential impacts. If waters of the U.S. and/or State are present, **Mitigation Measures 3.5-1-4** shall be implemented as outlined above.

Jersey Island Road Levee – Burroughs Property

Sycamore Associates completed a jurisdictional determination for the Burroughs property, which included the present study area (Burroughs property), and obtained verification of the delineation from the U.S. Army Corps of Engineers in 1998 (Sycamore 1998b). The Department of Water Resources has recently updated and submitted the jurisdictional determination to the USACE for re-verification. Based on the previously verified delineation, the current site visit, and precedent recently set by the USACE for lands under similar conditions in the immediate vicinity, Sycamore has estimated the Jersey Island Road Levee construction area will require fill of approximately 3 acres of potentially federal jurisdictional freshwater marsh and drainage ditches. Such features may be regarded as waters of the State under jurisdiction of the Regional Water Quality Control Board. Implementation of the proposed project may have a **potentially significant** impact on jurisdictional waters of the U.S. and State.

Mitigation Measures

Implementation of **Mitigation Measures 3.5-1 through 3.5-4** would reduce the impact to a **less-than-significant** level.

Great Valley Riparian Forest/Willow Scrub

Planning Areas 1, 3 and 4

Great Valley riparian forest/willow scrub is present in a few locations along irrigation canals and sloughs within these planning areas. These areas may fall under the jurisdiction of the RWQCB and CDFG as riparian vegetation, and the City of Oakley prefers and encourages the preservation of such areas that are characterized by trees and natural vegetation, providing important wildlife habitat. A total of approximately 1 acre of potentially state jurisdictional Great Valley riparian forest/willow scrub that occurs would be removed with project construction. The removal of these riparian areas could have a ***potentially significant*** impact.

Mitigation Measure(s)

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-6 Implementation of **Mitigation Measures 3.5-3 and 3.5-4** above shall include riparian habitat compensation at a minimum of a 1:1 ratio.

Planning Areas 2 and 6

Great Valley riparian forest/willow scrub is present in several locations along irrigation canals and sloughs. These areas, totaling approximately 28 acres based on the preliminary aerial photo analysis, may fall under the jurisdiction of the RWQCB and CDFG as riparian vegetation and may be considered sensitive natural communities. Thus, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-7 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for PAs 2 and 6, Great Valley riparian forest/willow scrub shall be delineated by a qualified biologist to assess potential impacts.

Mitigation Measure 3.5-8 To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to Great Valley riparian forest/willow scrub. If avoidance is not feasible, **Mitigation Measures 3.5-3 and 3.5-4** shall be implemented as described above and shall include riparian habitat compensation at a minimum ration of 1:1.

Impact 3.5.3.3: Alkali Meadow and Grassland

Planning Areas 1, 3 and 4

Approximately 10 acres of alkali meadow and grassland are present on the central portion of Planning Areas 1, 3, and 4. This habitat is recognized as a sensitive habitat by the CDFG (CNDDB 2003). Alkali meadow is a unique habitat that occurs on highly alkaline, fine-textured soils on seasonally-to-perennially moist soils in valley bottoms. These habitats host an uncommon suite of alkaline-tolerant, hydrophytic plants including many special-status species. Alkali meadow habitat has a limited distribution in the region. The development of the project would result in the loss of approximately 10 acres of this plant community. The removal of this habitat could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-9 Implementation of **Mitigation Measures 3.5-3 and 3.5-4** above shall include alkali meadow and grassland habitat compensation at a 1:1 ratio.

Planning Areas 2 and 6

Based on the preliminary aerial photo analysis, approximately 12 acres of alkali meadow and grassland are present in PAs 2 and 6. Additional areas may also be present, but can only be identified through field surveys. This habitat is recognized as a sensitive habitat by the CDFG (CNDDB 2003). Alkali meadow is a unique habitat that occurs on highly alkaline, fine-textured soils on seasonally-to-perennially moist soils in valley bottoms. These habitats host an uncommon suite

of alkaline-tolerant, hydrophytic plants including many special-status species. Alkali meadow habitat has a limited distribution in the region. Thus, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-10 As part of any future development plan or rezoning review process and prior to development plan or Tentative Map approval for PAs 2 and 6, alkali meadow and grassland shall be delineated by a qualified biologist to assess potential impacts.

Mitigation Measure 3.5-11 To the extent feasible, implementation of the project shall be designed and constructed to avoid and minimize adverse effects to alkali meadow and grassland. If avoidance is not feasible, **Mitigation Measures 3.5-3 and 3.5-4** shall be implemented as described above and shall include alkali meadow and grassland compensation at a minimum of a 1:1 ratio.

Impact 3.5.3.4: Protected and Heritage Trees

Planning Areas 1, 3 and 4

There are 32 heritage trees (measure greater than 23 inches dbh), 10 of which are listed as indigenous species by Contra Costa County including red willow, Fremont cottonwood, and black walnut (Sycamore 2005g) in PAs 1, 3, and 4. One hundred fifty nine protected trees (measure greater than 6.5 inches dbh) were identified, 64 of which are listed as indigenous species by Contra Costa County including red willow, arroyo willow, Fremont cottonwood, and black walnut (Sycamore 2005g). The removal of heritage or protected trees as defined by the Contra Costa County Ordinances described above could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-12 Avoidance of heritage or protected trees as defined by the Contra Costa County Ordinances shall be exercised to the greatest extent practicable.

Mitigation Measure 3.5-13 Where removal is determined to be necessary, tree removal shall be mitigated at a minimum 3:1 ratio or other ratio acceptable to the City of Oakley. The City of Oakley is currently developing a Heritage Tree Protection Ordinance. If this ordinance is adopted prior to tree removal approval, the City of Oakley may require mitigation for loss

of trees as stipulated in the adopted ordinance. The mitigation trees shall be established with appropriate maintenance to ensure long-term self-sustaining survivorship. A performance standard of 80% of the established mitigation trees shall be met after 5 years. The mitigation trees shall not be dependent upon significant maintenance measures within the last 2 years of monitoring, including supplemental irrigation and staking.

Planning Areas 2 and 6

Similar habitats are present in PA 2 and 6, which may have potential to support heritage or protected trees. If heritage or protected trees are present, the removal of the trees with the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-14 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval for PA 2 and 6, a certified arborist shall conduct a tree survey to determine if protected or heritage trees are present within the area proposed for development.

Mitigation Measure 3.5-15 If protected or heritage trees are found on site, mitigation measures 3.5-12 and 3.5.-13 shall be implemented as outlined above.

Special-Status Plants

Planning Areas 1, 3 and 4

Several special-status plant species have been identified as having potential to occur within habitats present in PAs 1, 3 and 4. During late summer focused surveys, one special status plant species Suisun Marsh aster, California Native Plant Society List 1B, was identified in PA 4. Additional focused surveys during spring have been completed to further identify the presence/absence of special-status plant species in PAs 1, 3, and 4. During these surveys, a small population of crownscale (*Atriplex coronata var. coronata*), CNPS List 4, was found within alkali meadow habitat on the Dal Porto South property (PA 3). Given the presence of two CNPS List plant species on site, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-16 Areas supporting the special-status plant species shall be avoided; or

Mitigation Measure 3.5-17 If an area containing a special-status plant species cannot be avoided, mitigation shall occur as follows:

1. Permanently preserve, through use of a conservation easement or other similar method, an equal amount of acreage, either within the project area or off-site, that contains the plant; or

2. Harvest the plants to be lost, and relocate them to another suitable and equal sized area either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method; or

3. Harvest seeds from the plants to be lost, or use seeds from another appropriate source, and seed an equal amount of area suitable for growing the plant either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method.

4. These mitigation measures shall be completed by a qualified biologist with experience working with the species included in the mitigation.

5. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status plant species. This mitigation measure shall be coordinated with the Mitigation Monitoring Plan in **Mitigation Measure 3.5-4**.

Planning Areas 2 and 6

Similar habitats are present in PAs 2 and 6, which may have potential to support special-status plant species as well. The aerial photo analysis is not sufficient to determine presence or absence of special-status plant species in PAs 2 and 6. If special-status plant species occur, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-18 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a habitat assessment shall be conducted by a qualified biologist to determine if potential habitat for special-status plant species is present.

Mitigation Measure 3.5-19 If suitable habitat is found, surveys for special-status plants shall be conducted during the appropriate blooming period for each target

species by a qualified biologist. At least one season of surveys shall be conducted for all areas supporting potential habitat when the target species are detectable in the field. If special-status plant species are not found, no further mitigation is required.

Mitigation Measure 3.5-20 If any special-status plant species are found, areas supporting the species shall be avoided; or

Mitigation Measure 3.5-21 If an area containing a special-status plant species cannot be avoided, mitigation shall occur as follows:

1. Permanently preserve, through use of a conservation easement or other similar method, an equal amount of acreage, either within the project area or off-site, that contains the plant; or

2. Harvest the plants to be lost, and relocate them to another suitable and equal sized area either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method; or

3. Harvest seeds from the plants to be lost, or use seeds from another appropriate source, and seed an equal amount of area suitable for growing the plant either within the project site or off-site that will be permanently preserved through a conservation easement or other similar method.

4. These mitigation measures shall be completed by a qualified biologist with experience working with the species included in the mitigation.

5. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status plant species. This mitigation measure shall be coordinated with the Mitigation Monitoring Plan in **Mitigation Measure 3.5-4**.

Special-Status Dune and Sand mound Insects

Planning Areas 1, 3 and 4

A habitat assessment for special-status insects has been conducted by a qualified entomologist within interior dune and Sand mound habitat to further evaluate the quality of the habitat and potential presence of the special-status insect species. Special-status insect species including San Joaquin dune beetle, Antioch dunes anthicid beetle, Sacramento anthicid beetle, and Ciervo Aegialian scarab beetle have the potential to occur within the interior dune and Sand mound habitat on these properties. These invertebrate species are Federal Species of Concern and are not afforded any formal protection under the federal or state Endangered Species Acts; however, they are

endemic to the region and approximately 81 acres of potential habitat would be removed with development. If any of these species occur, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-22 Focused surveys shall be conducted for a sufficient duration of time, to be determined by the entomologist, to determine presence or demonstrate absence of the species. If special-status insect species are not found, no further mitigation is required.

Mitigation Measure 3.5-23 If endemic dune inhabiting special-status insects are documented, occupied habitat as well as other highly suitable habitat that is part of dune complexes in the vicinity of where the species is found shall be avoided to the extent feasible. If avoidance is not feasible, suitable habitat shall be preserved at a 1:1 ratio at a location approved by the City and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable sand dune and mound habitat on PAs 1, 3, and 4. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status insect species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).

Planning Areas 2 and 6

Based on USDA soil survey information (1977) and aerial photo evaluation, sandy soils are present on some properties within PAs 2 and 6. These areas have the potential to support Sand mound and interior dune habitat that may be considered suitable for inhabitation by special-status insect species endemic to the region including Antioch Dunes anthicid beetle, Antioch efferian robberfly, Antioch multilid wasp, Antioch andrenid bee, San Joaquin dune beetle, Sacramento anthicid beetle, Ciervo Aegialian scarab beetle, and Antioch specid wasp. These invertebrate species are Federal Species of Concern and are not afforded any formal protection under the federal or state Endangered Species Acts; however, they are endemic to the region and 400 acres of soils that may support potential habitat have been mapped within PAs 2 and 6. If highly suitable habitat is present and/or any of these species occur, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-24 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a habitat assessment which includes field mapping of interior dunes and Sand mounds shall be conducted by a qualified biologist to evaluate the presence of potential habitat for special-status insects. If potential habitat is identified, a qualified entomologist shall further evaluate the quality of the habitat and the presence of the species within interior dune and Sand mound habitat identified on site.

Mitigation Measure 3.5-25 If endemic dune inhabiting special-status insects are determined to have a likelihood of occurrence by the qualified entomologist, focused surveys will be conducted for a sufficient duration of time, to be determined by the entomologist, to determine presence or demonstrate absence of the species. If special-status insect species are not found, no further mitigation is required. If the species are present, **Mitigation Measure 3.5-23** as outlined above shall be implemented.

Vernal Pool Fairy Shrimp

Planning Areas 1, 3 and 4

Potential habitat for vernal pool fairy shrimp (*Branchinecta lynchi*), federally-listed Threatened, is present in the extensive freshwater marsh/seasonal wetlands located on the northeast portion of PA 1, as well as in small, seasonal wetlands within irrigated pastures and non-native annual grasslands that pond water during the winter months due to poor soil drainage present throughout PA's 1,3, and 4. Approximately 104 acres of potential habitat have been mapped, however additional areas of potential habitat exist in the form of very small pools and puddles, which will be mapped based on pools sampled during wet season surveys. Habitat assessments identified a low potential for the vernal pool fairy shrimp to occur within aquatic features (Dains and Arnold 1993, Entomological Consulting Services, Ltd. 2005). Wet season surveys for vernal pool branchiopods have been completed for one winter survey period according to USFWS protocol (1996) by a qualified biologist. The wet season surveys resulted in negative findings, however USFWS protocol (1996) requires two sampling periods to demonstrate absence of the species. Approximately 57 acres of potential vernal pool fairy shrimp aquatic habitat would be removed with project implementation. The proposed project impacts to potential habitat for the Vernal Pool Fairy Shrimp are shown on Figure 3.5-6, Potential Vernal Pool Fairy Shrimp Habitat. The habitat was further evaluated during the protocol wet season surveys and the fairy shrimp biologist concluded that the potential habitat present is of marginal quality (Condor Country Consulting 2005). Based on the recent negative findings and the lack of suitable habitat on site, listed vernal pool branchiopods are not expected to be present. Therefore, the project would not have a ***potentially significant*** impact on this species.

Based on the negative findings and lack of suitable habitat on site, further surveys are not likely to be required by the USFWS. Mitigation is only required when positive findings are made for this species.

Planning Areas 2 and 6

Potential vernal pool fairy shrimp (*Branchinecta lynchi*), federally-listed Threatened, habitat may be present in freshwater marsh wetlands and seasonal wetlands within non-native annual grasslands occurring in PAs 2 and 6. Based on a the previous biological assessment prepared by Monk & Associates, USBR had concluded that development within PA 2 would have "no effect" on federally-listed species. At that time, USBR notified the Service in writing of its "no effect" determination, and the Service (which reviewed both the Monk report and other prior biological studies conducted in the area) thereafter notified USBR that it was in compliance with the ESA. Consequently, vernal pool fairy shrimp are not expected to occur within PA 2 and thus, development within PA 2 is expected to have no impact on this species. There remains a potential for the vernal pool fairy shrimp to occur within aquatic features on PA 6. If this species is present within PA 6, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-26 As part of any future development plan for PA 6 or rezoning review process and prior to development plan or tentative map approval, a qualified biologist shall conduct a habitat assessment for vernal pool branchiopods.

Mitigation Measure 3.5-27 If suitable habitat is identified within PA 6, wet season surveys for vernal pool branchiopods shall be conducted prior to initiation of construction activities for one winter survey period according to USFWS protocol (1996) by a qualified biologist. If federally protected vernal pool branchiopods are not found during the wet season survey and it is deemed necessary by the qualified biologist to continue surveying, one additional dry or wet season survey shall be conducted according to USFWS protocol (1996) by a qualified biologist. If federally protected vernal pool branchiopods are not found after completion of protocol-level wet and dry or two wet season surveys, then no further mitigation is required. If federally protected vernal pool branchiopods are found during either survey then the following mitigation measures shall be implemented.

Mitigation Measure 3.5-28 If the vernal pool fairy shrimp is found to occur during protocol surveys on one or more properties, the properties that are connected biologically and hydrologically (via ground or surface water) shall also be considered as potentially occupied habitat. Assessment of presence or absence would be determined on a property-by-property basis, taking into account connectivity of the wetland areas. Project impacts

shall be evaluated and mitigation shall be based on an analysis of the following:

1. Connectivity of aquatic habitats (both ground and surface water)

2. Habitat quality measured as potential to support listed shrimp species

3. Potential for cyst (egg) dispersal

4. Adjacent land uses, current and anticipated, and resulting effects on the hydrology of aquatic habitats

5. Threats and encroachment on populations of listed species, including edge effects and associated buffers, and habitat fragmentation.

Mitigation Measure 3.5-29 If the vernal pool fairy shrimp is found within the boundary of the Specific Plan, impacts to occupied or potentially occupied aquatic habitats and an associated upland buffer, to be determined according to the criteria above, shall be avoided to the extent feasible. If avoidance is not feasible, aquatic habitat and the amount of watershed associated with the preserved pools necessary to sustain the existing hydrology of the pool habitat shall be replaced at a 1:1 ratio at a location approved by the City and USFWS. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of aquatic habitat. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for special-status vernal pool species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in MM 3.5-4. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP). Take authorization shall be obtained from the USFWS if federally-listed vernal pool branchiopods are present on site.

