ATTACHMENT C

Draft Environmental Constraints Analysis, Rio Oso Flood Risk Reduction Feasibility Study

Environmental Constraints Analysis

Sutter County

Rio Oso Flood Risk Reduction Feasibility Study

Rio Oso, Sutter County, California
April 21, 2020

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Acronyms and Abbreviations

APE	Area of Potential Effects
BMP	Best Management Practice
Cal Fire	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Sutter County
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
DWR	California Department of Water Resources
EIR	Environmental Impact Report
ESA	Endangered Species Act
Feasibility Study	Rio Oso Flood Risk Reduction Feasibility Study
FEMA	Federal Emergency Management Agency
FRRFMP	Feather River Regional Flood Management Plan
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
iPaC	Information Planning and Consultation
MND	Mitigated Negative Declaration
NAHC	California Native American Heritage Commission
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NULE	Non-Urban Levee Evaluation
project	Rio Oso Flood Risk Reduction Project
quad	quadrangle
RCD	Resource Conservation District
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SPFC	California State Plan of Flood Control
USACE	U.S. Army Corps of Engineers

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1 Introduction

Sutter County (County), as lead agency, is initiating the Community of Rio Oso (Rio Oso) Flood Risk Reduction Feasibility Study (Feasibility Study). The County is studying the feasibility of providing flood damage reduction for the unincorporated and census-designated community of Rio Oso (project).

Generally, a feasibility study is conducted by a lead agency to identify preferred structural and nonstructural elements, multi-benefits, and constraints. The Feasibility Study to assess alternatives for reducing flood risk in Rio Oso also compares implementation costs and schedules, and identifies local funding requirements to assess options which will reduce the flood risk to the community of Rio Oso. The alternative chosen is also intended to sustain agriculture and the regional economy, provide safe public access to the river, and improve the riverine habitat viability and regional levee maintenance governance.

1.1 Purpose and Scope of a Feasibility Study

During the planning phase of a project, a feasibility study is often prepared to provide a description of the existing conditions and associated deficiencies, as well as an evaluation of alternative solutions to correct identified problems. A feasibility study typically includes a framing of the feasibility study objectives, a discussion of the project area and background, an identification of problems and opportunities, and definition of potential environmental constraints. Environmental constraints are restrictions that limit the planning process, such as resource constraints (i.e. biological, cultural, etc.); legal and policy constraints (i.e. laws, applicable policies, regulations, etc.); and permit requirements. The purpose of including an environmental constraints analysis within the feasibility study is to assist with the identification of key environmental issues that should be given due consideration during the planning and design phase of the project.

The analysis of environmental constraints is intended to facilitate the project planning process, assist with the evaluation of various alternatives, support definition of a preferred project, and identify potential permitting and mitigation requirements. This environmental constraints analysis focuses on one preferred structural alternative, described in Section 1.5, since this alternative has been developed to the point that a useful evaluation of environmental constraints is viable and can be informative for planning purposes. Specifically, this environmental constraints analysis identifies potential constraints based on the anticipated presence or absence of environmental resources; describes the consistency and/or compliance with existing policies; and identifies potential environmental mitigation costs that could be attributable to this alternative. Finally, this report also provides basic permit information. For comparison, nonstructural measures are also described in Section 1.6 of this document; however, these concepts have not been developed to the point to allow for a useful evaluation of environmental constraints, thus this report does not describe the potential environmental constraints related to nonstructural measures.

The California Environmental Quality Act (CEQA) Guidelines Section 15262 states that “a project involving only feasibility or planning studies for possible future actions which an

agency, board, or commission has not approved, adopted, or funded does not require the preparation of an Environmental Impact Report or a Negative Declaration". Section 15262 of the CEQA Guidelines further defines that it does not apply to the adoption of a plan that will have a legally binding effect on later activities. Since the Feasibility Study is not legally binding to future activities, no documentation under CEQA has been prepared for the Feasibility Study. In addition, the ecosystem concepts and multi-benefit concepts identified in the Feasibility Study and summarized in this report are presented solely for planning purposes at this time. Their inclusion herein does not commit the County to any specific future actions and has no legally binding effect.

1.2 Project Area Location and Information

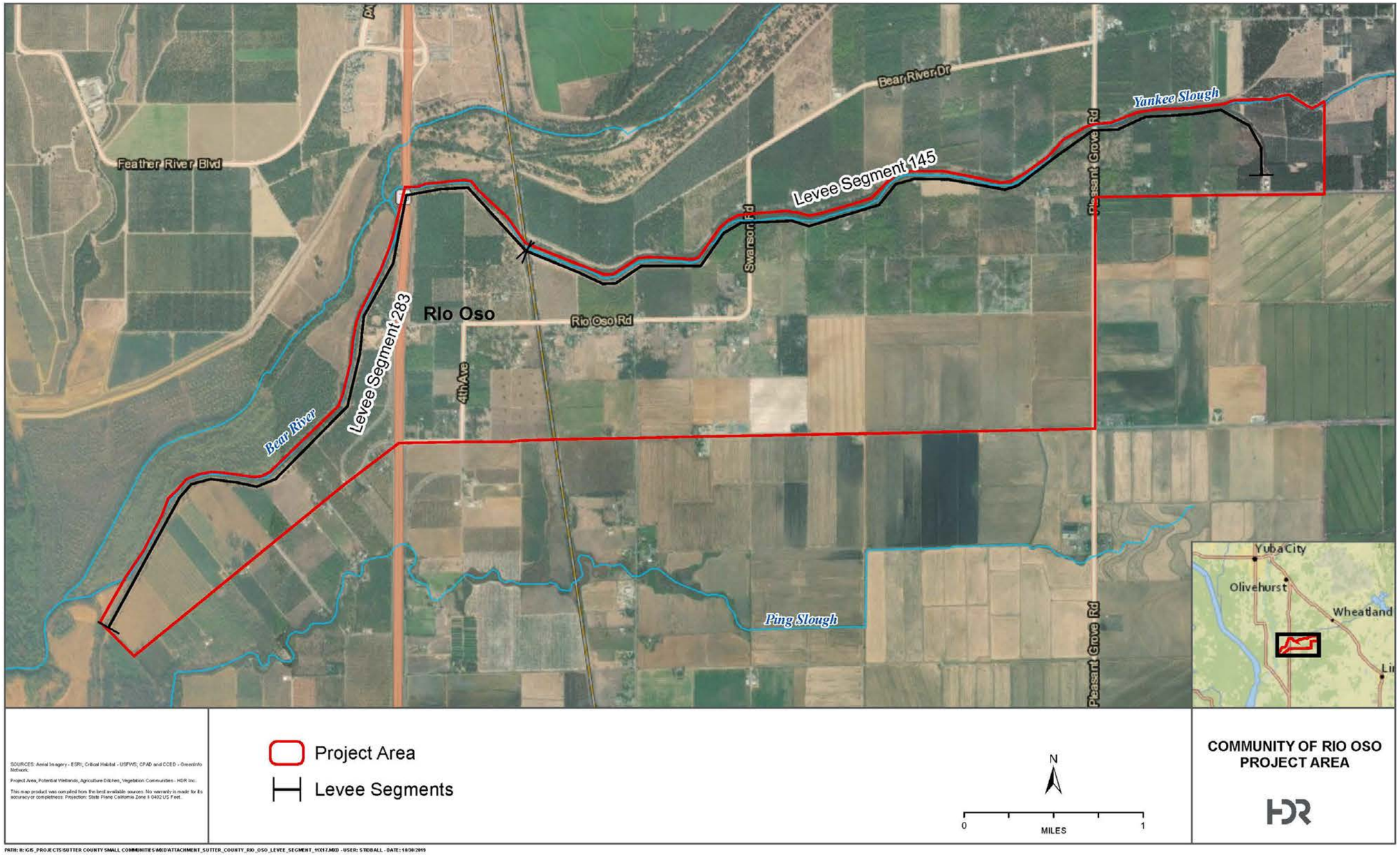
The project is located in the community of Rio Oso, a census-designated place in Sutter County, California. **Figure 1-1** provides an overview of the project area. Rio Oso is situated along State Highway 70 east of State Highway 99 along the south bank levee of the Bear River and Yankee Slough. Rio Oso is approximately 30 miles north of Sacramento, California and approximately 15 miles south of Yuba City, California along State Route 99 in the southern portion of Sutter County. Rio Oso occupies approximately 6.5 square miles of land (**Figure 1-1**). The community is at an elevation of approximately 52 feet and receives an average annual precipitation of 21 inches (Best Places 2019).

Reclamation District (RD) 1001 maintains the levees surrounding Rio Oso. Rio Oso is protected from flooding by State Plan of Flood Control (SPFC) levees along the left (south) bank of Yankee Slough, the left (south) bank of Bear River, and the left (east) bank of the Feather River. The levee segments protecting Rio Oso are shown on **Figure 1-1**. The project area for this flood risk reduction feasibility study includes Segment 283 and Segment 145 (a similar feasibility study carried out for the community of Nicolaus covers Segment 247).

There are approximately 124 housing units in Rio Oso, no hospitals and one school, Browns Elementary School. According to the 2010 census, the population of Rio Oso was approximately 356 people. The 5-year estimate for the U.S. Census Bureau American Community Survey projected the population of Rio Oso to be 421 people in 2017, which is an approximately 18% increase from 2010. (U.S. Census Bureau 2019).

According to the Sutter County General Plan Land Use Map, predominant land uses in Rio Oso include agriculture, agricultural rural community, open space, park and recreation, and public (Sutter County 2014). Lands immediately adjacent to the project area are all designated for either open space or agricultural purposes (Sutter County 2014).