Mitigation Measure 3.5-30 If presence of the vernal pool fairy shrimp is confirmed during protocol surveys, the uppermost layer of soil in seasonally inundated habitat may contain cysts of listed crustaceans as well as seeds of vernal pool plants. Therefore, before these wetlands are filled, the top layer of soil shall be made available prior to the start of project grading to any vernal pool creation bank that requests it, with USFWS approval, for inoculating newly created pools. Soil stockpiled for this

purpose should be shielded from rain with a water-proof cover to ensure that it remains completely dry.

Other Vernal Pool Branchiopods and Curved-Foot Hygrotus Diving Beetle

Planning Areas 1, 3 and 4

Potential special-status vernal pool branchiopod and curved-foot hygrotus diving beetle habitat is present in the extensive freshwater marsh/seasonal wetlands located in the northeast portion of PA 1, as well as in small, seasonal wetlands within irrigated pastures and non-native annual grasslands that pond water during the winter months due to poor soil drainage throughout PAs 1,3, and 4. The wet season surveys for USFWS listed vernal pool branchiopods conducted for one wet season survey period as described above included sampling for other special-status vernal pool branchiopods. The survey resulted in negative findings. Thus the midvalley fairy shrimp (*Branchinecta mesovallensis*), a Federal Species of Concern, and California linderiella (*Linderiella occidentalis*), a Federal Species of Concern, are not expected to occur on site and the project would not have a **potentially significant** impact on these species. No further mitigation is required for midvalley fairy shrimp or California linderiella.

Special-status vernal pool branchiopods midvalley fairy shrimp (*Branchinecta mesovallensis*), a Federal Species of Concern, and California linderiella (*Linderiella occidentalis*), a Federal Species of Concern) and curved-foot hygrotus diving beetle habitat may be present in freshwater marsh wetlands and seasonal wetlands within non-native annual grasslands occurring in PAs 2 and 6. If so, there is potential for these species to occur within aquatic features. If these species occur, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-31 A qualified entomologist shall conduct a focused survey for curved foot hygrotus diving beetle at the appropriate time of year. If curved foot hygrotus diving beetle are not found after completion of seasonal surveys, then no further mitigation is required.

Mitigation Measure 3.5-32 If the curved foot hygrotus diving beetle is found on PAs 1, 3, or 4, occupied aquatic habitat shall be avoided to the extent feasible. If avoidance is not feasible, it shall be replaced at a 1:1 ratio at a location approved by the City. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable aquatic habitat on the PAs 1, 3, and 4. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program,

purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).

Planning Areas 2 and 6

Potential special-status vernal pool branchiopods midvalley fairy shrimp (*Branchinecta mesovallensis*), a Federal Species of Concern, and California linderiella (*Linderiella occidentalis*), a Federal Species of Concern) and curved-foot hygrotus diving beetle habitat may be present in freshwater marsh wetlands and seasonal wetlands within non-native annual grasslands occurring in PAs 2 and 6. If so, there is potential for these species to occur within aquatic features. If these species occur, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-33 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a qualified biologist shall conduct a habitat assessment for vernal pool branchiopods and curved foot hygrotus diving beetle.

Mitigation Measure 3.5-34 If suitable habitat is identified on properties in PA 6 and/or PA 2, seasonal surveys for vernal pool branchiopods and curved foot hygrotus diving beetle shall be conducted prior to initiation of construction activities for one survey period. If special-status branchiopods and/or curved foot hygrotus diving beetle are not found after completion of seasonal surveys, then no further mitigation is required. If special-status branchiopods and/or curved foot hygrotus diving beetle are found then **Mitigation Measure 3.5-32** shall be implemented for those species present.

Special-Status Fish Species

Planning Areas 1, 3 and 4

Potential special-status fish species Sacramento perch (*Archoplites interruptus*), a Federal Species of Concern and a California Species of Special Concern, delta smelt (*Hypomesus transpacificus*), federally- and state-listed as Threatened, and Sacramento splittail (*Pogonichthys macrolepidotus*), a California Species of Special Concern, Chinook salmon (*Oncorhynchus tshawytscha*), winter-run, federally- and state-listed Endangered; Central Valley fall/late run, a Federal Candidate species, and spring-run, federally- and state-listed Threatened; and steelhead (*Oncorhynchus mykiss*), Central Valley ESU, federally-listed Threatened may be present within Dutch Slough, Sandmound Slough and Rock Slough. Construction, water withdrawals from, and outfalls into these sloughs for the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-35 All water intake features or systems from Dutch Slough, Sandmound Slough or Rock Slough including siphons, flood gates, or pumps shall have USFWS and NOAA Fisheries approved fish screens installed. Any stormwater outfalls shall employ water pumping best management practices.

Mitigation Measure 3.5-36 Consultation with the CDFG, NOAA Fisheries, and USFWS shall be requested in conjunction with USACE Section 404 and CDFG Streambed Alteration Agreement permitting to determine appropriate measures to avoid and mitigate impacts to special-status fish species. As part of the consultation process, a Biological Assessment and Essential Fish Habitat Assessment shall be prepared by a fisheries biologist that evaluates: proposed construction plans (including any vegetation removal); design details for pumps, siphons, outfalls, and/or flood gates; rip-rap or other bank protection measures; and stormwater flow regime (including flow rates, timing and temperature).

Mitigation Measure 3.5-37 A Mitigation Plan shall be prepared that includes measures to avoid take of special-status fish during construction activities (which may include, if necessary, placement of coffer dams and preparation of a Fish Rescue Plan for in-water work) and post construction water withdrawal activities. To ensure compliance and implementation of the Mitigation Plan, a qualified biologist shall be present during construction and pumping activities associated with construction.

Planning Areas 2 and 6

Potential special-status fish species Sacramento perch (*Archoplites interruptus*), a Federal Species of Concern and a California Species of Special Concern, delta smelt (*Hypomesus transpacificus*), federally- and state-listed as Threatened, and Sacramento splittail (*Pogonichthys macrolepidotus*), a California Species of Special Concern, Chinook salmon (*Oncorhynchus tshawytscha*), winter-run, federally- and state-listed Endangered; Central Valley fall/late run, a Federal Candidate species, and spring-run, federally- and state-listed Threatened; and steelhead (*Oncorhynchus mykiss*), Central Valley ESU, federally-listed Threatened may be present within Dutch Slough, Sandmound Slough and Rock Slough. For purposes of approving water service for PA 2, USBR concluded that development of PA 2 would have "no effect" on federally-listed species. Consequently, development within PA 2 is expected to have no impact on these federally-listed fish species as evaluated in this EIR. Future construction, withdrawal of water from these sloughs, or discharge of water into the sloughs from PA 6, however, could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-38 **Mitigation Measures 3.5-35-37** shall be implemented as outlined above prior to construction or water withdrawals or discharges within Dutch Slough, Sandmound Slough or Rock Slough.

Silvery Legless Lizard

Planning Areas 1, 3 and 4

Silvery legless lizard, a California Species of Special Concern, have potential to inhabit the interior dunes and Sand mounds found in PAs 1, 3, and 4. Approximately 81 acres of potential habitat would be removed with development. Silvery legless lizards were not found during focused surveys that were conducted, however this species can be difficult to detect as they can burrow greater than a foot into sandy soils. If this species is present, the project could have a ***potentially significant*** impact. The potential impact to Silvery Legless Lizard habitat is shown on Figure 3.5-7, Impacts to Western Burrowing Owl, Silvery Legless Lizard Habitat, and Special-Status Invertebrate Habitat.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-39 A pre-construction survey for silvery legless lizards shall be conducted within interior dune and Sand mound habitat and submitted to the City of Oakley for their review and approval prior to the issuance of grading permits. If silvery legless lizards are not found, no further mitigation is required. If they are found **Mitigation Measure 3.5-40** shall be implemented.

Mitigation Measure 3.5-40 If silvery legless lizards are found, occupied habitat as well as other highly suitable habitat shall be avoided to the maximum extent feasible. If avoidance is not feasible, it shall be replaced at a 1:1 ratio at a location approved by the City and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of suitable sand dune and mound habitat on the PAs 1, 3 and 4. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated wetland and dune habitat area, designated for preservation and mitigation for project impacts on PA 1, second priority shall be given to habitat preservation at an off-site location within the Oakley city limits that shall be acquired and

preserved in perpetuity. Third priority shall be given to another off-site location outside of the Oakley city limits. Public access to this area shall be limited and it shall be managed for the purpose of habitat mitigation. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).

Planning Areas 2 and 6

Based on USDA soil survey information (1977) and aerial photo evaluation, sandy soils are present on PAs 2 and 6. These areas have the potential to support Sand mound and interior dune habitat that may be considered suitable for inhabitation by silvery legless lizards. Approximately 400 acres of soils that may support potential habitat have been mapped in PAs 2 and 6. If highly suitable habitat is present and/or if this species is present, the project could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-41 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a habitat assessment which includes field mapping of interior dunes and Sand mounds shall be conducted by a qualified biologist to evaluate the presence of potential habitat for silvery legless lizards.

Mitigation Measure 3.5-42 If potential habitat is present, focused surveys for silvery legless lizard shall be conducted by a qualified biologist shall during the appropriate time of year for optimal detection and **Mitigation Measure 3.5-39** as outlined above shall be implemented. If silvery legless lizards are found, **Mitigation Measure 3.5-40** as outlined above shall be implemented.

Impact 3.5.3.11: Giant Garter Snake

Planning Areas 1, 3 and 4

Potential aquatic habitat for the giant garter snake, federally-listed Threatened, is present within the irrigation and drainage canals throughout PAs 1, 3, and 4. There is also potential for giant garter snakes to utilize freshwater marsh and seasonal wetlands within irrigated pasture and grasslands that are adjacent to canals. Adjacent upland habitats characterized by ground squirrel burrows provide

dispersal, refugia, and winter retreat opportunities. Potential aquatic habitat totals approximately 106 acres and the associated upland areas within 200 feet total approximately 852 acres. If this species is present, the project could have a ***potentially significant*** impact. The potential Giant Garter Snake habitat is shown in Figure 3.5-8, Potential Giant Garter Snake Habitat.

If the giant garter snake is found within the boundary of the project, the following would be considered impacts to the species: isolation, removal, or dewatering of aquatic habitats and/or associated upland habitat. Based on the giant garter snake's capability for extensive movements (up to ½ mile per day, Hanson and Brode 1993), their ability to traverse roads, levees, and various aquatic habitats and agricultural fields (Wylie et. al 1997), and the connectivity of the aquatic features throughout the site, any positive finding of giant garter snake within the project site indicates that all aquatic habitats and upland areas within 200 feet of aquatic habitats are potentially occupied or utilized by giant garter snake. Aquatic habitats include state and federally jurisdictional wetlands as well as non-jurisdictional areas. A total of approximately 106 acres of potential aquatic habitat are present.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-43 A habitat assessment shall be conducted by a qualified biologist to develop focused survey methods and a trap array design that will result in the highest probability of detection of giant garter snakes. Focused trapping and visual surveys approved by the USFWS shall then be conducted for the giant garter snake. A qualified biologist shall conduct these surveys during the spring for optimal detection. If giant garter snake is not found during spring protocol surveys, fall surveys are not required. If the giant garter snake is not found during protocol surveys, no habitat mitigation shall be required.

Mitigation Measure 3.5-44 If the giant garter snake is found to occur during protocol surveys within the boundary of the project site mitigation shall be required for PAs 1, 2, 3, 4, and 6. If the giant garter snake is found within the boundary of the site, impacts (as defined above) to aquatic habitats plus a 200-foot buffer of such habitat shall be avoided to the extent feasible.

If avoidance is not feasible, aquatic habitat and upland habitat within 200 feet of aquatic habitat shall be replaced at a 1:1 ratio at a location approved by the City, USFWS, and CDFG. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of aquatic and upland habitat. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated open

space area located on the northwest portion of PA 1, second priority shall be given to habitat preservation at an off-site location within the Oakley city limits that shall be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside of the Oakley city limits. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).

Mitigation Measure 3.5-45 Regardless of the results of focused surveys, the Applicant shall request that the USACE initiate consultation with the Service as part of 404 impacts, and the following measures shall be implemented to avoid potential take of individual garter snakes during construction:

1. A qualified biologist shall provide project contractors and construction crews with a worker-awareness program before initiating any work within aquatic habitats or adjacent upland habitats that are appropriate for giant garter snakes. This program shall be used to describe the species, its habits and habitats, its legal status and required protection, all applicable mitigation measures, and conditions of any state or federal permits as they relate to giant garter snake. Proof of this instruction shall be submitted to the City within 24 hours of completion of the initial worker-awareness program.

2. 24-hours prior to construction activities, the project area shall be surveyed for giant garter snake. Survey of the project area shall be repeated at the start of each construction season and/or if a lapse in construction activity of two weeks or greater has occurred. If a giant garter snake is encountered during construction, activities shall not begin until the USFWS has been consulted and the corrective measures required by the USFWS have been completed or the USFWS has determined that the snake will not be harmed.

3. After pre-construction surveys are completed, animal exclusion fencing shall be installed around all construction sites adjacent to aquatic habitats.

Planning Areas 2 and 6

Potential aquatic habitat for the giant garter snake, federally-listed Threatened, may be present within the irrigation canals occurring on PAs 2 and 6. upland habitats providing potential dispersal, refugia, and winter retreat opportunities may also be present. For purposes of reviewing the

inclusion application for PA 2, USBR had concluded that the development within PA 2 would have "no effect" on federally-listed species. At that time, USBR notified the Service in writing of its "no effect" determination, and the Service thereafter notified USBR that it was in compliance with the ESA. Moreover, focused giant garter snake surveys have been conducted at Cypress Grove, a development west of the East Cypress Corridor Specific Plan, and on PA's 1, 3 and 4, all with of which resulted in negative findings. Consequently, giant garter snakes are not expected to occur within PA 2 and thus, development within PA 2 is expected to have no impact on this species. If this species is present within PA 6, however, development within PA 6 could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-46 As part of any future development plan or rezoning review process and prior to development plan or tentative map approval, a qualified biologist shall conduct a habitat assessment to determine if suitable habitat for giant garter snakes is present within PA 6. The habitat assessment can utilize findings that were either negative or positive for PAs 1, 3, and 4. If suitable habitat is identified, **Mitigation Measure 3.5-43-45** shall be implemented as outlined above. If the giant garter snake is found within the proposed project or survey study area habitat impact mitigation shall be required.

Western Pond Turtle

Planning Areas 1, 2, 3, 4 and 6

Western pond turtle, a California Species of Special Concern, has been documented in sloughs adjacent to the project site and within irrigation/drainage canals within the boundary of the site. This species has potential to nest and over-winter in upland habitats such as the grasslands/ruderal habitats adjacent to aquatic habitats. Temporary construction impacts that may affect this species include presence of heavy equipment, placement of a temporary cofferdam, placement of rip-rap, placement of storm water drainage pipes and outfalls into the sloughs, placement of water intake features or systems, and earthmoving activities as part of residential, commercial, and levee alignment construction. Permanent loss of habitat will also occur if irrigation/drainage canals are placed underground and if pond turtles are nesting within upland areas on site. The project may result in impacts to both aquatic and upland habitat for western pond turtle. Loss of habitat and potential loss of individuals and nests if this species is present within construction areas could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-47 A qualified biologist shall conduct pre-construction surveys for western pond turtles in all construction areas identified as potential nesting or dispersal habitat located within 1000 feet of potential aquatic habitat 48 hours prior to initiation of construction activities. If a western pond turtle is found during pre-construction surveys, it shall be relocated by a qualified biologist with permission from CDFG as necessary to a location deemed suitable by the biologist and CDFG (i.e., at a location which is a sufficient distance from construction activities). This survey shall include looking for turtle nests within the construction area. If a nest is found within the construction area, construction shall not take place within 100 feet of the nest until the turtles have hatched and have left the nest or can be safely relocated with assistance from CDFG.

Mitigation Measure 3.5-48 Because attempting to locate pond turtle nests would not necessarily result in detection, after completion of pre-construction surveys, and relocation as necessary, exclusion fencing shall be placed around all construction sites adjacent to aquatic habitats to eliminate the possibility of nest establishment in uplands adjacent to aquatic areas.

Mitigation Measure 3.5-49 If construction activities occur in aquatic areas where turtles have been identified during pre-construction or other surveys, a biological monitor shall be present during disturbance of those aquatic habitats. If a turtle is found, it shall be relocated as necessary to a location deemed suitable by the biologist and CDFG (i.e., at a location which is a sufficient distance from construction activities).

Mitigation Measure 3.5-50 A qualified biologist shall provide project contractors and construction crews with a worker-awareness program prior to the start of any work within aquatic habitats or adjacent upland habitats that are appropriate for western pond turtles. This program shall be used to describe the species, its habits and habitats, its legal status and required protection, and all applicable mitigation measures.