Figure 1-1. Community of Rio Oso Project Area



1.3 Objectives of the Proposed Project

The objectives of the project are to:

- Reduce the risks of flooding to life, property, and critical infrastructure
- Improve flood system resiliency and facilitate adaptation to future climate variability
- If feasible, attain a 100-year level of flood protection for the community of Rio Oso and surrounding areas in accordance with Federal Emergency Management Agency's (FEMA) guidelines pursuant to Code of Federal Regulations (CFR) Section 65.10.
- Increase and improve the quantity, diversity, quality, and connectivity of riverine aquatic and floodplain habitats
- Contribute to the recovery and sustainability of native species populations and overall biotic community diversity
- Promote multi-benefit projects/provide recreational benefits
- Improve operations and maintenance
- Improve institutional support

1.4 Need for the Proposed Project

The project is located in the Central Valley of California which faces significant flood risk. According to the Department of Water Resources (DWR), "approximately 1 million Californians live and work in the floodplains of the valley, which contain approximately $80 billion worth of infrastructure, buildings, homes, and prime agricultural land" (DWR 2018). As a result, a major flood in the Central Valley could result in devastating loses, both financially and otherwise (DWR 2018). According to DWR, the Central Valley is home to more than 1,600 miles of State-Federal levees, and since 1983 these project levees have been breached or overtopped more than 70 times (DWR 2019). The Central Valley Flood Protection Plan (CVFPP) 2017 Update indicates that future floods are expected to result in greater damage due to such factors as climate change, subsistence, sea-level rise, and future population growth and development within floodplains (DWR 2017). Therefore, the project is being studied to address the need for flood protection in this high flood risk community of California.

Rio Oso is located in the southern portion of the Feather River Regional Flood Management Plan (FRRFMP) area. Many Levee Maintaining Agencies (LMAs) in the noted FRRFMP area face challenges from encroachments, levee penetrations, slope instability and erosion, and maintenance issues (FRRFMP 2014).

In 2008, Rio Oso and the surrounding areas were remapped by FEMA as Zone A on Flood Insurance Rate Maps (FIRM), meaning they are in the identified 100-year floodplain and those living within the zone must have flood insurance. According to the FEMA Flood Insurance Study for Sutter County, the existing levees, segment 283 along the Bear River and 145 along Yankee Slough are not in compliance with the requirements set forth in the National Flood Insurance Program (NFIP), and would likely

fail in a larger event (FEMA 2015). Therefore, the project is needed to provide increased flood protection for Rio Oso and the surrounding areas and would help meet DWR's Central Valley Flood Protection Plan (CVFPP) Conservation Strategy goals. The goals of the CVFPP Conservation Strategy include: improved flood risk management, the promotion of multi-benefit projects, increased operational and regulatory efficiency, and the promotion and restoration of ecosystem function in the Central Valley (DWR 2016). Specifically, the project is needed because:

1. Rio Oso and the surrounding areas are threatened from flooding from the Feather River, Bear River, and Yankee Slough.
2. Previous and current geotechnical investigations, showed that levees protecting Rio Oso and surrounding areas suffer from underseepage, through seepage, and levee slope stability issues and that the anticipated hazard level is low to moderate likelihood of either levee failure or the need to flood-fight to prevent levee failure. (HDR 2019)

1.5 Preferred Remediation Alternative

Based on the goals and objectives of the project to improve flood risk management, enhance habitat restoration, provide recreational benefits, and support agricultural sustainability in Rio Oso, a wide array of preliminary flood risk reduction alternatives were scoped for the community of Rio Oso through the Small Communities Flood Risk Reduction grant program administered by DWR. Several alternatives were formulated and screened during the Feasibility Study scoping process. Nonstructural, multi-benefit and ecosystem measures are described in Section 1.6. The two remediation/structural alternatives were formulated and evaluated during the Feasibility Study scoping process.

Segments 145 and 283 were divided into remediation reaches for the geotechnical evaluation. **Figure 1-2** shows the identified remediation reaches on segment 145 and 283. The reaches of segments 145 and 283 that did not meet the criteria for a 100-year flood were evaluated for one or more remediation alternatives. In general, the remediation alternatives considered consist of cutoff wall, drained stability berm, combined drained stability and seepage berm, erosion remediation-rock slope revetment, and geometry mitigation. Remediation Alternative 1 generally met the criteria established in the Feasibility Study for the 100 year water surface elevation and is the only alternative evaluated further in this analysis. This alternative is summarized below in **Table 1**.

For the preferred remediation alternative, the regulatory setting and regulatory consistency analysis are provided for each resource area in **Appendix A**. An analysis of environmental resources, which includes the existing conditions, such as the anticipated presence or absence of environmental resources, and the key environmental constraints, is provided in **Appendix B**.

A summary of the proposed remediation measures and construction techniques is provided below by remediation type. Borrow areas for the remediation measures are also described below.

Figure 1-2. Preferred Remediation Alternative Reaches

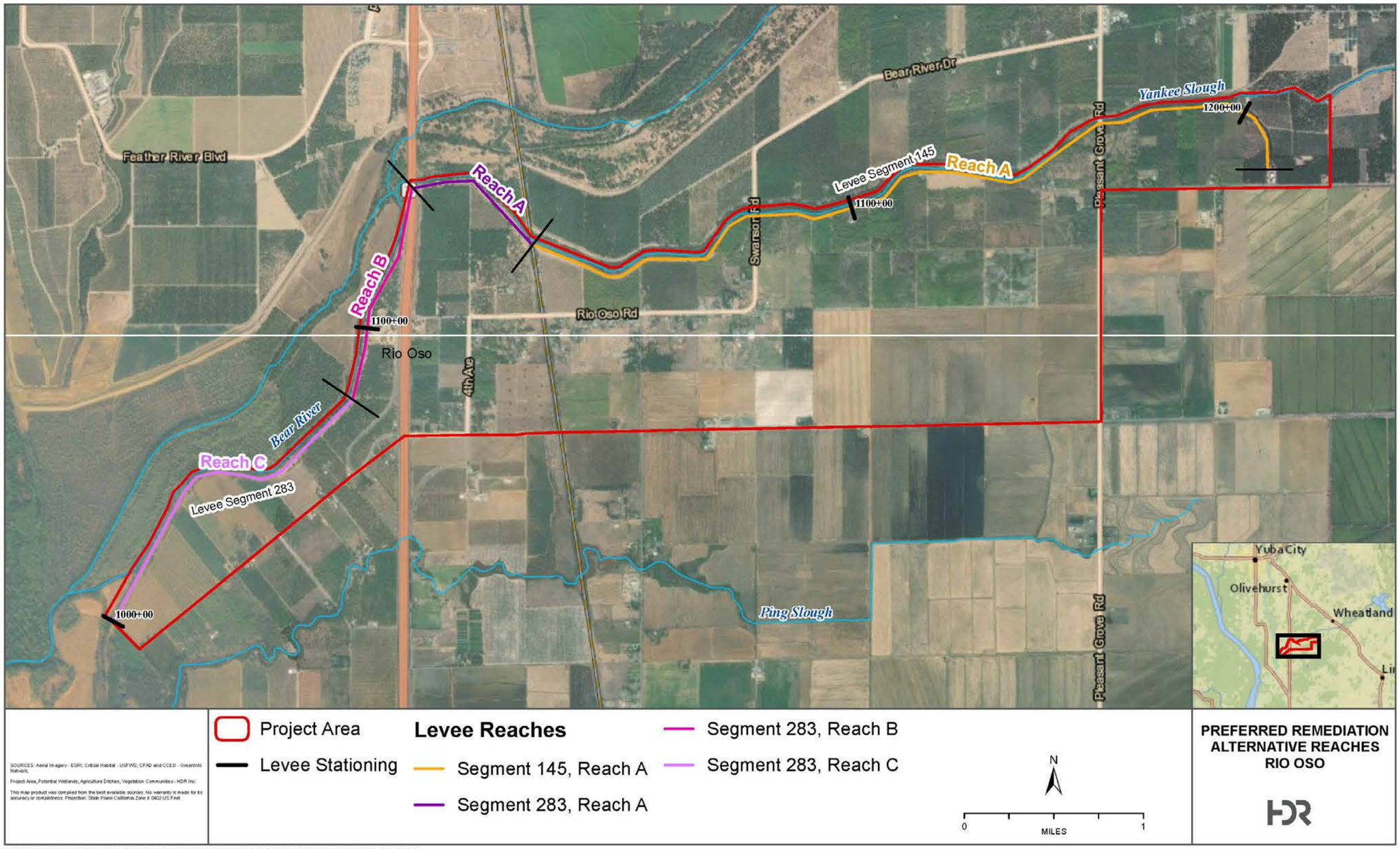


Table 1. 100 year Water Surface Remediation Alternative

Segment	Reach	Project Stationing	Remediation Alternative 1
145	A	YS 231+17 to YS 38+30	Drained Stability Berm - 15 feet wide and backfill landside depression with locally available materials
283	A	YS 38+30 to YS 4+64	Drained Stability Berm - 15 feet wide and backfill landside depression with locally available materials
283	B	YS 4+64 to YS 0+00 and BR 130+72 to BR 85+00	Combined Drained Stability and Seepage Berm - 150 feet wide
283	C	BR 85+00 to BR 0+00	Waterside Slope - Rock Slope Protection; Landside - Combined Drained Stability and Seepage Berm - 60 feet wide

1.5.1 Drained Stability Berm

Drained stability berms will mitigate landside slope stability and/or through seepage. In the case of mitigating landside stability, the drained stability berm will provide additional weight at the toe to resist forces that develop along a slip surface. In the case of mitigating through seepage, filter material will retain existing embankment material in place and allow seepage to safely flow from the embankment. Drained stability berms are constructed by stripping approximately 1 foot of soil from the existing ground surface, placing filter material, placing drain material, and then placing a protected layer of embankment soil. For the purposes of assessing project feasibility, it is assumed that the drained stability berms extend a minimum of 40 feet (two times the levee height) beyond the ends of the levee segment needing improvement. The extended improvement area is intended to address end-around effects. The drained seepage berm will discharge captured water at the berm toe and grading to provide positive drainage away from the levee will be required.

1.5.2 Combined Drained Stability and Seepage Berm

Combined drained stability and seepage berms can be used to remediate underseepage, through seepage, and landside levee embankment slope instability. The berm includes a drainage layer on the foundation and levee landside slope that is comprised of drain rock over a sand filter layer placed on the foundation. A geotextile fabric separates the drain rock from the overlying berm fill. Berms are constructed by stripping approximately 1 foot of soil from the existing ground surface, placing geotextile filter material, placing drain material, and then placing a protected layer of embankment soil. The berm fill should be more pervious than the existing levee and shallow foundation layer. For the purposes of assessing project feasibility, assume that combined drained stability and seepage berms extend a minimum of 40 feet (two times the levee height) beyond the ends of the levee segment needing improvement. The extended improvement area is intended to address end-around effects. The drained seepage berm will discharge captured water at the berm toe and grading to provide positive drainage away from the levee will be required.

1.5.3 Erosion Remediation – Rock Slope Revetment

Rock slope revetment can be used to remediate erosion and generally consists of 6 inches of sand bedding overlain by 2 feet of rip-rap. Earthwork should be performed before placing sand bedding to backfill eroded areas and reshape the surface. Rock slope revetment generally extends from the waterside toe to the 100 water surface elevation.