Western Burrowing Owl

Planning Areas 1, 3 and 4

Suitable habitat is present for western burrowing owl, a California Species of Special Concern. The maximum number of owls documented on each property at one time during focused surveys and site visits is as follows: Lesher (2), PA 4 (3), Dal Porto North (1), and PA 3 (5). These birds would be displaced with construction of the project. Disturbance of over-wintering or nesting owls and

habitat loss could have a ***potentially significant*** impact on burrowing owls. Western Burrowing Owl habitat that will be removed by the project is shown on Figure 3.5-8, shown previously.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-51 If not already completed, breeding season and focused winter surveys shall be conducted according to CDFG and California Burrowing Owl Consortium guidelines between April 15 and July 15 and December 1 and January 31, respectively, to determine the number of owls utilizing each of the properties. The survey protocol calls for 4 separate survey dates during each season, at the time of day owls are most likely to be detected.

Mitigation Measure 3.5-52 Prior to issuance of a grading permit, pre-construction surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the project area and within 250 feet of the project boundary. Presence or sign of burrowing owl and all potentially occupied burrows shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines. If burrowing owls are not detected, by either sign or direct observation, construction may proceed. Pre-construction surveys must be reinitiated if more than 30 days lapse between surveys dates and construction activities.

Mitigation Measure 3.5-53 If potentially nesting burrowing owl are present during pre-construction surveys conducted between February 1 and August 31 grading shall not be allowed within 250 feet of any nest burrow during the nesting season (February-August), unless approved by the CDFG.

Mitigation Measure 3.5-54 If burrowing owl are detected during pre-construction surveys outside the nesting season (September 1 - January 31), passive relocation and monitoring may be undertaken by a qualified biologist following CDFG and California Burrowing Owl Consortium guidelines, which involve the placement of one-way exclusion doors on occupied and potentially occupied burrowing owl burrows. Owls shall be excluded from all suitable burrows within the project area and within a 160-foot buffer zone of the impact area. A minimum of one (1) week shall be allowed to accomplish this task and allow for owls to acclimate to alternate burrows. These mitigation actions shall be carried out prior to the burrowing owl breeding season (February 1- August 31) and a qualified biologist shall monitor the site weekly until construction begins to ensure that burrowing owls do not re-inhabit the site.

Mitigation Measure 3.5-55 If burrowing owls or signs of burrowing owls are detected at any time on the project site a minimum of 6.5 acres of foraging habitat per pair or individual resident bird, shall be acquired and permanently protected to compensate for the loss of burrowing owl habitat. The acreage shall be based on the maximum number of owls observed inhabiting the property for any given observation period, pre-construction survey, or other field visit. The protected lands shall be occupied burrowing owl habitat at a location acceptable to CDFG and the City of Oakley. For purposes of this document "on-site mitigation" refers to the entire project site. First priority for habitat preservation shall be accomplished on site. If the required acreage cannot be preserved within the designated open space area, second priority shall be given to habitat preservation at an off-site location within the Oakley city limits that shall be acquired and preserved in perpetuity. Third priority shall be given to another off-site location outside of the Oakley city limits. The habitat in the amount specified above shall be acquired, permanently protected, and enhanced through management for the benefit of the species, to compensate for the loss of burrowing owl habitat on PAs 1, 3, and 4. A Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards shall be prepared if habitat is preserved or acquired for this species. This mitigation measure shall be coordinated with the Mitigation and Monitoring Plan in **Mitigation Measure 3.5-4**. Alternatively, the applicant can provide the required mitigation either through an in-lieu fee program, purchase of the required acreage in an approved mitigation bank, or an approved Habitat Conservation Plan (HCP).

Mitigation Measure 3.5-56 Before construction activities begin all construction personnel shall receive training that includes photos of burrowing owl for identification purposes, habitat description, limits of construction activities in the project area, and guidance regarding general measures being implemented to conserve burrowing owl as they relate to the project.

Mitigation Measure 3.5-57 A monitoring report of all activities associated with pre-construction surveys, avoidance measures, and passive relocation of burrowing owls shall be submitted to the City and CDFG no later than two weeks before initiation of grading.

Planning Areas 2 and 6

Potential burrowing owl habitat has been identified on properties in PAs 2 and 6. Disturbance of over-wintering or nesting owls and habitat loss could have a ***potentially significant*** impact on burrowing owls.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-58 Prior to any construction related activities that could potentially result in the loss of burrowing owls or their habitat, a habitat assessment and focused surveys shall be conducted according to CDFG and California Burrowing Owl Consortium guidelines to determine if burrowing owls are present. If burrowing owl habitat or burrowing owls are detected by sign or direct observation, **Mitigation Measures 3.5-52-57** shall be followed as outlined above.

Nesting Birds

Planning Areas 1, 2, 3, 4 and 6

Several special-status and common bird species have the potential to nest in existing vegetation, including trees, shrubs, irrigated pastures, ruderal habitats, emergent aquatic vegetation, or grassland within the boundary of the project. Any removal of buildings, trees or shrubs, grading, or construction activities in the vicinity of active passerine or non-passerine land bird nests, or active raptor nests, could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game (CDFG) Code. Such disturbance would be considered a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a **less-than-significant** level.

Mitigation Measure 3.5-59 The removal of any buildings, trees, emergent aquatic vegetation, or shrubs shall occur from September 1 through December 15, outside of the avian nesting season. If removal of buildings, trees, emergent aquatic vegetation, or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or non-passerine land birds) or December 15 and August 31 (nesting season for raptors), a nesting bird survey shall be performed by a qualified ornithologist within 14 days prior to the removal or disturbance of a potential nesting structure, trees, emergent aquatic vegetation, or shrubs, or the initiation of other construction activities during the early part of the breeding season (late December through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, a qualified biologist shall inspect all potential nesting habitat (trees, shrubs, structures, grasslands, pastures, emergent

aquatic vegetation, etc.) in and immediately adjacent to the impact areas for nests.

Mitigation Measure 3.5-60 All vegetation and structures with active nests shall be flagged and an appropriate non-disturbance buffer zone shall be established around the nest site. The size of the buffer zone shall be determined by the project biologist in consultation with CDFG and will depend on the species involved, site conditions, and type of work to be conducted in the area.

Mitigation Measure 3.5-61 A qualified biologist shall monitor active nests to determine when the young have fledged and are feeding on their own. The project biologist and CDFG shall be consulted for clearance before construction activities resume in the vicinity. Mitigation Measure 3.5-66 shall be enforced for all raptors.

Swainson's Hawk

Planning Areas 1, 2, 3, 4 and 6

Mature trees provide suitable nesting habitat on the site for Swainson's hawk, state-listed Threatened. At least one active Swainson's hawk nest is known to occur within 1 mile of the project (CDFG 2005).

The irrigated pasture and cultivated/ruderal habitats on PAs 1, 3, and 4 provide suitable foraging habitat for Swainson's hawks, and they have been observed foraging over these areas. Similar habitats that provide foraging opportunities for Swainson's hawks are present in PAs 2 and 6. Dryland pasture, irrigated pasture, grasslands, and other suitable foraging habitats such as row crops, in particular alfalfa fields, are abundant in the vicinity of the project area. The California Department of Fish and Game (CDFG) considers whether or not a project would adversely affect suitable foraging habitat within a ten-mile radius of an active Swainson's hawk nest (used during one or more of the last 5 years). The ten-mile radius standard is the flight distance between active nest sites and suitable foraging habitats as documented in telemetry studies by Estep (1989) and Babcock (1993, 1995). Telemetered Swainson's hawks have been documented by Babcock (1993) utilizing foraging areas of up to 19,000 acres surrounding nest sites. An analysis of foraging habitat within 10 miles of the nest site revealed that between approximately 65,181 and 120,078 acres of potential foraging habitat would remain after removal of the 2,546-acre project site from the approximately 67,096 acres and 120,786 acres, presently available within a ten mile radius of the nest site (Sycamore 2005f). Given the large amount of suitable foraging habitat nearby, the loss of the project site for foraging use is not considered significant. Figure 3.5-9, Swainson's Hawk Nests Within Ten Miles, shows the Swainson's hawk nesting sites included in this analysis.

Loss of an occupied Swainson's hawk nest, however, would be considered a significant impact. If during the pre-construction surveys, Swainson's hawks are found nesting on or adjacent to the site, the project could have a ***potentially significant*** impact on Swainson's hawks.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-62 In order to ensure that nesting Swainson's hawks would not be affected by construction of the project, a qualified biologist shall conduct pre-construction surveys according to CDFG and Swainson's Hawk Technical Advisory Committee guidelines (2000). Survey Period I occurs from January 1 – March 20, Period II from March 20 – April 5, Period III from April 5 – April 20, Period IV from April 21 – June 10, and Period V is from June 10 – July 30. Three surveys shall be completed in at least each of the two survey periods immediately prior to a project's initiation and encompass the area within ½ mile of the project site. If a nest site is found, then, either of the following measures shall be followed:

Mitigation Measure 3.5-63 Trees containing known or potential raptor nest sites may be removed during the non-breeding season to discourage future nesting attempts on the condition that no Swainson's hawk pair is currently utilizing the nest site. Monitoring evidence that any nests in trees planned for early removal are unattended by reproductive-aged birds must be provided; or

Mitigation Measure 3.5-64 If an active Swainson's hawk nest is found sufficiently close (as determined by the qualified biologist and CDFG) to the construction area to be affected by construction activities, a qualified biologist shall determine the extent of a construction-free buffer zone to be established around the nest. Intensive new disturbances (e.g., heavy equipment activities associated with construction) that may cause nest abandonment or forced fledging shall not be initiated within this buffer zone between March 1 and September 1 until it is determined by a qualified biologist in coordination with CDFG that the young have fledged and are feeding on their own.

White-tailed Kite

Planning Areas 1, 2, 3, 4 and 6

The white-tailed kite has been detected on PAs 1 and 3. They are known to nest nearby, and suitable nesting habitat is present within the boundary of the project. Incorporation of general nesting bird mitigation measures outlined in mitigation measures 3.5-59-61 would assist with further detection of nesting within the boundary of the project. The white-tailed kite is a fully protected species under the CDFG Code. In the event that white-tailed kites are found nesting on site, construction activities within close proximity to a nest site could result in ***potentially significant*** impacts.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-65 If nesting white-tailed kite are observed on site during the pre-construction raptor surveys, CDFG shall be consulted regarding appropriate avoidance and mitigation measures to meet the specific needs of the nesting birds. Avoidance of impacts shall be accomplished through the implementation of a CDFG-approved buffer zone to protect the nest from disturbance until the young birds have fledged and are feeding on their own.

Mitigation Measure 3.5-66 If, after the young are determined to have fledged by a qualified biologist, avoidance of the nesting tree is infeasible, it shall be removed under supervision of qualified biologist.

Special-Status Bat Species

Planning Areas 1, 2, 3, 4 and 6

Existing buildings and mature trees and snags located within the project site provide potential roosting habitat for several special-status bat species including pallid bat (*Antrozous pallidus*), a California Species of Special Concern, Townsend's big-eared bat (*Corynorhinus (Plecotus) townsendii)* a Federal Species of Concern and California Species of Special Concern, and Yuma myotis (*Myotis yumanensis*), a Federal Species of Concern. If special-status bats are found roosting on site, destruction or disturbance of roosting sites could have a ***potentially significant*** impact.

Mitigation Measures

The following mitigation measures shall be implemented to reduce the impact to a ***less-than-significant*** level.

Mitigation Measure 3.5-67 A pre-construction survey for roosting bats shall be performed by a qualified biologist within 30 days prior to any removal of trees or

structures on the site. If no active roosts are found, then no further action would be warranted. If either a maternity roost or hibernacula (structures used by bats for hibernation) is present, the following mitigation measures shall be implemented.

Mitigation Measure 3.5-68. If active maternity roosts or hibernacula are found in trees or structures which would be removed as part of project construction, the project shall be redesigned to avoid the loss of the tree or structure occupied by the roost to the extent feasible as determined by the City. If an active maternity roost is located and the project cannot be redesigned to avoid removal of the occupied tree or structure, demolition can commence before maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). Disturbance-free buffer zones as determined by a qualified biologist in coordination with CDFG shall be observed during the maternity roost season (March 1 - July 31).

Mitigation Measure 3.5-69. If a non-breeding bat hibernacula is found in a tree or structure scheduled for removal, the individuals shall be safely evicted, under the direction of a qualified biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow airflow through the cavity. Demolition can then follow at least one night after initial disturbance for airflow. This action should allow bats to leave during darkness, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees or structures with roosts that need to be removed shall first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

Wildlife Corridors

Dutch Slough, the Contra Costa Canal, Sandmound Slough, and associated irrigation canals are potential movement corridors, which may facilitate the movement of animals to and from the project site and may provide safe refuge for species that may forage within the project during various times of the year, including the giant garter snake (if present) and western pond turtle. Lands and hydrologic features surrounding the site are not suitable to facilitate movement and dispersal of many other special-status species as described in the above section due to agricultural practices, the isolated nature of habitats (*i.e.* Sand mounds), introduction of exotic predators, and suburban development. The specific plan project site does not provide a key movement corridor for wildlife in the region given the present agricultural practices and surrounding land uses.

Approximately 108 acres of PA 1 are not proposed for development. This undeveloped area would be managed in perpetuity as wetland and interior dune habitat for special-status species. The adjacent open space provides similar or higher quality habitat to that found in PAs 1, 3, and 4 for many wildlife species and is adjacent, although divided by Jersey Island Road to the Dutch Slough restoration area. Therefore, project impacts to wildlife corridors are not expected to be significant, including the approximately 108-acre wetland restoration area in PA 1.

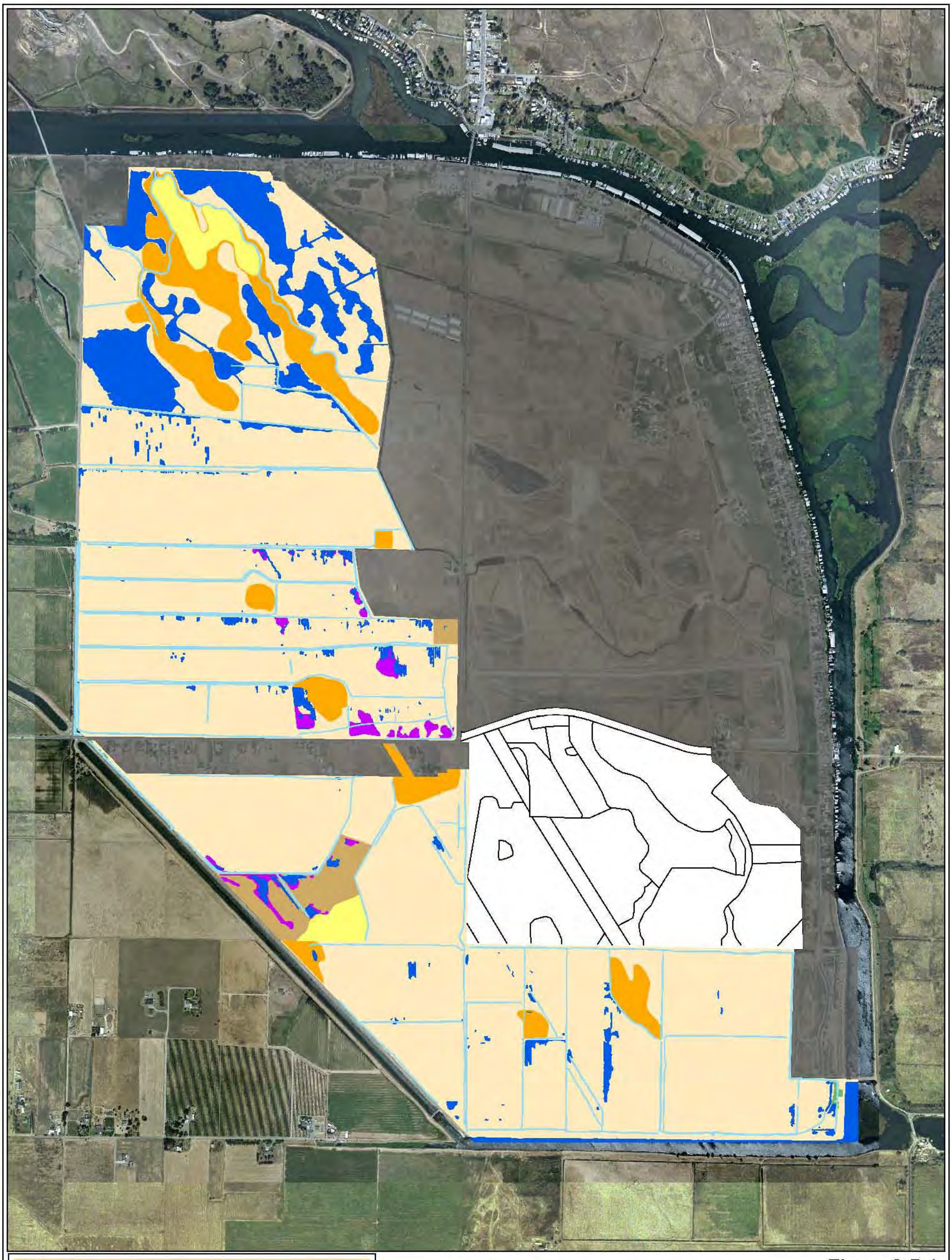


Figure 3.5-1

East Cypress Corridor Specific Plan - Project Sites

Vegetation Communities/Habitat Types

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

This document provided for the sole use of the City of Oakley. Parcel data from McLarand Vasquez Emsiek & Partners (2004). Aerial photography from Bellecci & Associates, Inc. (2004). Existing conditions as noted during field reconnaissance (Summer-Fall 2004; Winter-Spring 2005). Dal Porto North wetlands data provided by Olberding Environmental (2005). Accuracy as originally provided. This document not intended for detailed design work.

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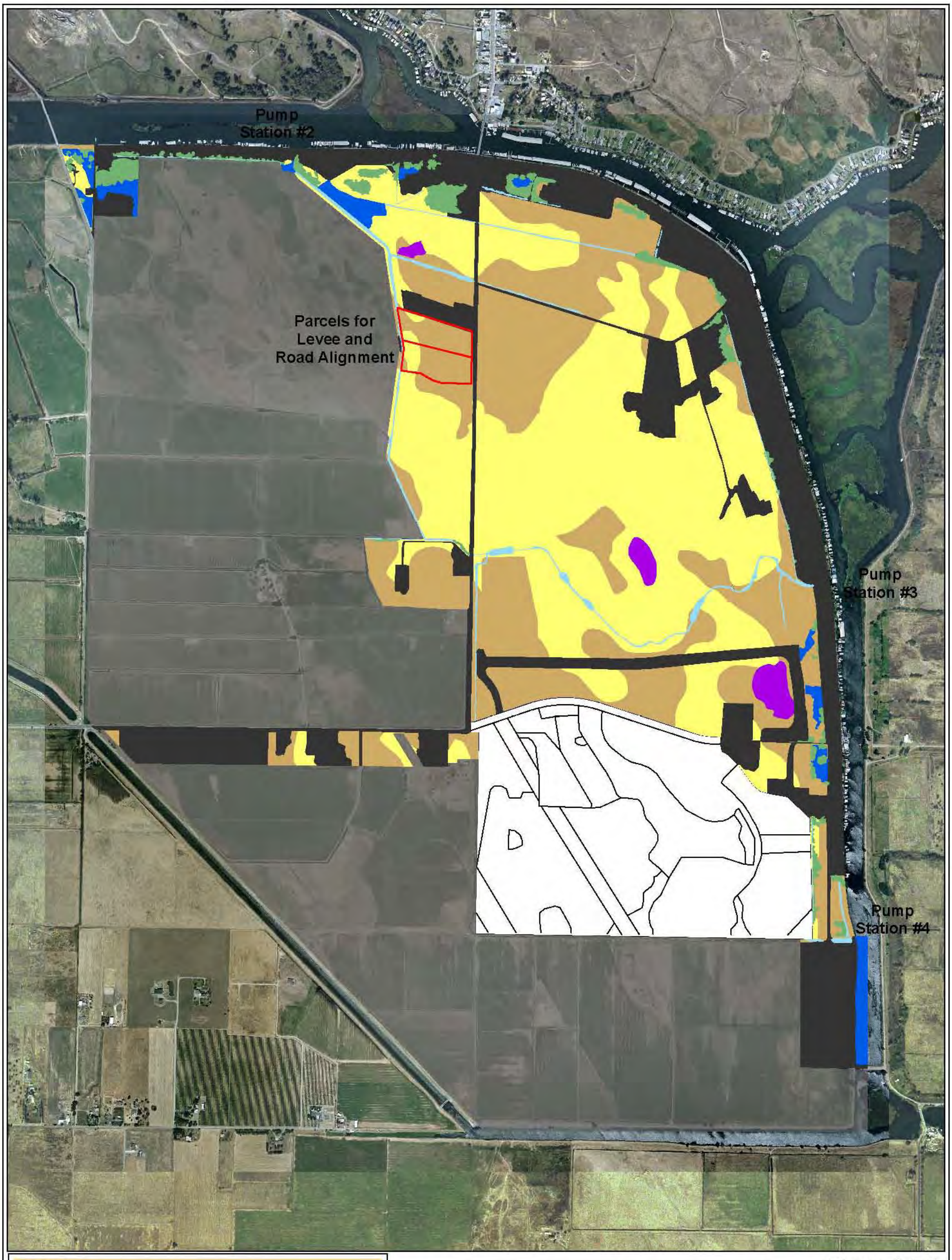

Legend

- Valley Freshwater Marsh - 21 acres
- Alkali Meadow - 12 acre
- Sand Mound/Interior Dune Community (SSURGO) - 400 acres
- Great Valley Riparian Forest/Great Valley Willow Scrub - 28 acres
- Irrigation/Drainage Canal - 17 acres
- Non-Native Annual Grassland/Ruderal Habitat - 288 acres
- Developed Land - 290 acres
- County Approved Cypress Lakes Project
- Project Sites
- Parcels for Levee and Road Alignment

Figure 3.5-2

East Cypress Corridor Specific Plan - Program Level Sites
Vegetation Communities/Habitat Types
City of Oakley - East Cypress Corridor Specific Plan
Oakley, Contra Costa County, California

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1 inch equals 1,250 feet
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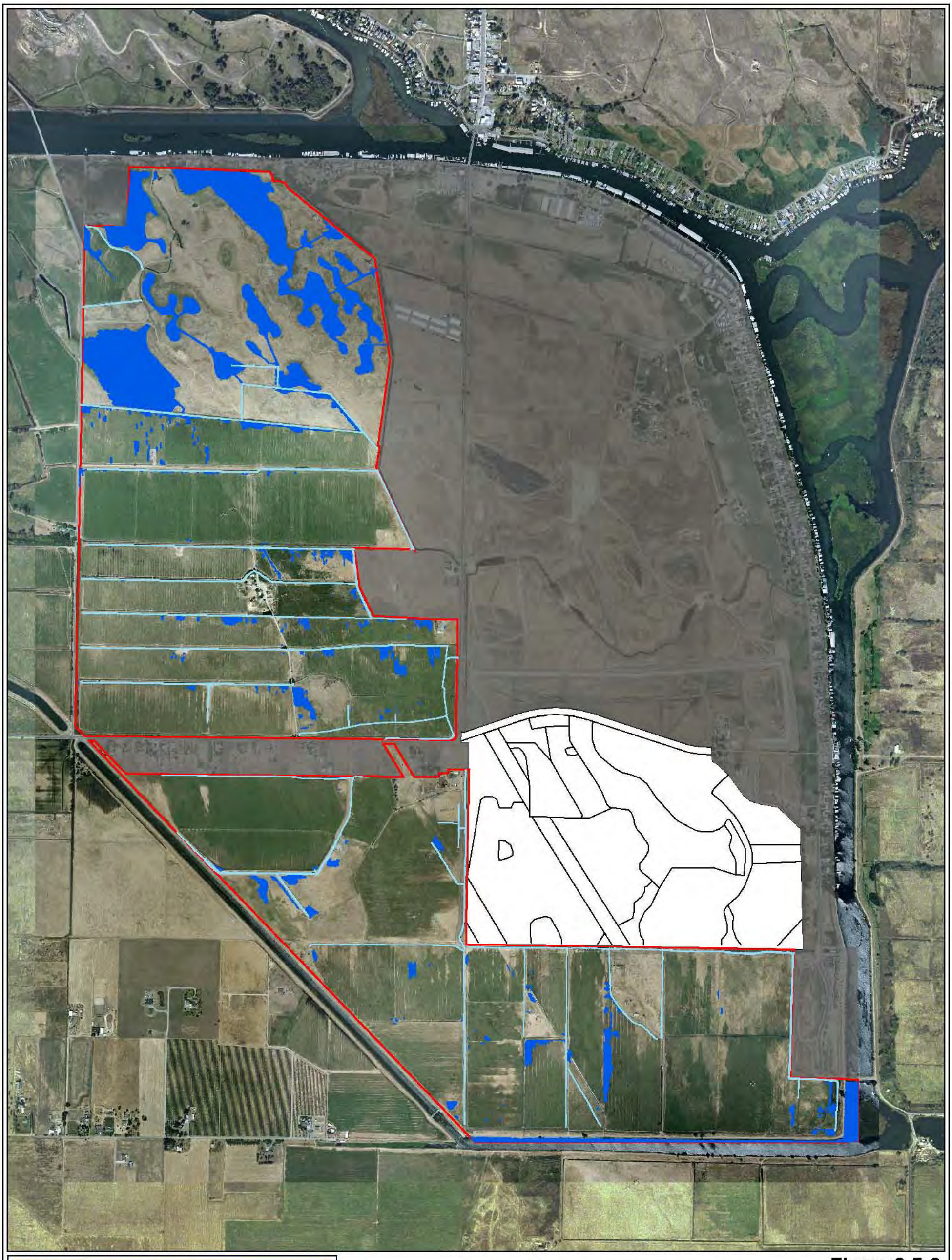

Legend

- Valley Freshwater Marsh/Seasonal Wetland - 101 acres (United States Army Corps of Engineers Jurisdictional Wetlands)
- Jurisdictional Drainage Ditch - 11 acres (United States Army Corps of Engineers Jurisdictional Wetlands)
- Project Site
- County Approved Cypress Lakes Project
- Program Level Sites

Figure 3.5-3

East Cypress Corridor Specific Plan

Project Sites - Federally Jurisdictional Wetlands

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

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1 inch equals 1,250 feet

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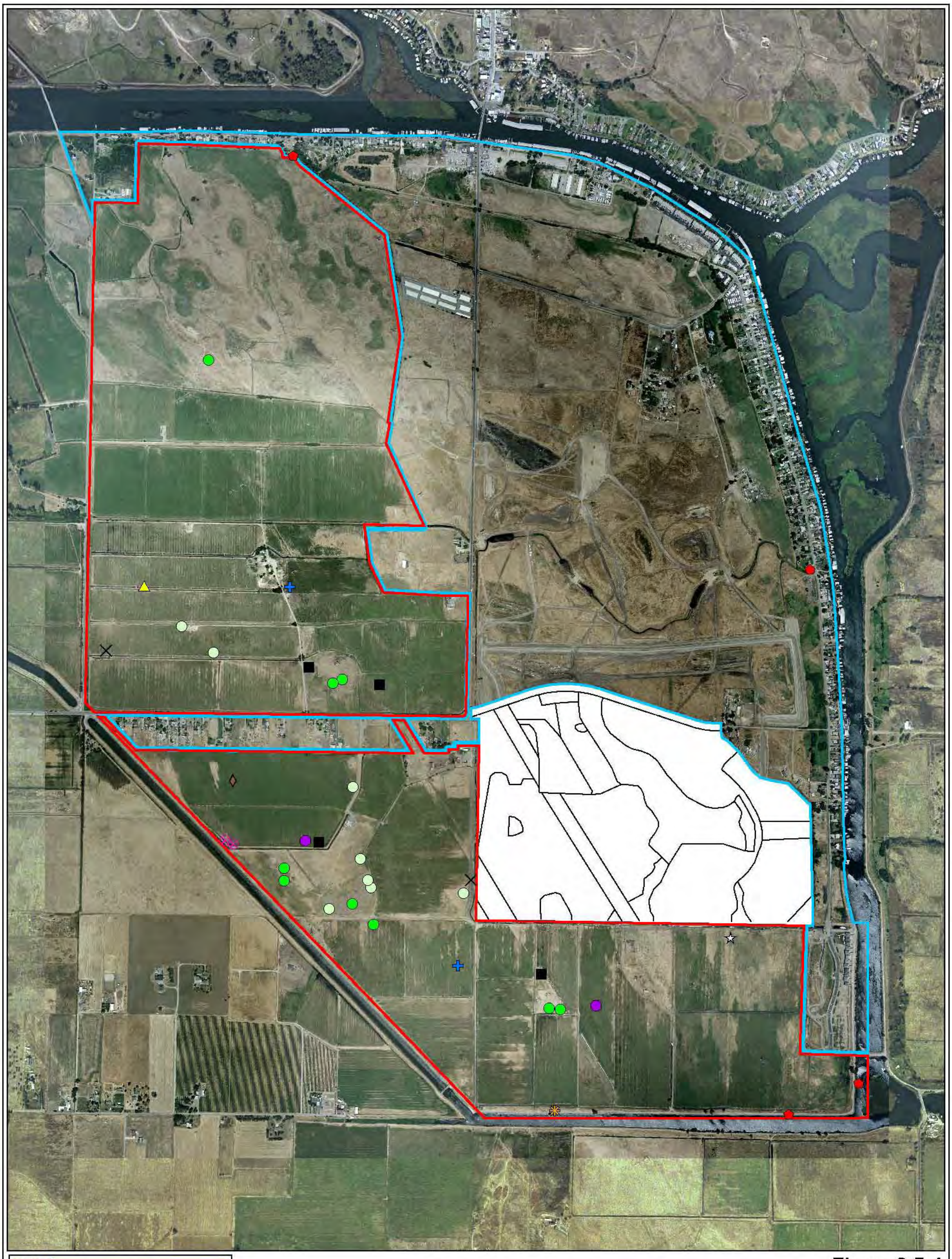

Legend

- Ferruginous hawk (CSC; FSC)
- Loggerhead shrike (CSC; FSC)
- Long-billed curlew (CSC; FSC)
- Northern Harrier (CSC)
- Saltmarsh common yellowthroat (CSC; FSC)
- Suisun marsh aster (CNPS 1B)
- Tri-colored black bird (CSC)
- White-tailed Kite (CFP; FSC)
- Winter Season Western Burrowing Owl (CSC; FSC)
- Nesting Season Western Burrowing Owl (CSC; FSC)
- Western Pond Turtle (CSC)
- Crownscale (CNPS 4)
- County Approved Cypress Lakes Project
- Project Sites
- Program Level Sites

Figure 3.5-4

East Cypress Corridor Specific Plan
Special-Status Species Occurrences

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

CSC = California Species of Special Concern
CFP = California Fully Protected
FSC = Federal Species of Concern
CNPS = California Native Plant Society

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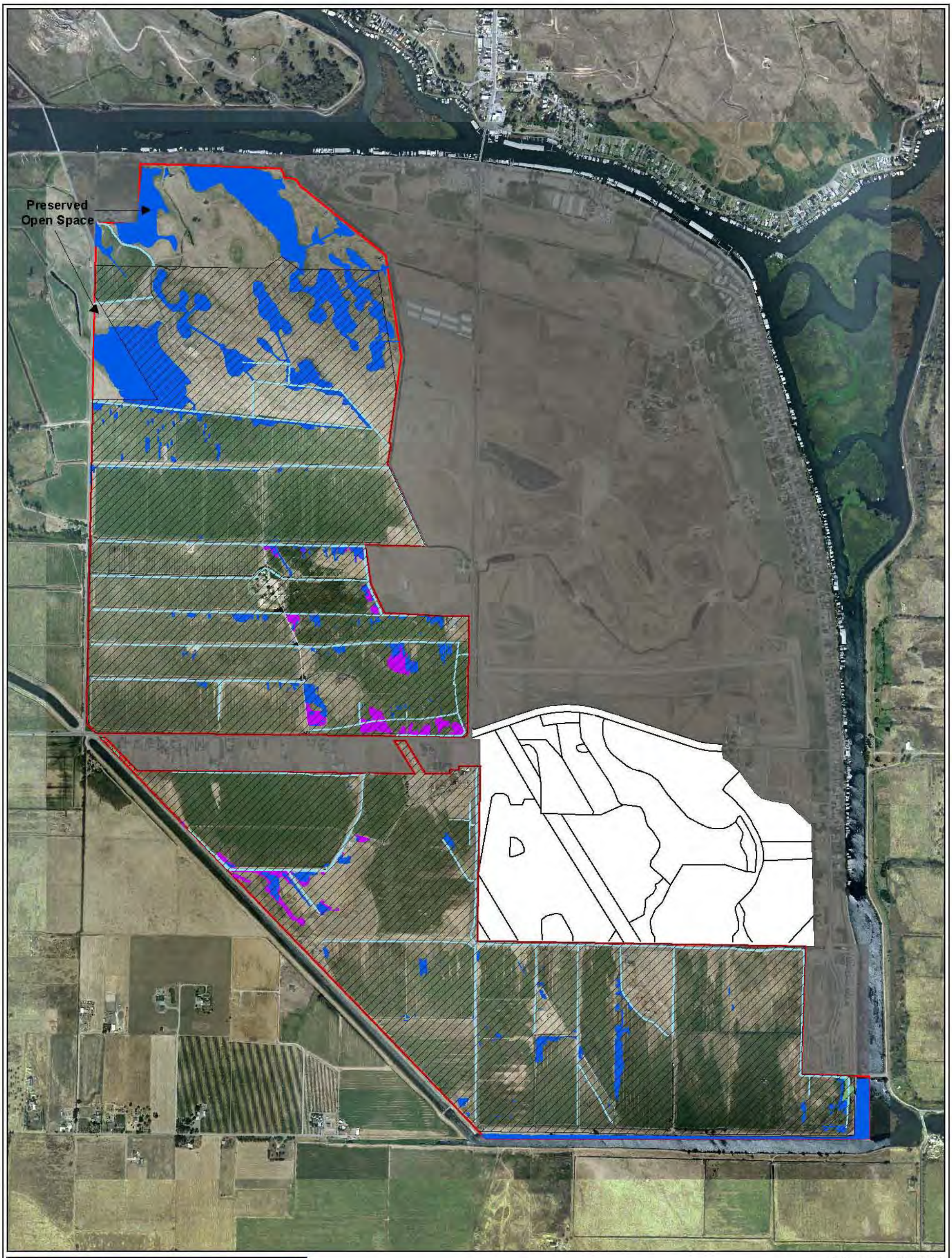