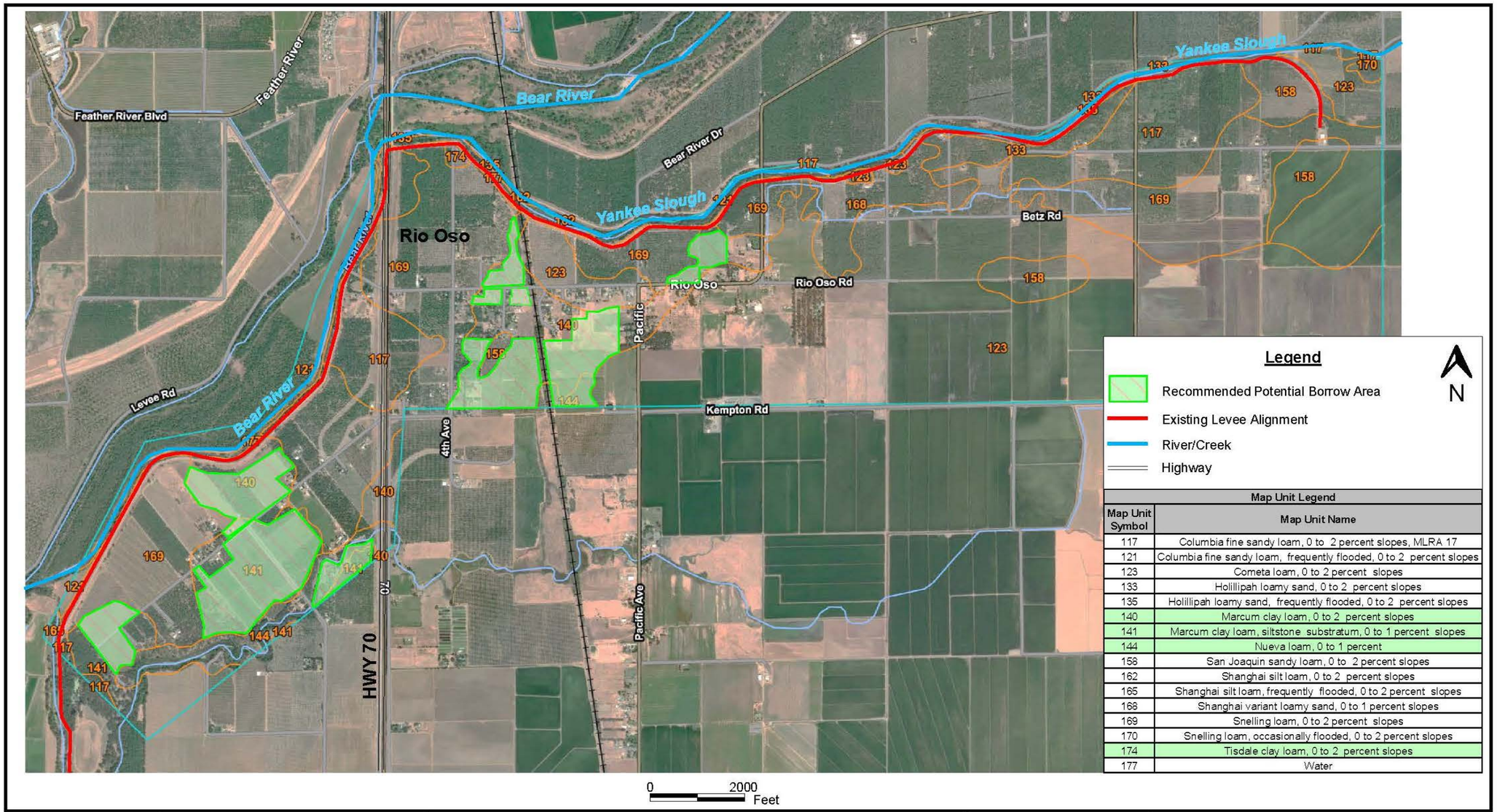
1.5.4 Geometry Mitigation

Geometry mitigation can be used to remediate the existing levee embankment prism to the standard levee dimensions. Remediation should be performed by landside widening and crest raising. The minimum width of the landside widening is at least 8 feet to ensure that the new fill section is wide enough to facilitate placement and compaction of the material by construction equipment. This landside remediation method eliminates significant work on the waterside of the levee thus minimizing environmental impact.

1.5.5 Borrow Area Recommendations

Potential borrow areas for the study area were identified based on soil types and a range of engineering properties for each soil unit. Comparing the typical engineering properties of each soil unit with the typical engineering properties of levee fill materials, potential borrow areas were identified and marked. In general, soil units identified as majority lean clay (CL) were selected as potential borrow areas. From these potential borrow areas, the locations closest to the levees were selected and marked. These potential borrow areas are shown in **Figure 1-3**.

Figure 1-3. Proposed Borrow Areas



Map Unit Legend	
Map Unit Symbol	Map Unit Name
117	Columbia fine sandy loam, 0 to 2 percent slopes, MLRA 17
121	Columbia fine sandy loam, frequently flooded, 0 to 2 percent slopes
123	Cometa loam, 0 to 2 percent slopes
133	Holillipah loamy sand, 0 to 2 percent slopes
135	Holillipah loamy sand, frequently flooded, 0 to 2 percent slopes
140	Marcum clay loam, 0 to 2 percent slopes
141	Marcum clay loam, siltstone substratum, 0 to 1 percent slopes
144	Nueva loam, 0 to 1 percent
158	San Joaquin sandy loam, 0 to 2 percent slopes
162	Shanghai silt loam, 0 to 2 percent slopes
165	Shanghai silt loam, frequently flooded, 0 to 2 percent slopes
168	Shanghai variant loamy sand, 0 to 1 percent slopes
169	Snelling loam, 0 to 2 percent slopes
170	Snelling loam, occasionally flooded, 0 to 2 percent slopes
174	Tisdale clay loam, 0 to 2 percent slopes
177	Water

NOTES: Source: USDA Web Soil Survey
https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Map Units selected for borrow are highlighted with green color

Rio Oso Flood Risk Reduction Feasibility Study

Potential Borrow Area

1.6 Nonstructural Measures, Ecosystem and Multi-Benefit Concepts

As discussed in Section 1.1, the nonstructural measures, ecosystem and multi-benefit concepts identified in the Feasibility Study have been developed to a conceptual level only; therefore, they do not meet the definition of a "project" as defined by CEQA (PRC, Division 13, Section 21000 et seq.). The CEQA Guidelines define a project as the whole of an action, which has a potential for resulting in either the direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (California Code of Regulations [CCR], Chapter 14, Section 15378). Further, as described in Section 1.1, the CEQA Guidelines Section 15262 states that a project involving only feasibility or planning studies for possible future actions which an agency, board, or commission has not approved, adopted, or funded does not require the preparation of an Environmental Impact Report or a Negative Declaration. Section 15262 does not apply to the adoption of a plan that will have a legally binding effect on later activities. Therefore, the nonstructural measures, ecosystem and multi-benefit concepts are presented solely for planning purposes. These concepts have not been developed to the point to allow for a useful evaluation of environmental constraints, thus this report does not describe the potential environmental constraints related to the nonstructural measures, ecosystem and multi-benefit concepts.

1.6.1 Nonstructural Measures

Residual risk is defined as the product of (1) the chance of damage or other adverse consequence and (2) the amount of that damage or other adverse consequence, after flood management actions have been taken. Therefore, even after implementing the preferred remediation alternative, Rio Oso would still face residual risk from flooding.

Although it is not possible to completely eliminate residual risk, it can be mitigated with the implementation of nonstructural measures that improve flood system performance of existing facilities and/or reduce exposure, vulnerability, and consequences of flooding by adapting to the natural floodplain or inherent features of the floodplain.

For the Feasibility Study, several nonstructural measures were considered and evaluated for future consideration by Rio Oso. The measures are presented in order of feasibility and potential benefit to Rio Oso:

- Flood Emergency Evacuation Plan
- Flood Evacuation Warning System
- Emergency Flood Fight Plan
- Levee Relief Cuts
- Voluntary Structure Elevation & Flood-proofing
- Changes to National Flood Insurance Program (NFIP)
- Agricultural Conservation Easements

1.6.2 Ecosystem and Multi-Benefit Concepts

The FRRFMP identified several ecosystem problems facing the region, including the Rio Oso area. These problems included erosion, flow constrictions, invasive vegetation, and overgrown vegetation from lack of proper maintenance. To potentially address these problems, several concepts were identified for improved habitat, restoring natural dynamic process that support agricultural and terrestrial floodplain ecosystems, planting of riparian vegetation, sediment removal, creating shaded riverine aquatic habitat, and some recreation improvements. These concepts are still under evaluation and could be implemented in the future in addition to the preferred remediation alternative.

2 Research Methods

2.1 Environmental Constraints Analysis Methodology

A desktop analysis was performed in order to determine potential environmental constraints associated with the implementation of the preferred structural alternative. Criteria from Appendix G of the California Environmental Quality Act (CEQA) Guidelines was used as a framework to determine potentially significant impacts on different resource areas, and was also used as a means to determine if CEQA documentation would be required for the preferred alternative. The resource areas evaluated include the following:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality and Green House Gas (GHG) Emissions
- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Geology and Soils
- Mineral Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems
- Wildfire

The results of that analysis are provided in **Appendix B** of this report, and a summary of potential environmental constraints is provided in **Section 3.2**. A regulatory consistency analysis was also performed for the project to determine the preferred alternative's conformance to relevant federal, state, and local regulations under each of the evaluated resource areas **(Appendix A).** Primary data sources used during the desktop analysis include the following:

- Sutter County General Plan
- California Department of Conservation Farmland Mapping and Monitoring Program
- California Department of Conservation Williamson Act Maps
- California Department of Forestry and Fire Protection (Cal Fire) Hazard Severity Zone Maps
- California Department of Transportation Scenic Highway Maps
- California State Water Resources Control Board GeoTracker Database
- Department of Toxic Substances Control (DTSC) EnviroStor Database
- Feather River Air Quality Management District
- U.S. Fish and Wildlife Service Critical Habitat Maps
- California Energy Commission
- Sutter County Climate Action Plan

In addition to the environmental constraints and regulatory consistency analyses, separate in-depth biological resources and cultural resources analyses were conducted to support the environmental constraints analysis, as described in further detail below. The Biological Resources Analysis is provided in **Appendix C** and the Cultural Resources Analysis is located in **Appendix D**.