Legend

- Valley Freshwater Marsh/Seasonal Wetland - 101 acres (United States Army Corps of Engineers Jurisdictional Wetlands)
- Great Valley Riparian Forest/ Willow Scrub - 1 acre
- Alkali Meadow & Grassland - 10 acres
- Jurisdictional Drainage Ditch - 11 acres (United States Army Corps of Engineers Jurisdictional Wetlands)
- Preliminary Development Envelope
- Project Sites
- County Approved Cypress Lakes Project
- Program Level Sites

Figure 3.5-5

Impacts to Jurisdictional Wetlands and Sensitive Natural Communities

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

1:15,000 7/20/05

1 inch equals 1,250 feet

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0 1,250 2,500

Feet

	USACE Jurisdictional Freshwater Marsh		USACE Jurisdictional Drainage Ditch		Great Valley Riparian Scrub		Alkali Meadow	
	Impacts*	Avoided	Impacts*	Avoided	Impacts	Avoided	Impacts	Avoided
Total	56.5	44.8	10.8	0.2	0.7	0.0	9.7	0.0

* All area calculations in acres

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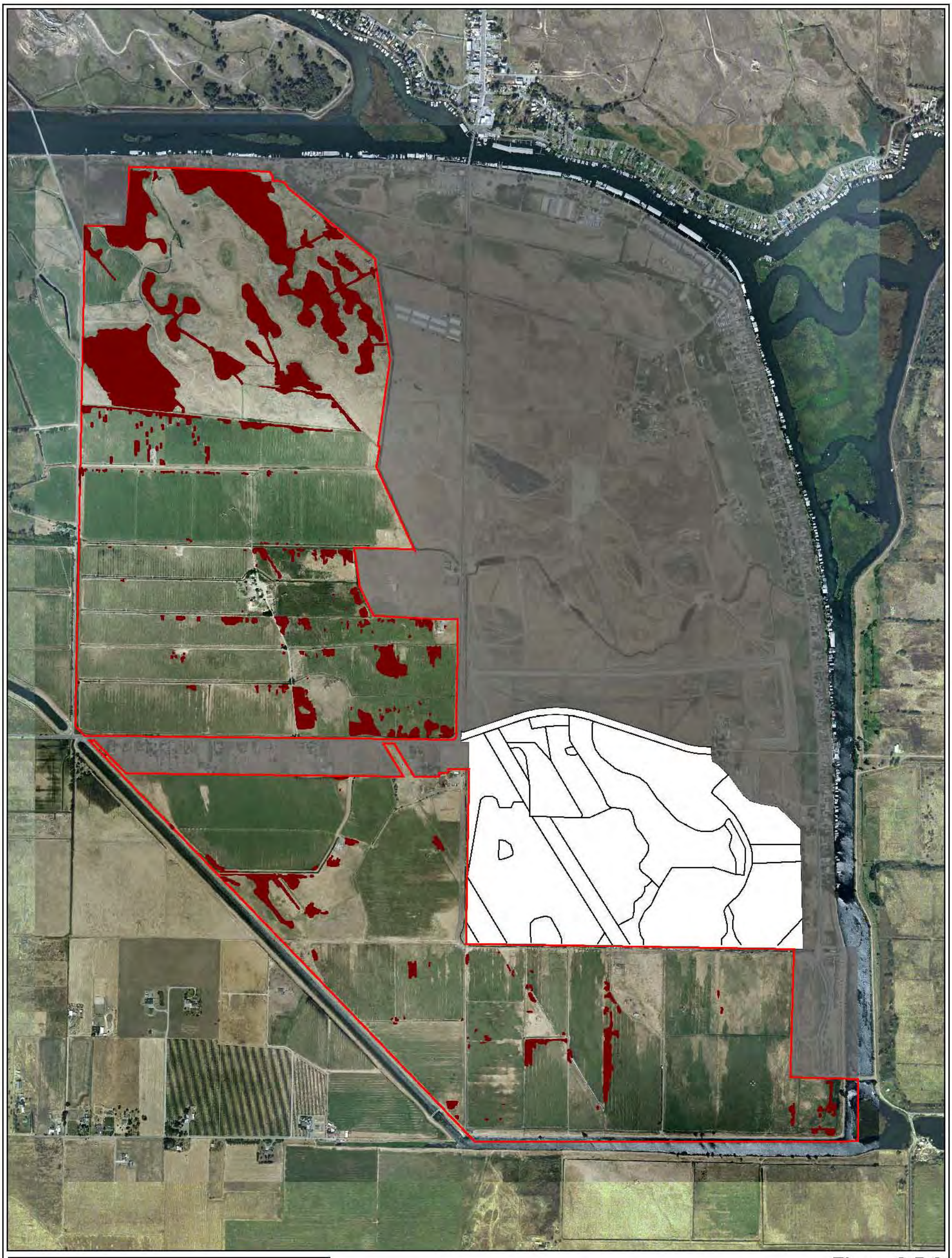

Legend

- Potential Vernal Pool Fairy Shrimp Habitat - 104 acres
- Project Sites
- County Approved Cypress Lakes Project
- Program Level Sites

* Freshwater marsh/seasonal wetlands and alkali meadow/grassland

Figure 3.5-6

East Cypress Corridor Specific Plan

Projects Sites - Potential Vernal Pool Fairy Shrimp Habitat

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

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1:15,000 6/29/05

1 inch equals 1,250 feet

N

0 1,250 2,500 Feet

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Legend

- Western Burrowing Owl Occurrence
- Interior Dune Community (Potential Silvery Legless Lizard and Dune Insect Habitat) - 24 acres
- Sand Mound (Potential Silvery Legless Lizard and Dune Insect Habitat) - 84 acres
- Potential Vernal Pool Fairy Shrimp Habitat - 104 acres
- Project Sites
- Preliminary Development Envelope
- County Approved Cypress Lakes Project
- Program Level Sites

Figure 3.5-7

Impacts to Western Burrowing Owl, Silvery Legless Lizard Habitat, and Special-Status Invertebrate Habitat

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

	Potential V.P.F.S. Habitat		Potential S.L.L. and Dune Insect Habitat		Western Burrowing Owl Impacts*	
	Impacts**	Avoided	Impacts	Avoided	# Observed	Impacts
Total	56.5	47.3	81.4	28.6	14	91.0

* Impact calculated based on mitigation requirement of 6.5 acres per bird that will be displaced.

** All area calculations in acres

1:15,000 7/26/05

1 inch equals 1,250 feet

0 1,250 2,500 Feet

N

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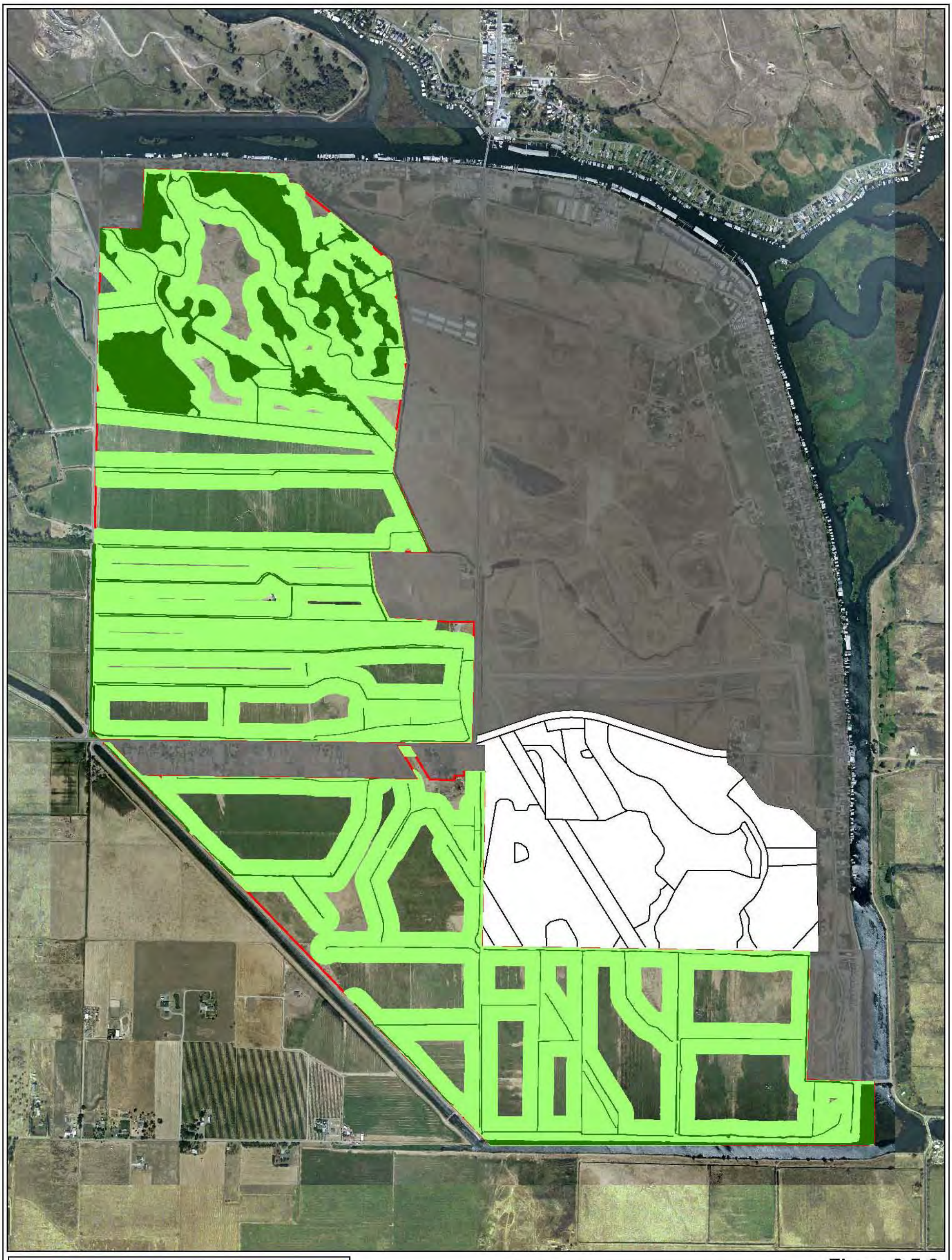

Legend

- Giant Garter Snake Potential Aquatic Habitat* - 106 acres
- Giant Garter Snake Potential Upland Habitat** - 852 acres
- Project Sites
- County Approved Cypress Lakes Project
- Program Level Sites

* Irrigation/Drainage Canals and Freshwater Marsh
** 200 ft. buffer of potential aquatic habitat

Figure 3.5-8

East Cypress Corridor Specific Plan

Projects Sites - Potential Giant Garter Snake Habitat

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

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1 inch equals 1,250 feet
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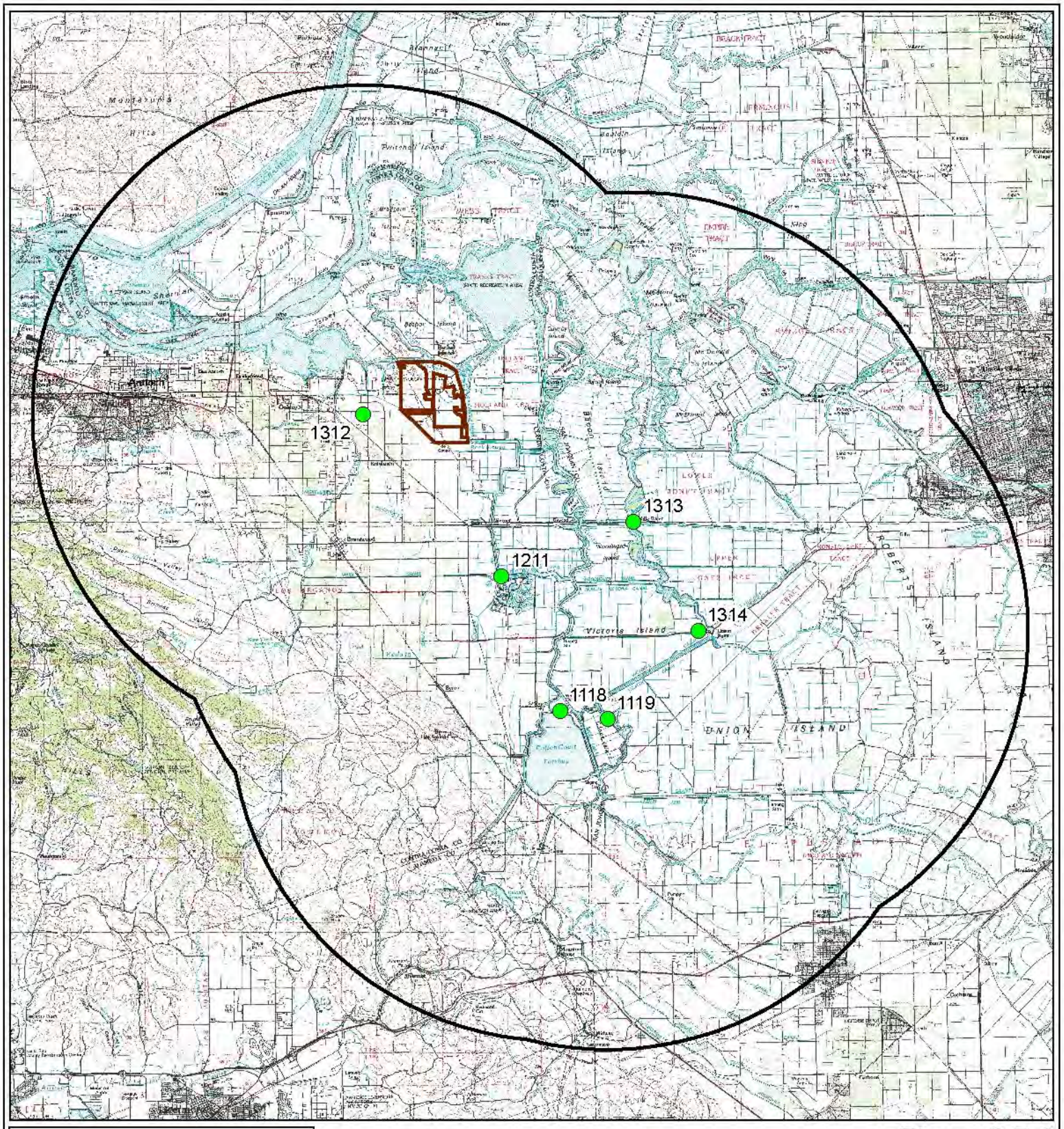

Legend

- Swainson's Hawk Nest Site
- Ten Mile Radius of Swainson's Hawk Nests Within Ten Miles of the East Cypress Corridor Specific Plan Boundary
- East Cypress Corridor Specific Plan Boundary

Figure 3.5-9

Swainson's Hawk Nests Within Ten Miles of the East Cypress Corridor Specific Plan

City of Oakley - East Cypress Corridor Specific Plan

Oakley, Contra Costa County, California

3/24/05 1:253,440

1 inch equals 4 miles

N

0 4 8 Miles

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3.6 CULTURAL RESOURCES

3.6 CULTURAL RESOURCES

3.6.1 INTRODUCTION

William Self Associates, Inc. (WSA) prepared a cultural resource assessment of Planning Areas (PA) 1, 3, 4 and the portion of PA 6 situated between the southern boundary of PA 1 and northern boundary of PA 3. This area is bordered on the north by Dutch Slough, on the southwest by the Contra Costa Canal, on the south by Rock Slough, on the east by an earthen levee, and on the west by Jersey Island Road. The complete cultural resource report is included as Appendix I of this EIR. The cultural resource report includes a record search, archaeological field survey, and assessment of the project site.

The record search covered the SPA and included a 1/2-mile radius beyond those boundaries. The SPA is defined on the north by Dutch Slough, on the southwest by the Contra Costa Canal, on the south by Rock Slough, on the east by Sandmound Slough, and on the west by Jersey Island Road. The California Historical Resources Information System, Northwest Information Center (CHRIS/NWIC) at Sonoma State University conducted the archival record search for the project. The records search indicated that there have been previous archaeological surveys and prehistoric and historic sites recorded within a one-half mile radius of the project site. WSA contacted the Native American Heritage Commission (NAHC) in July 2004, requesting information on sacred sites that may be within the annexation area, and a listing of interested Native American representatives. A record search of the sacred land file has failed to indicate the presence of Native American cultural resources on the project site..

The fieldwork and site assessment addressed historic and archaeological resources for PA 1 (Dal Porto North and Lesher), PA 3 (Dal Porto South), PA 4 (formerly Biggs property, now Bethel Island, LLC) and the portion of PA 6 situated between the southern boundary of PA 1 and northern boundary of PA 3. In accordance with CEQA Sections 15064.5 and 15126.4, WSA conducted field surveys within the Dal Porto North property (the northern half of PA 1), which has not been adequately surveyed by previous archaeological surveys, in order to document any previously unrecorded cultural resources. WSA archaeologists directed by Dr. Allen Estes and Leigh Martin, M.A., conducted the field survey of the Dal Porto North property on August 5 and 6, 2004. Two previously unrecorded archaeological sites were identified as a result of this survey. Recent surveys of the other project areas were in accordance with CEQA standards and, therefore, did not need to be repeated. However, on August 17, 2004, WSA archaeologists Dr. Allen Estes and Kyle Kearney visited and reassessed the six previously recorded cultural resources on PAs 1, 3 and 4.

3.6.2 ENVIRONMENTAL SETTING

The project site is situated on the western margin of California's Central Valley, one of two principal grassland communities that exist in California (the second being the coastal grassland that covers middle-elevation hillsides from San Francisco to southern Oregon). The dominant topographical features are meandering and channelized waterways and low-lying floodplains surrounding low mounds or dunes of Pleistocene-age (Delhi) sands.

Prehistory

Data recovered from Delta and Bay Area archaeological sites indicate a widespread, but sparsely populated culture of hunters and gatherers in the region as early as 5,660 years ago (Henn and Schenk 1970; Henn et al. 1972). This culture was replaced around 3,950 years ago by one adapted to bay-shore and marshland habitation. The Berkeley Pattern describes this later culture, although there is considerable regional variation (Moratto 1984:207-211). By 3,400 years ago, this group had settled in the southern Bay Area. From there they spread northward to the peninsula, westward to the coast, and southward to the Santa Clara Valley. They would remain in these areas until historic times. By 1,920 years ago, the Berkeley Pattern was developing into the Augustine Pattern, with its characteristic bow and arrow, tubular tobacco pipe, cremation, intensive acorn utilization, and complicated exchange systems. It was this emerging pattern that was destroyed by the Spanish mission system and subsequent historical developments (Moratto 1984:283).

Regional History

The history of northern California, Contra Costa County, and the SPA in particular, can be divided into several periods. For the purposes of establishing a historic context from which to assess the potential significance of historic sites within the SPA, these periods are designated as the Spanish (1775-1822), Mexican (1822-1848), and American (1848-present) periods.

Due to its location beyond the eastern slope of Mount Diablo, about 30 (air) miles from San Francisco Bay, the SPA was largely isolated from the Spanish and Mexican periods of California. Therefore, events associated with the Spanish and Mexican periods and cultural remains from those periods are not expected to occur within the SPA.

Cultural Resources Previously Recorded

The staff at the NWIC conducted a record search of the SPA on July 5, 2004 (File No. 04-02). The record search included a review of all cultural resource and excavation reports and recorded archaeological sites within a 1/2-mile of the project. The study included a review of archaeological, ethnographic, historical, and environmental literature as well as records and maps on file at the California Archaeological Inventory.

Twenty-three studies have been conducted within the SPA and 15 additional studies have occurred within a one half-mile radius. As a result of these surveys, 11 sites were identified within the SPA and seven sites within 1/2 mile of, but outside the project.

The records search indicated that there are no historic properties within the SPA that are listed on the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Inventory of Historic Resources, the California Historical Landmarks, or the California Points of Historical Interest. General Land Office maps from 1862, 1872, and 1905 showed no buildings or structures within the project boundary. The 1910 USGS 15' Topographic Quadrangle (Jersey, Calif.) depicts two structures in PA 1.

Eleven archaeological sites have been previously recorded within the SPA: CA-CCO-20; CA-CCO-26; CA-CCO-128; CA-CCO-129; CA-CCO-134; CA-CCO-138; CA-CCO-139; CA-CCO-368; CA-

CCO-647; CA-CCO-652; and P-000809. CA-CCO-129 and 138 have subsequently been joined into a single site – the Hotchkiss Mound. In addition, a prehistoric site, CA-CCO-767, was recently investigated on PA 4 (Holman 2004; Wiberg 2005). Six of the 11 previously recorded sites are discussed below. The other five sites are located on the Summer Lake site (PAs 2 and 5, and the isolated portion of PA 6 that is located within PA 5). The five sites within Summer Lake are discussed below under the heading "Summer Lake Supplemental EIR." Figure 3.6-1, Archaeological Sites in the Project Area shows the resources on the site.

The portion of PA 6 that borders PA 2 on the north and west, and PA 1 on the north and east does not appear to have been adequately surveyed. The surveys that were conducted by Desgrandchamps and Chavez (1984), WSA (1992b) and Ananian (2003a, b) covered the Summer Lake area (PAs 2 and 5), but did not adequately cover PA 6. The survey conducted by Wilson (1978) appears to have been limited to the extreme northern and eastern limits of PA 6 (as plotted on NWIC record search maps), and covered the area along Sandmound Slough. None of these surveys included the portions of PA 6 that are west, north and east of PA 2 in Summer Lakes. To comply with CEQA Sections 15064.5 and 15126.4, any portions of this area that might be impacted by project activities will need to be surveyed to determine if cultural resources are present. No discussion of the potential cultural impacts of development can be addressed for this portion of the project until a survey is conducted.

Native American Consultation

On June 23, 2004, Dr. James M. Allan of WSA contacted the Native American Heritage Commission (NAHC) requesting information on known Native American traditional or cultural properties within the project site and a listing of interested Native Americans with cultural affiliation to the area. In a letter dated July 8, 2004, NAHC staff noted, "a record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area." The letter also provided a list of Native American Contacts.

On August 17, 2004, WSA notified by letter each Native American contact on the NAHC list and solicited their comments about the project. On September 16, 17, and 29, 2004, WSA placed follow-up phone calls to each listed contact soliciting additional information on any sacred lands within the project. The results of this consultation are provided in the full cultural resource report provided in Appendix G.

Although important prehistoric resources, including human remains, are known to be present within the SPA, to date no known Traditional Cultural Properties or Sacred Areas have been identified. None of the tribes contacted have responded to WSA's verbal or written requests for information on sacred land within the project site.

METHODOLOGY AND RESULTS OF THE WSA FIELD SURVEY

WSA archaeologists Allen Estes, Leigh Martin, Kyle Brown, Kyle Kearney, and Thomas Young conducted a pedestrian survey of the Dal Porto North parcel (the northern half of PA 1) on August 5 and 6, 2004. The area was evaluated for the presence of historic or prehistoric site indicators. The archaeological survey was conducted using transect intervals of 20 meters, except in areas identified as Delhi or Piper Sands on the U.S. Soil Conservation Service Guide to Contra Costa County (Welch 1977), where 5-meter transect intervals were used. Special attention was devoted to these

areas, as they are often associated with prehistoric burial features and artifacts. The WSA pedestrian survey was limited to the Dal Porto North parcel; the other properties within the SPA having been subject to recent archaeological surveys. The reports of these surveys are on file at NWIC.

The objective of the cultural resource survey on the Dal Porto North parcel was to locate, record, and evaluate the significance of all cultural resources. Visible ground surface was examined for the presence of historic or prehistoric site indicators, such as charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, and pockets of dark, friable soils (for prehistoric sites), and glass, metal, ceramics, brick, wood and similar debris (for historic sites).

Survey Results – Dal Porto North

The majority of the site is pasture, some of which was under irrigation at the time of the survey. Ground visibility varied from zero to 20 percent, depending on whether the surveyed ground was in low-lying, grassy areas or on the more sparsely vegetated sand mounds. Visibility was better in trampled areas, roadways, and areas where rodent burrowing exposed soil for viewing. Ground visibility was otherwise nonexistent in low-lying pastures, especially those pastures in the southern portion of the property that were covered by standing water at the time of the survey. Cultural material was only observed on the higher sand mounds where visibility was relatively good (greater than 50 percent). Two new sites (CA-CCO-768H and CA-CCO-769/H) were recorded during the survey.

Summary of Testing Conducted on Delhi Sand Mounds in Dal Porto North Property

In May 2005, Basin Research Associates (Basin) conducted mechanically assisted presence/absence testing of six Delhi sand mounds within PA 1 to confirm the results of auger testing completed in October 2004 of 10 sand mounds noted by WSA during the August 2004 survey. Basin excavated a series of test trenches using a 2-foot-wide backhoe bucket. Units were excavated to depths of 1.9 to 3.2 m. No cultural material was recovered from the surface or from the subsurface units excavated within and adjacent to the six mounds on the property. Basin conducted additional testing on two of the mounds in July 2005, as discussed below in the Summary of Cultural Resources.

In July 2005, Basin completed a presence/absence testing program at CA-CCo-768/H and CA-CCo-769H to evaluate the integrity and significance of the cultural deposits noted by WSA. The testing program consisted of backhoe test units and a hand-excavated unit at CA-CCo-768/H. One backhoe test unit was excavated at CA-CCo-769H. No prehistoric cultural material was exposed at either site. Historic cultural materials were found to a depth of 80 cm below the present ground surface at CA-CCo-768/H while materials were exposed at CA-CCo-769H either on the surface or within the plow zone. None of the cultural materials were significant and the deposits appear to lack integrity. Both sites do not appear to be eligible for the NRHP or the CRHR under any of the criteria.

Summary of Cultural Resources

The following cultural resources are present in PAs 1, 3 and 4.

Historic Resources

P-07-000809

WSA archaeologists revisited the earthen canal on August 17, 2004. The canal appears to be unaltered since it was recorded in 1999. The canal is used to convey water, and water was observed in the canal during the recent site visit. The canal is not associated with important events or persons and it does not exhibit any distinctive construction or design characteristics. This site appears to have been altered within the last couple of decades, so that it does not retain its integrity as a historical resource and does not appear to meet the criteria for inclusion in either the NRHP or the CRHR.

CA-CCO-652H (P-07-000412)

WSA archaeologists could not relocate this site during the August 17, 2004 survey. The area of the recorded site was covered with dense weeds and grasses, which did not allow good ground visibility. No historic artifacts were observed. Since the site components were buried when originally discovered, it appears that if the remaining site component is still present, it too is buried. According to McDougall et al. (1992), 50 percent of the site was removed during excavations. Although a large portion of the site may be intact and buried, it has no connection with important events or persons and is a typical discard site. It is doubtful that further investigations of the site will add to the information garnered from the archaeological investigations conducted by Infotec Research, Inc. in 1992. The site does not appear to be eligible for either the NRHP or the CRHR.

CA-CCO-769H (Dal Porto North Site 2)

CA-CCO-769H does not appear to meet the criteria for inclusion in the CRHR. Although the historic site might provide additional information on early historic land use in the Delta area, the site is largely destroyed and therefore does not retain integrity of design or setting. No prehistoric materials were observed on the surface. A presence/absence testing program by Basin in July 2005 did not expose any prehistoric cultural materials.

Prehistoric Resources

CA-CCO-138 / CA-CCO-129 (The Hotchkiss Mound)

The Hotchkiss Mound is an important site for understanding the prehistory of the Delta region of California. The site is a large occupation site that is considered a "type site" for the Late Horizon Phases 1-2 (A.D. 500-1500). Its significant artifact assemblage has been used to characterize the material culture of prehistoric sites in the Delta during the late period (Beardsley 1948, 1954; Bennyhoff 1977, 1978), so much so that Ragir (1972) proposed to substitute "Hotchkiss Culture" for "Late Horizon" as a descriptor of the material culture of the Late period sites. Although the Hotchkiss Mound has been subject to numerous disturbances, primarily through archaeological excavations and the removal of over 250 burials, it still retains its integrity as an important prehistoric site. The site remains important for its sequence of distinctive artifact assemblages, which were integral in the formation of the Central California Taxonomic System (CCTS). The

continued significance of the site was highlighted when it was deeded to the Archaeological Conservancy (Wiberg 2004).

For purposes of the assessment report, WSA archaeologists revisited the site on August 17, 2004. The main mound is fenced and relatively clear of structures. A power line and a dirt road cross the site and a water pump sits on top of the mound. The surface of the mound is under a sparse grass covering with a few trees scattered about. The southern lower extension of the mound underlies several residences and extensive corrals. A cursory walkover of the main mound was sufficient to determine that it is intact, despite the previous archaeological work conducted. On the surface of the mound, the dark sandy midden created by long-term human occupation is instantly recognizable, and large quantities of burned bone, shell, obsidian and chert flakes are readily apparent in the areas where the ground surface is exposed. An obsidian core was observed on the surface. Most of the mound appears to be undamaged, with its structure and contents intact.

In 1978 the site was evaluated as eligible for inclusion in the NRHP as part of the Hotchkiss Archaeological District with a view to addressing important questions of prehistoric chronology and cultural development in the Delta and beyond. This site retains its integrity as a significant resource for understanding the prehistory of Central California and is eligible for inclusion in the CRHR.

CA-CCO-128 (Dal Porto Mound)

The site has been known since 1949 and is situated on a low mound of Delhi sand in the middle of a pasture. Prehistoric artifacts and human remains have been observed at the site. In 2004, when Holman & Associates excavated the site, one of the results of their work was the observation that buried deposits were much more extensive than surface indications had suggested. The recovery of Stockton type projectile points indicate a Late Period occupation, i.e., contemporary with some Late Period components on the Hotchkiss Mound. Except for Holman's work in 2004, the mound has been relatively undisturbed, except by ground squirrel burrows and surface plowing.

WSA archaeologists revisited the site on August 17, 2004. The site is overgrown with grasses, but some ground disturbance was noted: ground squirrel burrowing and the backfilled 1-x-1-m excavation units from the work of Holman & Associates. Some obsidian flakes and bone fragments were observed on the ground surface, primarily in the areas disturbed by excavation. Along with the Hotchkiss Mound and the other prehistoric mounds in this vicinity, the Dal Porto mound should be considered a significant cultural resource of California prehistory. Archaeological investigations of the site could address late period chronology, settlement patterns, and exchange systems within the Delta region. CA-CCO-128 appears to be eligible for the NRHP and the CRHR under criterion d and criterion 4, respectively.

CA-CCO-368 (Lesher Site)

The site represents another prehistoric occupation site in the Delta. Like the Hotchkiss and other mounds in the SPA, it is situated on a mound of Delhi sand surrounded by a low-lying floodplain. A significant off-mound midden lies to the east of the mound. Previous archaeological investigations have resulted in the recovery of six burials, numerous cultural materials (including stone tools and debitage, bone implements, and ornamental artifacts), and abundant well-preserved ecofactual remains (Miller et al. 1977; Miller and Rudo 1977; Romano 1990; Romano et al. 1993).

Although chronometric information from this mound remains largely untapped, existing evidence suggests that this mound was used for burial between 2500 B.C. and A.D. 500 (Romano et al. 1993: 2.2-29). This period overlaps with the time the Hotchkiss Mound was occupied.

WSA archaeologists revisited the site on August 17, 2004. Over-head electrical transmission lines cross the site and at least one transmission tower is constructed on it. The site is covered by grass, and surrounded by active, irrigated pastures. A number of depressions were observed, especially along the southern and eastern portions of the low mound. Along the eastern side of the mound, where much of the archaeological excavations conducted by Miller et al. (1977), Price et al. (1993), and Moratto et al. (1995) (see Appendix G) have taken place, a number of prehistoric artifacts were observed – flaked and groundstone – along with shell and burned bone fragments. It appears that these disturbances are in part responsible for the appearance of prehistoric artifacts on the mound's surface. Because of its temporal association with the Hotchkiss Mound and the fact that it retains its integrity as a prehistoric site, the Lesher site should be considered a significant cultural resource of California prehistory. Because of its potential to provide information important in prehistory, the site appears to be eligible for the NRHP and the CRHR, under criterion d and criterion 4, respectively (Moratto et al. 1995). Archaeological investigations of the site could address Late Period chronology, subsistence and settlement patterns, technology, mortuary practices, paleodemography, paleopathology, culture history and exchange systems (external trade relations), site formation processes, and the paleoenvironment within the Delta region.