2.2 Biological Resources Analysis Methodology

The Biological Resources Analysis is provided in **Appendix C**. The methodology is described below.

2.2.1 Desktop Review

A desktop review was undertaken to assess potential biological constraints in the Rio Oso project area (**Appendix C, Exhibit 1**), which included two steps to collect data on special-status species, vegetation communities, sensitive communities, protected lands, and federally-protected aquatic resources with the potential to occur in the project area. First, preliminary database searches were performed to identify aquatic resources and special-status species with the potential to occur in the project area. Second, a preliminary review of recent aerial imagery and land use maps was conducted to collect site-specific data regarding habitat suitability for special-status species, and to see if any protected lands overlap with the project area.

Database searches were performed on the following websites:

- U.S. Fish and Wildlife Service's (USFWS) Information Planning and Consultation (IPaC) System (2019a);
- USFWS Critical Habitat Portal (2019b);
- National Marine Fisheries Service (NMFS) (2016)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) in BIOS 5 (2019);
- California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) (2019);
- USFWS National Wetland Inventory (2019c); and,
- U.S. Geological Survey (USGS) topographical map.
- Google Earth Pro (2019)

A query of the USFWS's IPaC system was performed to identify federally listed species that may occur in or adjacent to the project area. A review of the USFWS's Critical Habitat portal was also conducted to identify designated critical habitat units that fall within the project area. A query of the CNDDB provided a list of processed and unprocessed special-status species occurrences within the Nicolaus and Sheridan USGS 7.5 minute quadrangles (quads), as well as all adjacent quads. The CNDDB was also used to analyze land ownership data in the vicinity of the project area. Additionally, the CNPS database was queried to identify special-status plant species with the potential to occur in the aforementioned quads. Finally, USFWS National Wetland Inventory data and USGS topographical maps were used to aid in the digitization of vegetation communities and potential aquatic resources within the project area. The raw data returned from the database queries is provided in **Appendix A.** Reconnaissance Survey

A reconnaissance level survey was conducted on February 12, 2019 to verify the results of the desktop review. HDR biologists drove on publically accessible roads throughout the project area in order to record existing vegetation communities, aquatic resources, and species observed. A summary of the results of the site visit are included in **Section 3.2**.

2.3 Cultural Resources Analysis Methodology

2.3.1 Records Search and Historic Map Review

Records search requests for the Project area were submitted on February 14, 2019 to the North Central Information Center (NCIC) at California State University, Sacramento and the Northeastern Information Center (NEIC) at California State University, Chico of the California Historical Resources Information System. The search area for which data was requested included all alternatives for the project footprint, plus a 0.25-mile buffer. Search results were received from the NCIC on February 20, 2019 and from the NEIC on March 13, 2019. The information requests included a search of previous cultural resources investigations, and previously recorded archaeological sites and built

environment resources. To gather these data the records searches reviewed the following including the:

- NCIC and NEIC Resource Databases,
- NCIC and NEIC Report Databases,
- Office of Historic Preservation (OHP) Historic Properties Directory for Sutter County,
- OHP Archaeological Determinations of Eligibility for Sutter County,
- California Inventory of Historical Resources (1976), and
- General Land Office (GLO) and/or Rancho Plat Maps.

Information was also requested on the Caltrans Bridge Survey, ethnographic information, and local inventories, where present. Historic United States Geological Service (USGS) topographic maps were also reviewed in order to track land-use and historic-era development. An additional data review was performed in November, 2019 due a revision on the project area. The APE map and summary of the results of the records search and desktop investigation are provided in a technical memorandum attached as **Appendix D**. The technical memorandum includes the technical data review and discussion of cultural resources and their potential for sensitivity. The findings of the technical memorandum have been incorporated into Section 3.2.

2.3.2 Reconnaissance Survey

A field reconnaissance of the project area was conducted on April 2, 2019 by John “Jay” Lloyd, M.A. Linguistics, who meets the Secretary of the Interior’s Qualification Standards for archaeology and is a Registered Professional Archaeologist (RPA). Methods included reviewing the results of the records search, confirming the absence/presence of previously recorded (and accessible) resources, generally driving across the breadth of the project area on publicly accessible roads, and assessing major topographical differences between the historic and modern landscape using historic-era maps for comparison.

3 Results

3.1 Regulatory Consistency Analysis

The results of the Regulatory Consistency Analysis, provided in **Appendix A**, are summarized below. Based on the results of the analysis, potential regulatory conflicts could exist for agricultural resources, biological resources, cultural resources, air quality and greenhouse gas emissions and noise. Other resources would comply with applicable federal, state and local regulations.

Agricultural Resources

The project would have the potential to disturb lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance during construction activities

(DOC 2016). This results in the potential to conflict with the Farmland Mapping and Monitoring Program and Sutter County General Plan Land Use and Agricultural Resources Elements.

The project is not located adjacent to Williamson Act Contract properties and none would be disturbed as a result of project activities. Therefore the project would not conflict with the Williamson Act Program.

Biological Resources

The project could conflict with biological resource regulations. Based on a preliminary review of biological resources databases and a site reconnaissance, the project area appears to contain suitable habitat for several special-status species and includes protected aquatic resources. Project activities have the potential to impact any of the biological resources listed in **Appendix C, Table 1**, should they be present in the vicinity of the proposed work area. Prior to project implementation, consultation with resource agencies and acquisition of permits would be necessary.

Cultural Resources

Based on a review of the records search results, historic map review, and the site reconnaissance provided in **Appendix D**, 23 archaeological sites and historical built environment resources were identified, both within and outside the project area. Project activities have the potential to impact these cultural resources, should they be identified within, or potentially in the vicinity of, a proposed work area. Any newly discovered archaeological site(s) which cannot be avoided by the project would also require evaluation for eligibility to the CRHR and/or NRHP. If eligible, additional mitigation could be required if significant impacts/adverse effects could not be avoided.

Air Quality, GHG Emissions, and Noise

During construction, the preferred alternative would require the use of construction vehicles and equipment on a temporary basis. Significant air quality impacts could result on a short-term basis from particulate matter generated during construction activities, such as dust and equipment exhaust. The project would also generate GHG emissions during the operation of construction vehicles and equipment. The project would adhere to Best Management Practices to minimize air quality and GHG emissions impacts, but there remains potential that the project would not conform to the Clean Air Act and relevant GHG regulations.

The project would generate increased noise conditions during proposed project construction activities. With noise sensitive receptors in close proximity (schools, residents, etc.), there is a potential that the project would not adhere to noise thresholds outlined in the Sutter County General Plan.

Other Resources

Based on the Regulatory Consistency Analysis provided in **Appendix A**, and following the resource categories outlined in CEQA Guidelines Appendix G, the project would conform to all federal, state and local regulations under aesthetics; energy; geology and soils; hazards and hazardous materials; hydrology and water quality; land use and

planning; mineral resources; public services; utilities and service systems; recreation; transportation; and wildfire. In many cases, regulatory compliance is contingent upon implementation of appropriate Best Management Practices (BMPs), such as those required to protect water quality, and proper permitting. Those permits and approvals that could be required prior to implementation of the project are provided in **Table 3.**

3.2 Summary of Potential Environmental Constraints

Resources with No Impacts

Based on the Existing Conditions and Environmental Constraints Analysis, environmental constraints would not occur under the following resources:

- Aesthetics
- Energy
- Land Use and Planning
- Mineral Resources
- Public Services
- Recreation
- Wildfire

Table 2 presents a summary of potential environmental constraints under the preferred structural alternative. Only those resource areas with potential constraints are included in **Table 2**. The full analysis is provided in **Appendix B,** Existing Conditions and Environmental Constraints.

Table 2. Summary of Potential Environmental Constraints under the Preferred Structural Alternative

Potential Environmental Constraints	Structural Preferred Alternative
Agriculture and Forestry Resources	
Would the project result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance?	✓
Air Quality and GHG Emissions	
Would project result in substantial emissions?	✓
Would the project expose sensitive receptors to substantial pollutant concentrations?	✓
Would the project generate GHG emissions either directly or indirectly?	✓
Biological Resources	
Is the project located adjacent to terrestrial or aquatic habitat areas for state or federally listed endangered, threatened, or candidate species?	✓
Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	✓

Potential Environmental Constraints	Structural Preferred Alternative
Would the project 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 US Fish and Wildlife Service?	✓
Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	✓
Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	✓
Cultural and Tribal Cultural Resources	
Do known historical, archaeological, or tribal sites or resources occur in the project area?	✓
Does the project require excavations or ground disturbance that could inadvertently impact known or unknown cultural, historical, or archaeological resources?	✓
Would the project disturb human remains, including those encountered outside of dedicated cemeteries?	✓
Geology, Soils and Mineral Resources	
Would the project require excavations, grading, or other ground disturbing activities capable of causing erosion or loss of topsoil?	✓
Do known paleontological resources exist in the project area?	✓
Hazards and Hazardous Materials	
Does the project require the use or routine transport of hazardous materials?	✓
Hydrology and Water Quality	
Would the project alter the drainage pattern of the site or area in a manner which would result in substantial erosion or siltation?	✓
Would the project alter the drainage pattern of the site or area or result in an increase in surface runoff in a manner which would result in flooding on- or off-site?	✓
Is the project located within a 100-year flood hazard area?	✓
Noise	
Would the project generate noise in excess of thresholds outlined in the county noise ordinance or general plan?	✓
Would the project generate excessive ground borne vibration or ground borne noise levels?	✓
Transportation	
Would the project result in disruptions to traffic or the circulatory system?	✓
Utilities and Service Systems	
Would the project require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects?	✓

As shown in **Table 2**, the preferred structural alternative (described in Section 1.5) could result in impacts on agriculture and forestry resources; air quality and GHG emissions; biological resources; cultural and tribal cultural resources; geology and soils; hazards

and hazardous materials; hydrology and water quality; noise, transportation, and utilities and service systems.

4 Environmental Documentation, Permits and Approvals

4.1 California Environmental Quality Act

Based on the results of the environmental constraints analysis, it is likely that the preferred alternative would result in an impact on the environment and therefore, CEQA documentation would be required. CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to carry out, or over which they have discretionary authority, before implementing or approving those projects. As specified in Section 15367 of the State CEQA Guidelines, the public agency that has the principal responsibility for carrying out or approving a project, as defined above and as described in more detail below, is the lead agency for purposes of CEQA. As specified in Section 15064(a) of the state CEQA Guidelines, if there is substantial evidence (such as the results of an Initial Study (IS)) that a project, either individually or cumulatively, could have a significant effect on the environment that cannot effectively be mitigated to a less-than-significant level, the lead agency must prepare an EIR. The lead agency may instead prepare an IS if it determined that there is no substantial evidence that the project could cause a significant impact to the environment. The lead agency may prepare a Mitigated Negative Declaration (MND), if in the course of the IS analysis, the agency finds that the project would have no significant environmental impacts or could have a significant impact to the environment but that implementing specific mitigation measures would reduce any such impacts to a less-than-significant level (state CEQA Guidelines, Section 15064[f]). The level of CEQA documentation that would be required for the project would be determined after the Feasibility Study is completed and once the project moves into the design phase.

4.2 National Environmental Policy Act

Based on the results of the Environmental Constraints Analysis (ECA), it is likely that the project would require compliance with federal regulations, such as the Clean Water Act, Section 404; National Historic Preservation Act, Section 106; and Endangered Species Act (ESA), Section 7, as described in **Section 4.3, Permits**. Because these federal permits and consultations would likely be required, compliance with the National Environmental Policy Act (NEPA) could be triggered. In addition, all of the Rio Oso Levee System levees are part of the California State Plan of Flood Control (SPFC) and thus are identified as state/federal facilities; therefore, any modifications to the levees could also trigger the need for NEPA compliance, as well as a Rivers and Harbors Act, Section 408 permit. The level of NEPA documentation that would be required for the project would be determined during the permitting process.

4.3 Permits and Approvals

Several Federal, state, and local permits and/or authorizations are anticipated for the project. **Table 3** summarizes the potential permits and approvals that may be associated with the project. The regulations and ordinances listed below represent a preliminary assessment of permitting requirements, which would be refined through subsequent project design and preparation of a detailed project description.

The preferred alternative would directly and indirectly affect sensitive natural resources, including waters of the U.S. All potential waters of the U.S., including wetlands, identified within the project area may be regulated by the U.S. Army Corps of Engineers (USACE) through section 404 of the Clean Water Act (CWA) and by the Regional Water Quality Control Board (RWQCB) as waters of the State through Section 401. All ecological systems associated with drainages (i.e. potential waters of the U.S.), and drainage features with bed and bank topography may also be regulated by Sections 1600-1616 of the California Fish and Game Code. In conjunction with the USACE Section 404 permit, impacts on wetlands and waters would require a Section 401 Water Quality Certification or Waste Discharge Requirement from RWQCB and CDFW Section 1602 Streambed Alteration Agreement. Also, the project has the potential to affect more than 1.0 acre of soil, triggering the requirement of a National Pollutant Discharge Elimination System (NPDES) General Permit from the RWQCB.

Finally, the project has the potential to adversely affect special-status species. Direct and/or indirect impact to federal and state listed species and their habitat would require formal consultation with the USFWS (Biological Opinion/Take Statement for Federal-listed species) and CDFW (2081 Incidental Take Permit for State-listed species) to determine the levels of take.

Table 3. Potential Environmental Permits and Approvals

Agency	Type of Permit or Approval	Regulated Activity
Federal		
U.S. Army Corps of Engineers	Clean Water Act, Section 404 Permit	Discharges of dredged or fill material into waters of the U.S., including wetlands
State Historic Preservation Officer (SHPO)	National Historic Preservation Act, Section 106 Consultation	Potential effects on properties listed in, or eligible for listing in the National Register of Historic Places
U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS)	Endangered Species Act (ESA), Section 7 Consultation	Potential effects on federally-listed species
State		
California Department of Fish and Wildlife (CDFW)	California ESA Take Authorization, California Fish and Game Code, Section 2081 Consultation	Potential for take of state-listed species
CDFW	California Fish and Game Code, Section 1602 Streambed Alteration Agreement	Alteration of bed, bank, or associated riparian areas
California Native American Heritage Commission (NAHC)	Assembly Bill 52 (CEQA), NAHC Consultation	Potential effects on Native American burials or artifacts

Agency	Type of Permit or Approval	Regulated Activity
Local		
Regional Water Quality Control Board (RWQCB)	CWA, Section 402 National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities and/or Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters	Discharge of pollutants into Waters of the U.S.
RWQCB	CWA, Section 401 Water Quality Certification	Discharge of dredged or fill material into Waters of the U.S. and State
Air Pollution Control District	Authority to Construct/ Permit to Operate	Local construction emissions. Construction emissions and equipment must comply with applicable rules and regulations and will not interfere with air quality standards.

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Appendix A. Regulatory Consistency Analysis

Regulatory Consistency Analysis

Introduction

The Regulatory Consistency Analysis provides an overview of the federal, state and local regulations, policies and plans applicable to the project and includes a discussion of whether project activities, at this conceptual stage of development, would be anticipated to conflict with these regulations, policies and plans. **Table A-1** includes a summary of potential consistency conflicts by regulatory area.

Table A-1. Regulatory Consistency Conflicts

Regulatory Area	Potential Consistency Conflict? Yes/No (Y/N)
Aesthetics	N
Agricultural Resources	Y
Air Quality	Y
Biological Resources	Y
Cultural Resources	Y
Energy	N
Geology and Soils	N
Hazards and Hazardous Materials	N
Hydrology and Water Quality	N
Land Use and Planning	N
Noise	Y
Public Services and Utilities	N
Recreation	N
Transportation	N

The sections below describe the relevant regulatory setting and regulatory consistency analysis for each resource area.

Aesthetics

State

California Scenic Highway Program. California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change, which would diminish the aesthetic value of lands adjacent to highways (Caltrans 2017). The state laws governing the Scenic Highway Program are found in the Streets and Highways Code (Section 260, et seq.).

Local

***Sutter County General Plan*.** According to the Sutter County General Plan Land Use Element and Environmental Resources Element, goals and policies strive to preserve and enhance

Sutter County's natural resources, and promote development that visually complements the natural environment, topography and aesthetic viewsheds (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The preferred remediation alternative would not conflict with the California Scenic Highway Program. There are no officially designated state or county highways in Sutter County or in the vicinity of the project. The project would conform to policies outlined in the Sutter County General Plan. The project area is located in rural Sutter County and is primarily dominated by lands under agricultural use (Sutter County 2011). Project activities would be consistent with the current uses and visual quality of the project area, and would not impact visual resources in Sutter County.

Agricultural Resources

State

***Farmland Mapping and Monitoring Program*.** The California Department of Conservation, Division of Land Resource Protection works with landowners, local governments, and researchers to conserve the state's farmland and open space, and maintains a statewide inventory of farmlands. These lands are mapped as part of the Farmland Mapping and Monitoring Program (FMMP), which is based on a classification system that rates agricultural land according to soil quality and irrigation status. Agricultural lands are divided and mapped into the following eight categories:

- *Prime Farmland*—Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- *Farmland of Statewide Importance*—Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years before the mapping date.
- *Unique Farmland*—Farmland 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. Land must have been cropped at some time during the 4 years before the mapping date.
- *Farmland of Local Importance*—Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- *Grazing Land*—Land on which the existing vegetation is suited to the grazing of livestock.
- *Urban and Built-up Land*—Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel.
- *Other Land*—Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip

mines; borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- *Water*—Perennial water bodies with an extent of at least 40 acres.

Williamson Act Program. The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive reduced property tax assessments. Williamson Act categories include:

- Williamson Act – Non-Prime Agricultural Land: Land which is enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land.
- Williamson Act – Farmland Security Zone: Enrolled parcels containing either Prime or Non-Prime agricultural land restricted by a 20 year contract pursuant to Government Code Section 51296.

Local

Sutter County General Plan. The Agricultural Resources Element and Land Use Element of the Sutter County General Plan include goals and policies geared towards the preservation of agricultural lands during economic growth and improvement of the County's productive capabilities (Sutter County 2011).

CONSISTENCY ANALYSIS

Potential conflict. The preferred remediation alternative would potentially conflict with the Farmland Mapping and Monitoring Program and the Sutter County General Plan Land Use Element and Agricultural Resources Element. The project area includes Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and has the potential to disturb or convert such land uses during construction and ground disturbing activities (DOC 2016; Sutter County 2011). To the extent possible, these areas would be avoided and BMPs would be employed to reduce impacts on agricultural lands. While Williamson Act Contract properties are in the vicinity of the project area, none are adjacent to the proposed levee improvements. Therefore, the project would not conflict with the Williamson Act Program.

Air Quality

Federal

Clean Air Act. The Clean Air Act (CAA) was first enacted in 1963 and has since been amended (1965, 1967, 1970, 1977, and 1990). Under the CAA, the U.S. Environmental Protection Agency (USEPA) developed the National Ambient Air Quality Standards (NAAQS), or numerical concentration-based standards, for six criteria pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for O3 - measured as either volatile organic compounds (VOCs) or total oxides of nitrogen (NOx), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur oxides (SOx), respirable particulate matter (including PM10 and PM2.5), and lead (Pb).

USEPA classifies the air quality in an Air Quality Control Region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either "attainment," "nonattainment," "maintenance," or "unclassified" for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. The CAA also mandates that each state implement a State Implementation Plan (SIP) for local areas not meeting those standards, and the SIP must include pollution control measures outlining how the standards will be met.

State

California Clean Air Act. The CAA gives the authority to states to establish air quality rules and regulations. Air quality in California is governed by the California Clean Air Act (CCAA). The State of California has adopted the NAAQS and promulgated additional California Ambient Air Quality Standards (CAAQS) for criteria pollutants. The CAAQS are more stringent than the Federal primary standards. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date.

In California, the USEPA has delegated the authority for ensuring compliance with the NAAQS to the California Air Resources Board (CARB). CARB has delegated responsibility for implementation of the CAA and CCAA to local air pollution control agencies.

Greenhouse Gas Regulation. California has adopted statewide legislation addressing various aspects of climate change and mitigation for greenhouse gas (GHG) emissions. This legislation establishes a broad framework for meeting the state's long-term GHG reduction goals. The Governor of California has also issued several orders related to the state's evolving climate change policy. Of particular importance is the Global Warming Solutions Act of 2006, also commonly referred to as Assembly Bill (AB) 32, which establishes a statewide GHG reduction goal of achieving 1990 emissions levels by 2020.