CA-CCO-767 (Biggs Mound)

The site is located on an elevated sand dune and was discovered in July 2004 during an archaeological field inspection by Holman & Associates (Holman 2004). WSA archaeologists revisited the site on August 17, 2004. The mound is crossed by a dirt road. A number of ramshackle structures stand on the mound, none with foundations (e.g., a trailer house, a dilapidated shed, and barn) along with a series of corrals. Barbed-wire fencing encircles the mound. Gray sandy soils containing obsidian thinning flakes, shellfish remains, faunal, and human bone fragments were observed along the eastern edge of the site. The material was observed in an area that appeared to be riddled with pits resulting from amateur grave digging and relic hunting. These disturbances are probably the cause for much of the material being brought to the surface of the mound. Despite these disturbances, the mound is intact and deep cultural deposits are assumed to be present. The Biggs Mound has the potential to be as significant a cultural resource for the prehistory of the California Delta as the Hotchkiss Mound. Archaeological investigations of the site could address Late Period chronology, settlement patterns, and exchange systems within the Delta region.

Holman & Associates conducted test excavations at the site in August 2004, which included 11 manually excavated test units and 11 hand auger bores placed in low-lying areas east and south of the mound (Wiberg 2005).

The testing indicated that intact prehistoric cultural deposits were extensive, covering an area of approximately 2.5 acres and reaching depths of 1 m. Olivella shell beads and Stockton serrated projectile point types suggest a Late Period date for occupation. Isolated human remains were encountered, suggesting the possibility that burials are present in the mound. Preliminary analysis of the excavation results indicates that the site meets criteria for listing in the CRHR and the NRHP under criterion 4 and criterion d, respectively.

Prehistoric/Historic Resources

CA-CCO-768/H (Dal Porto North Site 1)

Although the historic component is largely destroyed, survey results suggested this mound had the potential for containing deeply buried prehistoric deposits. Like the other prehistoric mounds in the SPA, it is located on a low mound of Delhi sand. With regard to acreage, this mound is as large as, or larger than, both the Hotchkiss and Biggs mounds. The prehistoric artifacts that were recorded at the site were found in an area of minor ground disturbance that was probably the result of the removal of tree stumps. Although the mound has been impacted by intermittent flooding and wind-blown sands and portions of it have been heavily trampled by cattle, it is covered with dense vegetation and it appears to be less disturbed than the other mounds in the project. This was thought to explain why so little prehistoric material was observed on the mound's surface, and suggested that prehistoric deposits were buried deep in the sand. On the other mounds in the project site, greater levels of disturbance appear to be the principal cause for the surface exposure of the observed cultural material. A number of mounds in the SPA contain significant prehistoric occupation remains, including burials - and the presence of a substantial prehistoric site underlying the historic component at CA-CCO-768/H was considered highly probable.

In July 2005, subsequent to WSA's survey, Basin completed a presence/absence testing program at CA-CCO-769H to evaluate the integrity and significance of the cultural deposits noted by WSA. The testing program consisted of backhoe test units and a hand-excavated unit. No prehistoric cultural material was exposed at the site. Historic cultural materials were found to a depth of 80 cm below the present ground. None of the cultural material was significant and the deposits appear to lack integrity. The site does not appear to be eligible for the NRHP or the CRHR under any of the criteria.

Table 3.6-1
Summary of Previously Recorded Resources in Planning Areas 1, 3, and 4

Site #	Site Type/ Constituents	Cultural/Temporal Affiliation(s)	Relation to Project Area	Reference
P-07-000809	Earthen canal	Historic / Likely constructed 1940s	In project area, NE of CCO-368	Atchley and Hilton 1999
CCO-20	Human remains (5 burials), artifacts (beads, bone tools, groundstone)	Prehistoric/Late (Phase I)	In project area (no longer present)	Elsasser 1956; Self 1992; Basin Research 2002
CCO-652H	Buried historic trash dump	Historic / 1880-1910, approx. 50% removed during excavation	In project area, W of CCO-138/129	McDougall et al. 1992
CCO-768/H	Low mound / Sparse historic and prehistoric artifact scatter	Historic /Prehistoric Historic component largely destroyed, sparse prehistoric scatter, Period unknown	In project area, N of CCO-769H	Appendix G
CCO-769H	Low mound / Sparse historic artifact scatter	Historic / largely destroyed, no indication of buried components	In project area, S of CCO-768/H	Appendix G

Site #	Site Type/ Constituents	Cultural/Temporal Affiliation(s)	Relation to Project Area	Reference
CCO- 138/129	Delhi mound / removal of over 250 burials, distinct artifact assemblages	Prehistoric / Considered a "type site" for the Late Horizon Phases 1-2 (A.D. 500-1500)	In project area, E of CCO-652H	Beardsley 1948, 1954; Bennyhoff 1977, 1978; Ragir 1972; Wiberg 2004
CCO-128	Delhi mound / Human remains, projectile points, artifacts	Prehistoric / Late Period	In project area, SW of CCO-138/129	Holman and Associates 2004
CCO-368	Delhi mound with significant off-mound midden / human remains, shell, flaked and groundstone	Prehistoric / Early to Middle/Late Period transition	In project area, NW of CCO-652H	Miller et al. 1977; Miller and Rudo 1977; Romano 1990; Romano et al. 1993
CCO-767	Delhi mound / Human remains, obsidian, shellfish, faunal, *Olivella* shell beads	Prehistoric / Late Period	In southern portion of project area	Holman 2004; Wiberg 2005

SUMMER LAKE - SUPPLEMENTAL EIR

Five archeological sites have been previously recorded on Summer Lakes: CA-CCO-20 (Elsasser 1956) CA-CCO -26 (Davis 1958), CA-CCO-134 (Pilling 1949; Simpson and Self 1992), CA-CCO -139 (Hewes 1939; von Werlhof 1962; Wills and Self 1992a), and CA-CCO -647 (Wills and Self 1992b).

CA-CCO-20

The site was recorded in 1956 as a burial site that also contained minimal evidence of habitation (Elsasser 1956). Human burials, as well as beads, bone tools, and ground-stone artifacts were recovered from the site. The beads associated with 25 burials from the site were included in the 1993 study by Milliken and Bennyhoff, which indicated a Middle/Late Transition (circa A.D. 900) date for the site (Basin Research 2002). Originally the site was situated on a low mound of Delhi sand in the middle of pasture land. During the 1950s the sand mound was gradually removed and used as levee fill and fill for leveling the surrounding agricultural fields (Self 1992). A field reconnaissance by WSA in 1992 concluded that the site no longer existed (Self 1992). No mitigation measures were recommended in the Summer Lakes EIR, because the ground elevation is 6-7 feet lower now than when the site was recorded and there is no evidence that the site still exists.

Archaeological monitoring of construction excavation at and adjacent to the mound location in 2004 by Basin did not observe any prehistoric or historic cultural material. The mound should be considered destroyed.

CA-CCO-26

The site was originally recorded in 1958 as a burial site, although no human remains and little evidence of occupation were observed at that time (Davis 1958). WSA revisited the site in 1992, at which time the ground surface at the recorded site location was examined and nine auger bores were drilled. The auger results indicated that there were no clearly defined cultural deposits (Wills and Self 1992). Weathered tule elk bone fragments and a historic bottle fragment were observed; otherwise, no evidence of the site was noted. Basin Research revisited the site location in 2001, but the site components could not be relocated. Basin concluded that the site no longer existed (Basin Research 2002).

In May 2005, Basin Research undertook a mechanically assisted presence/absence testing program within the recorded boundaries of CA-CCO-26 (Colin Busby, pers. comm., June 3, 2005). The deposits encountered within the site boundary during the testing program appear to represent concentrations of disturbed cultural material that may be either the badly disturbed remains of a very small and shallow site, only traces of which now exist, or plow drag from nearby CA-CCO-647. Based on their testing, Basin determined that the site boundaries have been reduced and has revised the recorded site configuration. CA-CCO-26 does not appear to be eligible for either the NRHP or the CRHR due to a lack of depositional integrity.

CA-CCO-134

The site was recorded originally in 1949 in the area between the Hotchkiss Mound (CA-CCO-138/129) and the Simone Mound (CA-CCO-139) (Pilling 1949). Very little information is included in the original site record. In 1992, WSA conducted a surficial examination of the site (Simpson and Self 1992). In addition to two faunal tooth fragments, a single obsidian biface was observed. Three auger holes were drilled and their results indicated that the site lacks a clearly defined cultural deposit. Bennyhoff (cited in Bard and Busby 1978) suggested that the site represents an outlier for either of the two large mounds located nearby (the Hotchkiss, CA-CCO-138, and Simone, CA-CCO-139, mounds). Testing completed in 2000 by Mitchell Childress of ECORP Consulting determined that the cultural materials probably represented eroded materials from the surrounding adjacent mounds. Subsequent monitoring of levee construction through the resource in 2003-2004 by Basin confirmed this conclusion. In summary, the cultural materials recorded as CA-CCO-134 represent deposition from the adjacent mounds, and this suggestion best explains the presence of cultural material at this location. Therefore, CA-CCO-134 probably should not be regarded as a separate site, but as a component of the mound cluster that includes CA-CCO-138/129 (Hotchkiss Mound) and CA-CCO-139 (Simone Mound).

CA-CCO-139

The site, also known as the Simone Mound, was recorded in 1939 (Hewes 1939) and is situated on a low mound of Delhi sand. Prehistoric artifacts and human remains have been observed at the site. The site also has an extensive midden deposit, as well as the remains of house floors. In 1992, WSA completed a partial surficial reconnaissance of the site and observed shell, obsidian, and groundstone, as well as distinctive midden soils. WSA conducted minimal testing on the site and found that the midden deposits reached a depth 1 m below the surface (WSA 1992b). As of 2002 residential and farm structures covered portions of the site, but it is assumed that much of the

cultural deposit remains intact (Basin Research 2002). The site appears eligible for the NRHP under criterion d and by extension for the CRHR under criterion 4 as data from the site potentially could contribute valuable information for refining the cultural chronology of Central California (Basin Research 2002). This site is also a contributor to the proposed Hotchkiss Mound District (Bard and Busby 1978).

CA-CCO-647

Wills and Self (1992) recorded this site in 1992. It is situated on a low mound of Delhi sand. Prehistoric artifacts and midden deposits were observed at the site. WSA tested the site in 1992 and found it to contain intact prehistoric deposits (WSA 1992b). The site was revisited in 2001, at which time human bone fragments were observed on the surface, as well as Late Horizon artifacts and midden deposits (Basin Associates 2002). Basin conducted a mechanically assisted presence/absence testing program within the recorded boundaries of CA-CCO-647 in May 2005 (Colin Busby, pers. comm., June 3, 2005). The test program determined that the recorded boundary for CA-CCO-647 is reasonably accurate. CA-CCO-647 appears eligible for both the NRHP and the CRHR under criterion d and criterion 4, respectively. The presence of Native American remains, chronologically sensitive artifacts and materials suitable for dating, as well as ecofactual remains, may add substantially to the archaeological data and interpretations for the "Hotchkiss" area.

A summary of the previously recorded archaeological resources on Summer Lakes is presented in Table 3.6-2.

Table 3.6-2
Summary of Previously Recorded Resources in Summer Lakes

Site #	Site Type/ Constituents	Cultural/Temporal Affiliation(s)	Relation to Project Area	Reference
CCO-20	Human remains (5 burials), artifacts (beads, bone tools, ground stone)	Prehistoric/Late (Phase I)	In project area (no longer present)	Elsasser 1956; Self 1992; Basin Research 2002
CCO-26	Human remains/bottle fragment (Auger tested in 1992; tested in 2005)	Prehistoric and Historic	In project area (may be only minimally present. Not eligible for NRHP/CRHR.	Davis 1958; Wills and Self 1992; Basin Research 2002
CCO-134	Delhi mound/artifact and faunal bone	Prehistoric/ Indeterminate	In project area, immediately W of CCO-139 (may be a site component.). Not eligible for NRHP/CRHR.	Pilling 1949; Simpson and Self 1992; Basin Research 2002
CC0-139	House pits, burials, artifacts	Prehistoric/ Late Horizon	NRHP/CRHR eligible	Hewes 1939; Von Werlhof 1962; Basin Research 2002
CCO-647	Human remains/ artifacts (auger tested in 1992; tested in 2005)	Prehistoric	NRHP/CRHR eligible	Wills and Self 1992; Basin Research 2002, 2005

3.6.3 IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

CEQA Guidelines require that the project consider the significance of an undertaking's impacts to historic remains and archaeological sites determined to be historical resources under CEQA Section 15064.5. To properly evaluate the significance of impacts to such resources it is necessary to evaluate each resource in terms of the site significance criteria contained in this section of the CEQA Guidelines. Generally, a resource shall be considered to be "historically significant" by the lead agency if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852). All significant resources must meet at least one of these basic criteria:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
(B) Is associated with the lives of persons important in our past;
(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
(D) Has yielded, or may be likely to yield, information important in prehistory or history.

Even if a resource does not meet these criteria, it does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

CEQA Guidelines Section 15126.4(b)(3) direct public agencies to "avoid damaging effects" on cultural resources whenever it is feasible. If avoidance is not feasible, the significance of the resource shall be evaluated to determine impact and develop mitigation measures.

A project's impacts involve the level of direct and indirect physical changes to the resource caused by the project. Examples of direct physical changes would be vegetation removal, vehicular travel over the surface, earth-moving activities, excavation, or alteration of the setting of a resource. Indirect impacts may result from increased erosion due to site clearance and preparation, or from inadvertent damage, or outright vandalism to exposed resources due to improved visibility or access.

Exposure of cultural resources during preconstruction site preparation or during construction excavation can also have a beneficial effect by making the data accessible for research. If these resources and their temporal and spatial context receive proper protection and analysis, they can add to the understanding of human adaptation to the environment and subsequent uses of the land and its resources. Analysis of cultural resources also can provide a very important key to prehistoric changes in population and human movement within and throughout a geographic region.

Thresholds of significance are criteria used to determine if the project creates damaging effects to cultural resources. Appendix G in the CEQA Guidelines provides the minimum "thresholds of significance" for impact assessment during the required CEQA review, and has been used as a

standard for impact analysis. These guidelines are described in more detail in Section 15064.5 of the CEQA guidelines.

Substantial adverse change in the significance of a resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate setting such that the significance of the resource would be materially impaired. The significance of resources is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Generally, a project that follows the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995), shall be considered mitigated to a level that is less than a significant impact to the cultural resource.

A lead agency shall identify potentially feasible measures to mitigate adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures.

A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency, and compliance with which means the effect normally will be determined to be less than significant.

3.6.3.1 A significant impact would occur if the project would directly alter the physical remains of a cultural resource determined to be significant in a way that would adversely alter that determination. This could occur by the destruction or removal of intact cultural deposits or features through grading, excavation, or any other ground-disturbing activity; or by exposing intact cultural deposits or features to increased erosion, inadvertent damage, or vandalism by decreasing surface protection through site clearance and preparation. A significant impact would occur if the project would directly alter the physical setting of the cultural resource, if the setting were a contributing factor in the determination of the resource's significance. This could

occur by the destruction or removal of natural features through grading, excavation, or any other ground-disturbing activity; or by exposing the physical setting to increased erosion, inadvertent damage, or vandalism by decreasing surface protection through site clearance and preparation.

CA-CCO-768/H and CA-CCO-769H do not appear to be eligible for either the NRHP or the CRHR under any of the criteria. No further management of these resources is necessary. These resources are not significant under CEQA, no further analysis is required.

One historic site (P-07-000809) was not considered eligible for NRHP/CRHR listing (WSA 2004). It is an earthen canal that may have to be avoided since it is still a component of an active canal system. The canal has been fully documented, and it is unlikely that buried cultural deposits are associated with it. No further mitigation is required for this site.

Historic site CA-CCO-652H was also not considered eligible for NRHP/CRHR listing, as discussed in the project's assessment report. However, it is possible that significant buried deposits associated with this site might exist and would be disturbed during earth-moving activities, which would have a ***significant*** impact.

Mitigation Measure

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-1 To insure that any previously unknown, potentially significant buried cultural deposits are not adversely affected by project construction, archaeological monitoring shall be conducted within 100 feet of the recorded boundaries of CA-CCO-652H during any ground-disturbing activities (i.e., grading, excavation, drilling, etc.). An archaeological monitor shall be present until all ground disturbances are completed. Prior to the beginning of construction and in consultation with the project archaeologist, the developer shall establish protocols that will allow for the redirection of ground-disturbing activities until an assessment of the buried resources can be conducted and measures to protect the resources are approved by the City.

The four prehistoric mound sites (CA-CCO-138/129; CA-CCO-128; CA-CCO-368; and CA-CC0-767) are considered eligible for NRHP/CRHR listing under criterion d and criterion 4, respectively.

Archaeological site CA-CCO-138/129 (the Hotchkiss Mound) is considered a significant cultural resource under NRHP criterion d and CRHR criterion 4. It is situated on a Delhi sand mound that contains proven prehistoric archaeological deposits, and human remains have been found on the site. The site is located in an area designated as open space/easement and Community Park by the specific plan. East Cypress Road is also designated for realignment in the vicinity of the mound. A significant impact would occur if ground-disturbing activities (such as brush clearing, ditch excavation, levee construction, grading, etc.) disturb, damage, or destroy buried prehistoric or historic features and deposits.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-2 Site CA-CCO-138/129 shall be protected from damage through the following mitigation measures:

a. Plan construction to avoid archeological sites and record a conservation easement over the site.

b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows:

   1) The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18" thick;
   2) Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer;
   3) To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment);
   4) The cap shall be in place before constructing non-intrusive facilities on the site; and
   5) If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site.

c. Prior to the construction of East Cypress Road, stake the road alignment in the vicinity of the toe of the mound. An archaeological survey of the portion of the new alignment in the vicinity of the toe of the mound shall be conducted and any significant visible resources recovered.. During construction of East Cypress Road archaeological monitoring shall be conducted in the vicinity of the toe of the mound.

d. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified

archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.

Archaeological site CA-CCO-128 is considered a significant cultural resource under NRHP criterion d and CRHR criterion 4. It is situated on a Delhi sand mound that contains proven prehistoric archaeological deposits, and human remains have been found on the site. This site is located in areas that are designated for a neighborhood park and high-density residential land use. A ***significant*** impact would occur if ground-disturbing activities (such as brush clearing, ditch excavation, levee construction, erosion, etc.) disturb, damage, or destroy buried prehistoric or historic features and deposits that contribute to the site's evaluation as a significant resource. If ground-disturbing activities expose to erosion, inadvertent damage or vandalism buried prehistoric or historic features and deposits that contribute to the site's evaluation, as a significant resource there would be a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant***.

Mitigation Measure 3.6-3 Site CA-CCO-128 shall be protected from damage with implementation of the following:

a. Plan construction to avoid archeological sites and record a conservation easement over the site.

b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows:

1) The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18" thick;
2) Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer;
3) To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment);
4) The cap shall be in place before constructing non-intrusive facilities on the site; and

5) If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site.

c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.

Archaeological site CA-CCO-368 is considered a significant cultural resource under criterion d of the NRHP and criterion 4 of the CRHR. It is situated on a Delhi sand mound that contains proven prehistoric archaeological deposits and human remains have been found on the site. The site is located in an area designated as an open space/easement in PA 1. There would be a ***potentially significant*** impact to the existing resources if the buried prehistoric or historic features and deposits that contribute to the site's evaluation as a significant resource are disturbed due to ground-disturbing activities such as brush clearing, grading and construction.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-4 Site CA-CCO-368 shall be protected from damage through the following mitigation measures:

a. Plan construction to avoid the sites and record a conservation easement over the site.

b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows:
   1) The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18 inches thick;
   2) Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer;
   3) To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment);

4) The cap shall be in place before constructing non-intrusive facilities on the site; and
5) If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site.

c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.

Site CA-CCO-767 is considered a significant cultural resource under criterion d of the NRHP and criterion 4 of the CRHR. It is situated on a Delhi sand mound that contains prehistoric archaeological deposits, and isolated human remains have been found on the site. The site is located in an area designated as a neighborhood park adjacent to a proposed man-made lake in PA 4. A significant impact would occur if ground-disturbing activities associated with the creation of these areas (such as brush clearing, ditch excavation, levee construction, etc.) disturb, damage, or destroy buried prehistoric or historic features and deposits that contribute to the site's evaluation as a significant resource. If ground-disturbing activities expose to erosion, inadvertent damage or vandalism buried prehistoric or historic features and deposits that contribute to the site's evaluation, as a significant resource there would be a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant***.

Mitigation Measure 3.6-5 Site CA-CCO-767 shall be protected from damage with implementation of the following:

a. Plan construction to avoid archeological sites and record a conservation easement over the site.

b. If avoidance is not feasible, incorporate the archeological site within a park, green space, or open space, record a conservation easement over the site, and, in consultation with a professional archeologist certified by the Register of Professional Archeologists (RPA), cap the site by installing a water permeable protective barrier that is covered with a layer of chemically stable soil as follows:

1) The thickness of the cap shall be determined by a registered archeologist to ensure protection of the site from disturbance, but the cap shall be at least 18 inches thick,
2) Minimal or no surface preparation shall be allowed prior to the placement of the cap unless required by a qualified soils engineer;

3) To minimize ground disturbance to and compaction of previously undisturbed areas within the site boundaries, all equipment used in the installation of the site cap shall be equipped with inflatable rubber tires (i.e., no tracked equipment);
4) The cap shall be in place before constructing non-intrusive facilities on the site; and
5) If facilities or excavation are to occur below the cap, a registered archeologist shall be present to monitor the activities so as to avoid disturbance of the site.

c. If disturbance of the archeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archeologist in accordance with CEQA Guideline § 15064.5 so as to record and preserve the significant characteristics of the site.

A potentially significant impact would occur if ground-clearing or ground-disturbing activities exposed to disturbance, damage, or destruction previously unknown buried cultural resources, both historic and prehistoric in nature that could be considered significant historic resources. Indicators of prehistoric site activity include charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, and pockets of dark, friable soils. Historic resources include glass, metal, ceramics, wood and similar debris. The presence of known significant prehistoric sites situated on and around the various sand mounds in the project indicates the possibility that additional buried prehistoric resources might be discovered on other sand mounds inside the project. which if disturbed could have a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-6 In accordance with CEQA Guideline §15064.5 (f), should any previously unknown historic or prehistoric resources, including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, pockets of dark, friable soils, glass, metal, ceramics, wood or similar debris, be discovered during grading, trenching, or other on-site excavation(s), earthwork within 100 feet of these materials shall be stopped. A professional archaeologist certified by the Register of Professional Archaeologists (RPA) shall evaluate the significance of the find and suggest appropriate mitigation measure(s), as determined necessary to protect the resource and be approved by the City.

With the exception of a few structures on the Biggs Mound (CA-CCO-767), no historic structures remain within the project site. The significance of the structures that constitute the built environment has not yet been determined and if destroyed prior to evaluation could be a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-7 In accordance with CEQA Sections 15064.5 and 15126.4, any architectural resources over 45 years shall be recorded on appropriate Department of Parks and Recreation Primary Record (DPR 523) and associated (e.g., Building-Structure-Object) forms. Such structures shall be evaluated for significance (California Register of Historic Resources eligibility) in accordance with the criteria in CEQA Section 15064.5. Appropriate mitigation measures shall be developed for those structures determined to be potentially significant so that project-related impacts to the structures are reduced to less-than-significant.

Summer Lake – Supplemental Impact

Site CCO-134 represents deposition from the adjacent mounds (CA-CCO-138/129 and CA-CCO-139) and probably should not be regarded as a separate site. CA-CCO-134 does not appear to be eligible for the NRHP or the CRHR under any of the criteria.

Mitigation measures for Summer Lake have been developed through a Memorandum of Agreement (MOA) between the U.S. Army Corps of Engineers (USACOE) and the California State Historic Preservation Officer (SHPO). Mitigation Measures below are those developed through the MOA.

CA-CCO-139 (Simone Mound) is one of the Delhi sand mounds considered to be a component of the Hotchkiss Mound complex. The significance of impacts to CCO-139 would be similar to the significance of impacts to CA-CCO-138/129. The mitigation measure for CA-CCO-139 has been stipulated in the Summer Lake MOA.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-8 Site CA-CCO-139 shall be protected with implementation of the following mitigation measures:

a. Demolition of any buildings and structures located within the boundaries of CA-CCO-139 shall be monitored by the Project Archaeologist.

1) The demolition contractor shall attempt to minimize ground disturbance whenever possible, although heavy equipment

and standard demolition practices may be used to remove surface improvements and structures.

2) In-place foundations and subsurface infrastructure improvements shall be left in place where possible to minimize ground disturbance in areas with known or with a high potential for subsurface archaeological resources.
3) At least ten (10) days prior to the commencement of demolition activities, the applicant shall notify the Corps of such activities and provide the Corps with the name and contact details of the monitoring archaeologist.
4) Within thirty (30) days of the close of demolition activities, the Project Archaeologist shall prepare and the Applicant shall submit to the Corps a site-specific written closure report or closure memo reporting the results of the monitoring.

b) The Applicant shall place a soil fill cap of at least eighteen (18) inches within the recorded site boundaries of CA-CCO-139 or other areas with a high potential for subsurface archaeological resources.

1) Minimal or no surface preparation shall be undertaken prior to the placement of the fill unless otherwise required or recommended by the Project Soils Engineer or the Contra Costa County Public Works, Building, or Planning departments.
2) A geotextile layer approved by the Project Soils Engineer/Contra Costa County shall be placed on the surface to be filled prior to the installation of the fill cap.

c) To minimize ground disturbance and compaction in non-disturbed areas, non-tracked (i.e. rubber-tired) equipment shall be used whenever possible for the placement of the soil fill cap within the recorded site boundaries or other areas with a high potential for subsurface archaeological deposits.

d) Excavation for landscaping or irrigation shall be confined to the fill cap. If necessary in order to meet code or other reasonable requirements, excavation below the fill cap may proceed to install underground utilities, park lighting, foundations for restroom facilities, etc. All excavation in native soils shall be monitored by the Project Archaeologist and Native American observer according to the monitoring procedures prescribed in Item 1 of Section B of Stipulation III (in the MOA)..

CA-CCO-647 appears eligible for both the National Register and California Register under criterion d and criterion 4, respectively. It is situated on a low mound of Delhi sand. Prehistoric artifacts and

midden deposits are present at the site. A significant impact would occur if ground-disturbing activities either disturb, damage, or destroy buried prehistoric or historic features and deposits that contribute to the site's potential as a significant resource. Likewise, a significant impact would occur if ground-disturbing activities expose to erosion, inadvertent damage or vandalism buried prehistoric or historic features and deposits that contribute to the site's potential evaluation as a significant resource. The construction of the levee for PA 2 of Summer Lake as currently designed would create a significant impact to CA-CCO-647.

Mitigation Measures

The following mitigation measures shall be implemented to reduce impacts to ***less-than-significant***.

Mitigation Measure 3.6-9 Site CA-CCO-647 shall be protected from damage through the following mitigation measures:

a. Avoidance to minimize impacts to the site is not feasible. Therefore, in consultation with the SHPO and the USACOE, mitigation shall include systematic data recovery; incremental removal of any cultural deposit within the footprint of the levee by light mechanical equipment (e.g., Bobcat) with intensive monitoring by an archaeologist; scientific removal and recovery of any human remains and significant artifacts and features during removal of the cultural deposit; and, monitoring by an archaeologist of any excavation below the cultural deposits to a depth of 10 feet. All discoveries shall be analyzed and reported in an appropriate professional report. The specific mitigation measures shall be developed in consultation with the USACOE and the SHPO.

3.6.3.2 A significant impact would occur if the project would directly or indirectly disturb any human remains, including those interred outside of formal cemeteries.

If ground-clearing or ground-disturbing activities (including grading, bulldozing, excavation, drilling, brush-hogging, mowing, etc.) disturb, damage, or destroy human remains, including Native American human remains and/or funerary objects, which are known to exist in the project, there would be a ***significant*** impact.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant***.

Mitigation Measure 3.6-10 In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code shall be followed. Section 7050.5(b) of the California Health and Safety Code states:

a) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

b) The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within twenty-four hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of preconstruction worker training and intermittent construction monitoring by a qualified archaeologist will serve to achieve compliance with this requirement for protection of human remains. Worker training typically instructs workers as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.

Summer Lake – Supplemental Impact

CA-CCO-26 does not appear to be eligible for either the NRHP or the CRHR due to a lack of depositional integrity. However, there is the potential for buried deposit or human remains to exist that could be uncovered during project grading and construction. If such deposits are present, construction of the proposed Summer Lake levee could have a ***significant*** impact to previously unknown buried deposits associated with CA-CCO-26.

Mitigation Measures

The following mitigation measure shall be implemented to reduce the impact to ***less-than-significant.***

Mitigation Measure 3.6-11 Archaeological monitoring shall be conducted within 100 feet the recorded site boundary during all ground-disturbing activities (i.e., grading, excavation, drilling, etc.) associated with the construction of the levee (Colin Busby, pers. comm., June 3, 2005). An archaeological monitor shall be present until all ground disturbances are completed. Prior to the beginning of construction and in consultation with the project archaeologist, the developer shall establish protocols are to be established that will allow for the redirection of ground-disturbing activities until an assessment of the buried resources can be conducted in compliance with Section 15064.5 of the CEQA Guidelines.

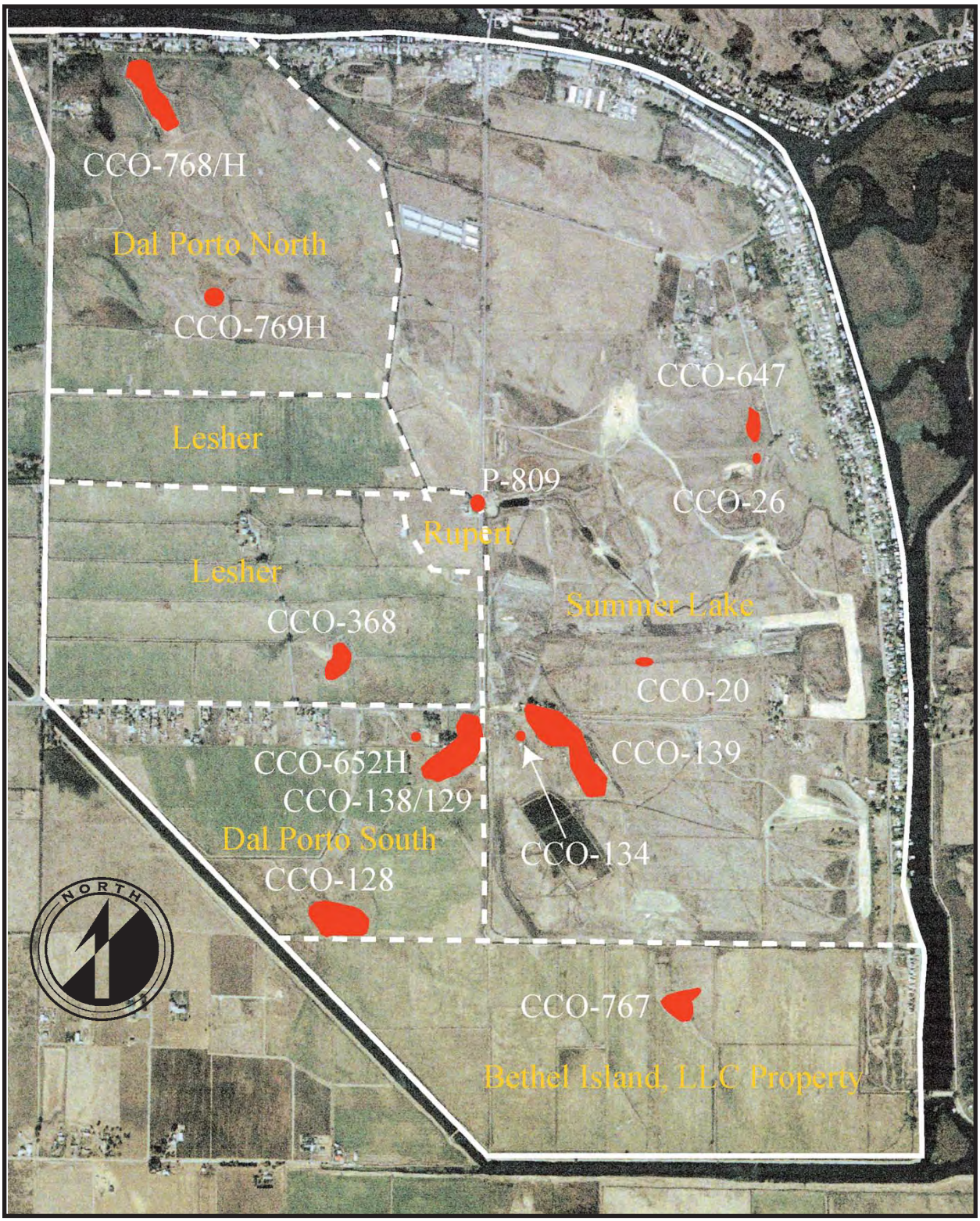

Figure 3.6-1
Cultural Resource Sites

Source: William Self Associates, Inc.