Local

Feather River Air Quality Management District (FRAQMD). The project area is located within the jurisdictional boundaries of the FRAQMD and is subject to the rules and regulations developed by the FRAQMD. FRAQMD is responsible for administering local, State and federal air quality management programs for Yuba and Sutter Counties (SVAQEEP 2018).

Sutter County General Plan. The Mobility Element and Environmental Resources Element of the Sutter County General Plan include updated goals and policies intended for the conservation, protection, and enhancements of the County's air quality, including the minimization of air pollutant emissions (Sutter County 2011).

CONSISTENCY ANALYSIS

Potential conflict. The project would require the use of construction vehicles and equipment on a temporary basis during construction. Air quality impacts could result from particulate matter

generated during construction activities, such as dust and equipment exhaust. Operation of construction vehicles and equipment could generate GHG emissions on a short term, intermittent basis. The project would implement BMPs during construction in an effort to minimize air quality and GHG impacts, but there is potential that the Project would not conform to CAA, GHG regulations and the FRAQMD's rules and regulations.

Biological Resources

Federal

Endangered Species Act of 1973. The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) enforce the provisions stipulated within the Federal Endangered Species Act of 1973 (hereafter, "FESA," 16 United States Code [USC] §1531 et seq.). Threatened and Endangered species on the Federal list (50 Code of Federal Regulations [CFR] § 17.11 and 17.12) are protected from take, defined as direct or indirect harm or harassment, unless a Section 10 permit is granted to an entity other than a Federal agency, or a Biological Opinion with incidental take provisions is rendered to a Federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a Proposed Project within its jurisdiction must determine whether any federally listed or proposed species may be present in the study area and determine whether the Proposed Project is likely to jeopardize the continued existence of the species, or result in the adverse modification or destruction of habitat for said species. Under FESA, habitat loss is considered to be an impact to a species, thus related impacts to these species or their habitats would be considered significant and would require mitigation.

Migratory Bird Treaty Act. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–711). As interpreted in a 2018 regulation, the MBTA makes it unlawful to non-incidentally take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

Wetlands and Other Waters of the U.S. Any person, firm, or agency planning to perform work that involves the discharge of dredged or fill material into "waters of the U.S.", must first obtain authorization from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (33 USC §1344). Permits, licenses, variances, or similar authorizations may also be required by other Federal, State, and local statutes. Waters of the U.S. are defined as: all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters (33 CFR Part 328). With non-tidal waters, in the absence of adjacent wetlands, the extent of USACE jurisdiction extends to the ordinary high water mark (OHWM) – the line on the shore established by fluctuations of water and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined as: "… those areas that are inundated

or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions".

In addition, the Regional Water Quality Control Board (RWQCB) may require a State Water Quality Certification (CWA, Section 401 permit) before other permits are issued.

State

California Fish and Game Code. The California Fish and Game Code includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA), fully protected species, and requirements for notification of lake or streambed alteration.

The NPPA (Fish and Game Code Sections 1900–1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized under limited circumstances.

Fish and Game Code Sections 3503, 3513, and 3800 protect raptors and native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, species that are "fully protected" from all forms of take are listed in Section 3511 (birds), Section 5515 (fish), Section 4700 (mammals), and Section 5050 (amphibians). No permit is available to take these species.

CDFW regulates activities that will interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the Fish and Game Code requires that CDFW be notified of lake or streambed alteration activities. If CDFW subsequently determines that such an activity might adversely affect an existing fish and wildlife resource, the agency has the authority to issue a streambed alteration agreement, including requirements to protect biological resources and water quality.

CNPS has developed a set of lists of native plants in California according to rarity. Plants on List 1A, List 1B, and List 2 meet the definitions of Section 1901, Chapter 10 (NPPA) or Sections 2060 and 2067 (CESA) of the Fish and Game Code (Section 1900–1913) as rare or endangered species.

California Endangered Species Act (CESA). The California Endangered Species Act (CESA) is similar to the FESA in that it contains a process for listing species and regulating potential impacts to listed species. Section 2081 of the CESA authorizes the California Department of Fish and Wildlife (CDFW) to enter into a memorandum of agreement for take of listed species for scientific, educational or management purposes.

CDFW also requires notification prior to commencement, and may require a Streambed Alteration Agreement, pursuant to California Fish and Game Code (Subsections 1601-1603), if a proposed project would result in the alteration or degradation of a stream, river, or lake in California.

Local

Yuba and Sutter County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). Yuba and Sutter Counties are currently in the process of developing a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) that incorporates valley floor communities for both counties. The project area falls completely within the proposed boundary for the NCCP/HCP. Under the NCCP/HCP, specific habitats that are recommended to be protected include vernal pools and their watersheds, emergent wetlands, confluences of riparian/riverine systems, valley oak woodlands, mature riparian forests, wide riparian areas of more than 100 meters, and functional or potentially restorable floodplain areas. Additionally, the proposed plan calls out the confluence of the Bear and Feather Rivers and the Coon Creek watershed as areas of high biological potential. The plan also outlines guidelines for riparian conservation and restoration, establishing wetland buffers, maintaining and restoring hydrological connectivity including minimizing barriers to fish passage, and general levee maintenance. It is anticipated that the project activities would comply with the conditions set forth in the NCCP/HCP.

Sutter County General Plan**.** The Environmental Resources Element of the Sutter County General Plan includes goals and policies intended for the conservation and protection of the County's ecosystem, habitats, and special status species (Sutter County 2011).

CONSISTENCY ANALYSIS

Potential conflict. Based on a preliminary review of biological resources databases and a site reconnaissance, the project area appears to contain suitable habitat for several special-status species and also includes aquatic resources. Project activities have the potential to impact biological resources listed in **Appendix C, Table 1**, should they be present in the vicinity of the proposed work area, and may therefore conflict with such regulations as MBTA, the California Fish and Game Code and CESA. Prior to project implementation, consultation with resource agencies and acquisition of permits would likely be necessary.

Cultural and Tribal Cultural Resources

Federal

Section 106 of the National Historic Preservation Act (NHPA). Section 106 of the National Historic Preservation Act (NHPA) requires that, before beginning any undertaking, a federal agency must take into account the potential for effects on historic properties and offer the Advisory Council on Historic Preservation (ACHP) and other interested parties an opportunity to comment on the Proposed Project. Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed. Upon initiation of the Section 106 process, the lead federal agency is required to invite the appropriate State Historic Preservation Office (SHPO) or appropriate Tribal Historic Preservation Office (required only if the undertaking would occur on land owned by a federally recognized Indian tribe) to participate in the process.

Section 106 also requires federal agencies, or those they fund or permit, to consider the effects of their actions on properties that are determined eligible for listing or are listed in the National

Register of Historic Places (NRHP). To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (archaeological, historical, architectural, and traditional cultural properties) must be inventoried and evaluated for the NRHP. To be listed in the NRHP, a property must be at least 50 years old (or be of exceptional historic significance if less than 50 years old) and meet one or more of the NRHP criteria. To qualify for listing, a historic property must represent a significant theme or pattern in history, architecture, archaeology, engineering, or culture at the local, state, or national level, and must meet specific significance criteria.

Antiquities Act of 1906. This act provides for fines or imprisonment of any person convicted of appropriating, excavating, injuring, or destroying any historic or prehistoric ruin or monument or other object of antiquity that falls under the jurisdiction of the federal government.

Archaeological Resources Protection Act of 1979. This act amended the Antiquities Act, set a broad policy stating that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands.

State

PRC Section 5024.1: California Register of Historical Resources. The State of California implements the NHPA through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation (OHP), an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Register of Historical Resources (CRHR). The SHPO is an appointed official who implements historic preservation programs within the State's jurisdiction.

The CRHR includes resources that are listed in or formally determined eligible for listing in the NRHP, as well as some designated California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR.

PRC Sections 5097.91 through 5097.98: California Native American Heritage Commission (NAHC) The California Native American Heritage Commission (NAHC) identifies and catalogs cultural resources (i.e., places of special religious or social significance to Native Americans, and known graves and cemeteries of Native Americans on private lands) in California. The NAHC is charged with preserving and ensuring accessibility of sacred sites and burials, the disposition of Native American human remains and burial items, maintain an inventory of Native American sacred sites located on public lands, and review current administrative and statutory protections related to these sacred sites.

Assembly Bill 52. Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) applies to all projects that file a Notice of Preparation (NOP) or notice of a Negative Declaration on or after July 1, 2015. The bill requires that a lead agency begin consultation with a California Native American tribe if that tribe has requested, in writing, to be kept informed of proposed projects by the lead agency, prior to the determination whether a Negative Declaration, or EIR will be prepared. The

bill also specifies mitigation measures that may be considered to avoid or minimize impacts on tribal cultural resources.

Local

Sutter County General Plan. The Environmental Resources Element of the Sutter County General Plan includes goals and policies intended to conserve and protect cultural and historical resources (Sutter County 2011).

CONSISTENCY ANALYSIS

Potential conflict. The records search indicated 23 archaeological sites and historical built environment resources, both within and outside the project area. Project activities have the potential to impact these cultural resources, should they be identified within, or potentially in the vicinity of, a proposed work area, resulting in conflicts to such regulations as Archaeological Resources Protection Act of 1979 and Antiquities Act of 1906. Any newly discovered archaeological site which cannot be avoided by the project must be evaluated for eligibility to the CRHR and/or NRHP. If eligible, additional mitigation may be required if significant impacts/adverse effects cannot be avoided. If tribal cultural resources are identified in the project area, the project would conform to regulations established under Assembly Bill 52.

Energy

State

Senate Bill 350. SB 350 (Chapter 547, Statutes of 2015) was signed into law in September 2015. SB 350 establishes tiered increases to the Renewables Portfolio Standard of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. The former target was 33 percent by 2020. SB 350 also set a new goal to double the electricity and natural gas savings for existing buildings through energy efficiency and conservation measures.

CONSISTENCY ANALYSIS

No conflict. The preferred remediation alternative would conform to Senate Bill 350. The project would use limited amounts of energy during construction during the operation of construction equipment. Regular energy usage would not be required during operation of the project.

Geology and Soils

Federal

Paleontological Resources Preservation Act. The Paleontological Resources Preservation Act (PRPA; Public Law 111-11, Title VI, Subtitle D; 16 USC Sections 470aaa – 470aaa 11) was passed on March 30, 2009. The PRPA is intended to preserve, manage, and protect paleontological resources on lands administered by the Bureau of Land Management, the Bureau of Reclamation, the National Parks Service, and the U.S. Fish and Wildlife Service. The PRPA addresses the management, collection, and curation of paleontological resources from federal lands and authorizes civil and criminal penalties for illegally collecting, damaging, defacing, or selling paleontological resources.

State

Alquist-Priolo Earthquake Fault Zoning Act. California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] Section 2621 et seq.) is intended to reduce risks to life and property from surface fault rupture during earthquakes. Under the Alquist-Priolo Act, faults are zoned, and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well-defined if its trace can be clearly identified by a trained geologist at the ground surface, or in the shallow subsurface using standard professional techniques, criteria, and judgment.

Seismic Hazards Mapping Act. Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other seismic hazards, including strong ground shaking, liquefaction, and seismically induced landslides, and cities and counties are required to regulate development within mapped seismic hazard zones.

Construction General Permit. The State of California adopted the Construction General Permit, Order No. 2012-0006-DWQ amending Order No. 2009-0009-DWQ, effective on July 17, 2012. The State Water Resources Control Board (SWRCB) Water Quality Order 2012-0006-DWQ (Construction General Permit) regulates construction site storm water management. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the general permit for discharges of storm water associated with construction activity. This requirement includes linear projects that disturb 1 or more acres. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

Permit applicants are required to submit a Notice of Intent to the SWRCB and to prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality based on pollutants. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control chemical contaminants. The SWPPP must also include descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases have been completed at the site (post-construction BMPs). The SWPPP must contain a visual monitoring program, a chemical monitoring program for "nonvisible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a waterbody listed on the Clean Water Act 303(d) list for sediment.

Local

***Sutter County General Plan*.** The Sutter County General Plan Public Health and Safety Element identifies goals and policies relating to geologic and seismic hazards in Sutter County (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The project area is in a region of California characterized as having relatively low seismic activity. No Alquist-Priolo Earthquake Fault Zones and no Seismic Hazard Zones are identified within the County. Therefore, the project would conform to the Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act. The project would adhere to the Construction General Permit to manage storm water and discharges during construction, and would conform to PRPA in the event that paleontological resources are inadvertently discovered in the project area. Additionally, the project would adhere to grading and erosion control measures during ground disturbing activities and would not conflict with local regulations and policies.

Hazards and Hazardous Materials

State

California Environmental Protection Agency (Cal/EPA) and the State Office of Emergency Services. The California Environmental Protection Agency (Cal/EPA) and the State Office of Emergency Services establish rules governing the use of hazardous substances. The SWRCB has primary responsibility to protect water quality and supply. The Cal/EPA was created to better coordinate state environmental programs, reduce administrative duplication, and address the greatest environmental and health risks. The agency also unifies the California's environmental authority under a single Cabinet-level agency. The Secretary for Environmental Protection oversees the following agencies: CARB, Integrated Waste Management Board, Department of Pesticide Regulation, SWRCB, Department of Toxic Substances Control (DTSC), and the Office of Environmental Health Hazard Assessment.

Hazardous Waste Control Law. California requirements and statutory responsibilities are outlined in the statute implemented by the California DTSC in Health and Safety Code, Division 20, Chapter 6.5, Hazardous Waste Control Law. Regulations adopted from the Statute are found in Title 22 of the California Code of Regulations. The Hazardous Waste Control Law is similar to RCRA in that it regulates the identification, generation, transportation, storage, and disposal of materials deemed hazardous by the State.

Local

Sutter County General Plan. The Public Health and Safety Element of the Sutter County General Plan addresses a range of natural and human-caused hazards that may pose a risk to life and property, and includes goals and policies intended to protect residents and land from hazards and hazardous materials (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The project would conform to federal, state and local hazardous waste regulations. Construction vehicles and equipment containing grease and oils would be utilized during the

construction phase. Implementation of spill prevention measures to address the accidental or inadvertent release of oil, grease, or fuel into adjacent waterways would further help minimize potential construction-related water quality impacts. No hazardous materials would be used during operations and no hazardous waste would be generated. In the event that hazardous materials are identified in fill being removed while degrading the existing levee, they would be transported to a permitted hazardous waste and materials facility

Hydrology and Water Quality

Federal

The Clean Water Act: Section 401—Water Quality Certification. Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification. A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the U.S. and State. Water Quality Certifications are issued by one of the nine geographically separated Regional Water Quality Control Boards (Regional Boards) in California. Under the CWA, the relevant Regional Board must issue a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404.

The Clean Water Act: Section 402—NPDES Permit Program. NPDES Permit Program: CWA Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the U.S. The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is delegated with the responsibility of protecting the quality of surface and ground waters of the state in the project area.

The Clean Water Act: Section 404—Dredge/Fill Permitting. The discharge of dredged or fill material into waters of the U.S. is subject to permitting specified under Title IV (Permits and Licenses) of the CWA and specifically under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 404 of the CWA regulates placement of fill materials into the waters of the U.S. Section 404 permits are administered by the USACE.

State

Porter-Cologne Act. The Porter-Cologne Act authorizes the state to implement the provisions of the CWA and establishes a regulatory program to protect the water quality and beneficial uses of waters of the state. The act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the state's waters to file a report of waste discharge with the appropriate Regional Board.

Local

***Sutter County General Plan*.** The Environmental Resources Element of the Sutter County General Plan includes goals and policies intended for the protection of the County's water resources (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The preferred remediation alternative would involve work along various water bodies, such as Bear River and Yankee Slough. However, the project would conform to all

federal, state and local water quality, waste discharge, and reporting requirements. Further, the project would obtain all necessary permits issued under CWA, including Section 401, Section 404, and NPDES permitting, and would implement a project SWPPP and grading and erosion control BMPs, as required, to reduce water quality impacts.

Land Use and Planning

Local

***Sutter County General Plan*.** Land use designations and zoning districts for the County are outlined in the General Plan Land Use Element (Sutter County 2011). The Land Use Element includes a discussion of zoning classifications, allowed uses, and development standards (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. Land use zoning would not change or be impacted by the implementation of the preferred remediation alternative. The project would not require the development of new roads or structures that have the potential to divide an established community and would adhere to the land use designations in the Sutter County General Plan.

Noise

Local

***Sutter County General Plan*.** The Noise Element of the Sutter County General Plan includes goals and policies that seek to reduce community exposure to excessive noise levels through the establishment of noise level standards for a variety of land uses (Sutter County 2011). Noise standards specific to construction are also included in the Noise Element (Sutter County 2011).

CONSISTENCY ANALYSIS

Potential conflict. The preferred remediation alternative would generate altered noise conditions only during project construction activities. With noise sensitive receptors in close proximity (schools, residents, etc.), there is a potential that the project would temporarily not adhere to noise constraints outlined in the Sutter County General Plan.

Public Services and Utilities

Local

Sutter County General Plan. The Sutter County General Plan Public Services Element includes goals and policies intended to address the following public services and facilities: law enforcement, fire protection, schools, libraries, parks and recreation, recreational trails, and civic and cultural facilities (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The project would not result in an increase in population that could result in an increased demand on public services, levels of service or service ratios. Therefore, the

preferred remediation alternative would adhere to public service guidelines outlined in the Sutter County General Plan.

Recreation

Local

***Sutter County General Plan*.** The Public Services Element of the Sutter County General Plan includes goals and policies intended to govern the preservation of open space and the maintenance, expansion, and creation of recreational resources and amenities to maintain a high quality of life for the County's citizens (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. The preferred remediation alternative would adhere to recreation guidelines outlined in the Sutter County General Plan. The project would not permanently disturb recreational facilities and the project would not result in increased population growth resulting in the need for additional recreational facilities.

Transportation

Local

Sutter County General Plan. The Mobility Element of the Sutter County General Plan provides the framework for decisions concerning the countywide transportation system, and includes goals and policies intended to provide an efficient multi-modal road and highway system that meets the needs of its users (Sutter County 2011).

CONSISTENCY ANALYSIS

No conflict. During construction, the project would involve work within roadways and highways which would result in temporary disruptions to traffic and the circulation system. Prior to construction activities, a traffic management plan and a traffic safety plan would be developed in coordination with Sutter County. Upon completion of construction, vehicle traffic would return to pre-construction levels. Therefore, the preferred remediation alternative would adhere to traffic guidelines outlined in the Sutter County General Plan.

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Appendix B. Existing Conditions and Environmental Constraints

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Aesthetics		
Existing Conditions: According to the California Department of Transportation and the Sutter County General Plan Environmental Impact Report, there are no officially designated scenic highways in Sutter County and none in the vicinity of the project (Caltrans 2017; Sutter County 2011b). According to the Sutter County General Pan Land Use Map for Rio Oso, the project area is located in rural Sutter County and is primarily dominated by lands under agricultural use (Sutter County 2011a). Approximately 83 percent of the land in Sutter County is designated for agricultural purposes, while 11 percent is designated as open space, accounting for 95 percent of the county's total land use. Scenic resources in Sutter County include the Sutter Buttes; the Sutter, Sacramento, and Bear rivers; and the valley's orchards and agricultural landscape (Sutter County 2011b). The County is also home to 16,000 acres of wildlife areas that contribute to the scenic beauty and quality of life (Sutter County 2011b).		
Would the project create a substantial source of light or glare?	No. The project does not include any permanent stationary sources of light. Light would be associated with the operation of construction vehicles and equipment. However, use of construction vehicles and equipment would occur on a temporary basis, primarily during daylight hours and would not substantially impact surrounding communities.	No
Is the project located near a scenic highway?	No. There are no officially designated state or county highways in Sutter County or in the vicinity of the project.	No
Would the project interfere with public views in the area?	No. The preferred remediation alternative includes implementation of drained stability berms and waterside rock slope protection. These improvements would not substantially interfere with public views and would be consistent with the visual character of the area given that the project area is predominantly agricultural. Construction equipment would be used on a temporary basis and would be staged when not in use.	No
Would the project damage scenic resources?	No. The project involves levee improvements and the implementation of ancillary flood control features. These activities would be consistent with the current uses and visual quality of the project area, and would not impact visual resources in Sutter County.	No
Agriculture and Forestry Resources		
Existing Conditions: Approximately 83 percent of Sutter County is designated for agricultural land use (Sutter County 2011b).According to the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), the project area contains Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (California Department of Conservation 2016). The majority of the land near the levee improvements is designated as Prime Farmland (California Department of Conservation 2016 Sutter County 2011). Williamson Act lands are located in the vicinity of the project, however, none are located adjacent to Rio Oso levee segments 283 and 145 (Sutter County 2011b). According to the Sutter County Countywide Land Use Diagram, there are is no forest land in the project area (Sutter County 2011a).		

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance?	Yes. According the DOC FMMP, the project area contains Prime Farmland, Unique Farmland, and Farmland of Statewide Importance and has the potential to disturb or convert such land uses during construction and ground disturbing activities (DOC 2016).	Yes
Is the project located on a Williamson Act Contract property, or would it disturb a property under the Williamson Act Contract?	No. No Williamson Act lands are located adjacent to the project and none would be disturbed as a result of project activities.	No
Would the Project result in the loss of forest land or conversion of forest land to non-forest use?	No. According to the Sutter County Countywide Land Use Diagram, there is no forest land in the project area. Ground disturbing activities would not extend to areas designated as forest land. As a result, no impact to forest land would occur.	No
Air Quality and GHG Emissions		
Existing Conditions: Sutter County is located within the Sacramento Valley Air Basin. The SVAB is a broad, flat valley bounded by the Coastal Range to the west, the Sierra Nevada to the east, the Cascade Range to the north, and the San Joaquin Valley Air Basin to the south. The SVAB consists of 13 counties and is split into two planning sections based on the degree of pollutant transport and the level of emissions. The project area is located within the jurisdictional boundaries of the Feather River Air Quality Management District (FRAQMD) and is subject to the rules and regulations developed by the FRAQMD. FRAQMD is responsible for administering local, State and federal air quality management programs for Yuba and Sutter Counties.FRAQMD is a part of the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA Districts were designated as nonattainment for the ozone California Ambient Air Quality Standards (CAAQS) and agreed to jointly prepare an Air Quality Management Plan (SVAQEEP 2018). **Sensitive Receptors** Sensitive receptors in the vicinity of the project area include residences and schools. There is one school in Rio Oso (Browns Elementary School), located within 1.2 mile of the project area. No hospitals are located in the vicinity of the project area.		
Would project result in substantial emissions?	Yes. The project would not create emissions post construction and no new stationary emissions sources are proposed. However, during construction the project would require the use of construction vehicles and equipment on a temporary basis. Air quality impacts could result from particulate matter generated during construction activities, such as dust and equipment exhaust.	Yes
Would the project create objectionable odors?	No. The project includes implementation of flood protection and remediation measures and does not include activities that involve the long term creation of objectionable odors during construction or post construction.	No

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project expose sensitive receptors to substantial pollutant concentrations?	Yes. Sensitive receptors in the vicinity of the project area include residences and a school. There are no hospitals in the vicinity of the project area. Operation of construction vehicles and equipment under the preferred remediation alternative could result in increased emissions on a short term basis and impacts on sensitive receptors would not be substantial.	Yes
Would the project generate GHG emissions either directly or indirectly?	Yes. Operation of construction vehicles and equipment could generate GHG emissions on a short term, intermittent basis.	Yes
Biological Resources		
Existing Conditions: See Appendix C, Biological Resources Analysis, for existing conditions and detailed analysis.		
Is the project located adjacent to terrestrial or aquatic habitat areas for state or federally listed endangered, threatened, or candidate species?	Yes. Database query results returned a large number of special-status species with a potential to occur in the vicinity of the project area (Appendix C, Database Results). Through review of these results, many species were determined to not have the potential to occur in the project area due to absence of suitable habitat or the project area being located outside of known species ranges. Appendix C, Table 1 provides a description of the special-status species that have the potential to occur in each of the delineated vegetation communities. A few of the species included in this table are associated with riparian habitat located adjacent to the project area. Project work may require vegetation removal which could impact associated special-status species, should they be present, and these species should be considered when consulting with the appropriate agencies.	Yes
Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Yes. There are no critical habitat units within the project area. However, final designated critical habitat for steelhead and Chinook salmon occurs along the Bear River, to the west and north of the project area. Appendix C, Table 1 provides a description of the special-status species that have the potential to occur in each of the delineated vegetation communities. A few of the species included in this table are associated with riparian habitat located immediately adjacent to the project area. Project work may require vegetation removal which could impact associated special-status species, should they be present, and these species should be considered when consulting with the appropriate agencies. Other communities in the project area that provide suitable habitat for special-status species include agricultural ditches, open water, and various aquatic resources.	Yes

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	Yes. Several aquatic resources and vegetation communities in the project area would be considered sensitive communities due to their unique hydrophytic vegetation and ability to support special-status species. These areas include the following communities: riparian, agricultural ditches, open water, and other potential aquatic resources. Project work may require removal of riparian vegetation. It is recommended that a formal delineation of aquatic resource be completed prior to any project work in order to determine the level of impact to sensitive communities. Consultation and permitting through the appropriate agencies would need to occur where appropriate.	Yes
Does the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No. Yuba and Sutter Counties are currently in the process of developing a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) that incorporates valley floor communities for both counties. The project area falls completely within the proposed boundary for the NCCP/HCP. However, it is anticipated that project activities would comply with the conditions set forth in the HCP.	No
Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Yes. There are no protected areas or easements within the project area. However, there are numerous protected areas and easements on the lands surrounding the project area. There are several aquatic resources and vegetation communities in the project area, and these may act as movement corridors for both special-status and common species. Although substantial interference with movement is unlikely to result from project activities, levee improvements may act as barriers.	Yes
Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Yes. Aquatic resources were mapped in the project area and have the potential to be categorized as vernal pools or wetlands. It is recommended that a formal delineation of aquatic resources be completed prior to any project work to verify the jurisdiction of these features.	Yes
Cultural and Tribal Cultural Resources		
Existing Conditions: Existing Conditions: See Appendix D, Cultural Resources Analysis, for existing conditions and detailed analysis.		
Do known historical, archaeological, or tribal sites or resources occur in the project area?	Yes. The records search identified 23 archaeological sites and historical built environment resources, both within and outside the project area. The NEIC and NCIC databases indicate that there have been nine cultural resources recorded within the project area and 0.25 mile search radius – two prehistoric sites, one historical site, and six built environment resources. Resource CA-YUB-001911H, a segment of the Western Pacific Railroad (WPRR), was determined ineligible for listing on the NRHP; all other sites are considered unevaluated.	Yes

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Does the project require excavations or ground disturbance that could inadvertently impact known or unknown cultural, historical, or archaeological resources?	Yes. Construction of the project would require ground disturbance and use of heavy equipment. These activities have the potential to result in impacts to the cultural resources listed in Appendix D, should the resources be identified within, or potentially in the vicinity of, a proposed work area. Any newly discovered archaeological site which cannot be avoided by the project must be evaluated for eligibility to the CRHR and/or NRHP. If eligible, additional mitigation may be required if significant impacts/adverse effects cannot be avoided.	Yes
Would the project disturb human remains, including those encountered outside of dedicated cemeteries?	Yes. No human remains, cemeteries, or burial sites were identified by the cultural resources analysis. In the event that human remains are inadvertently discovered outside of dedicated cemeteries, work would stop immediately and the County Coroner would be contacted for consultation.	Yes
Energy		
Existing Conditions: Pacific Gas and Electric (PG&E) provides energy services to Sutter County. The following is a breakdown of PG&E's primary energy sources (PG&E 2019): • Renewable (39 percent) • Large hydroelectric facilities (13 percent) • Nuclear (34 percent). •Natural gas (15 percent) According to the California Energy Commission, Sutter County consumed approximately 635 GWh of electricity and 20 million therms of natural gas in 2018 (California Energy Commission 2016).		
Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	No. The project would use limited amounts of energy during construction through the operation of construction equipment. Regular energy usage would not be required once construction is completed. PG&E would have the capacity to support the project's energy needs. Therefore, impacts on energy resources would not be substantial.	No
Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	No. The project would comply with state and local plans for renewable energy and energy efficiency.	No
Geology, Soils and Mineral Resources		

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Existing Conditions: According to the Sutter County General Plan, Sutter County is located in the Great Valley Geomorphic province. The Great Valley is a 50 mile wide and 400 mile long alluvial plan that is characterized by alluvial sediments derived primarily from erosion of the mountains of the Sierra Nevada to the east and the Klamath Mountains and Cascade Range to the north (Sutter County 2011a). Materials underlying the northern portion of the Sacramento Valley consist primarily of Holocene alluvial deposits from the Sacramento River and its east-flowing tributaries that drain the Coast Ranges located west of the project area. These Holocene materials consist of stream and basin deposits from clay to boulder size and overlie older alluvial formations. The predominant soils in Sutter County include Capay, Clearlake, Conejo, Oswald, and Olashes soils. Approximately 34 percent of the soils in Sutter County have a high shrink-swell potential. Landsides are rare in the area given the flat topography of Sutter County (Sutter County 2011a). The Sacramento area has a relatively low seismic hazard when compared to other parts of California. The most active faults, such as the San Andreas, Hayward, Calaveras, and others, are at least 6 miles away from the project area. According to the California Geological Survey, the project area is located outside of areas designated as earthquake fault zones, liquefaction zones, landslide zones (CGS 2016). According to the USGS Mineral Resources On-Line Spatial Data Map and the Sutter County General Plan, there are no significant mineral resources in the vicinity of the project area (USGS 2019; Sutter County 2011a). University of California Museum of Paleontology (UCMP) has identified paleontological resources in the county and includes records of numerous vertebrate fossil localities (Sutter County 2011a).		
Would the project require excavations, grading, or other ground disturbing activities capable of causing erosion or loss of topsoil?	Yes. The project would require ground disturbance and use of heavy construction equipment during installation of the levee improvement features. These activities would result in erosion and loss of topsoil. However, the preferred remediation alternative also involves rock slope protection, which would help to minimize erosion. The project would adhere to erosion and grading control ordinances within Sutter County and therefore, impacts would not be substantial.	Yes
Is the project located in a seismically active area?	No. The project area is in a region of California characterized as having relatively low seismic activity. According to the California Geological Survey, the project area is located outside of areas designated as earthquake fault zones (CGS 2016).	No
Are new permanent structures proposed that could expose people to seismic related hazards such as landslides, liquefaction, ground failure, strong seismic ground shaking?	No. The project area is in a region of California characterized as having relatively low seismic activity. Although the project would involve the construction of levee repairs and improvements, no impacts would occur because seismic hazards are lacking in the project area (CGS 2016).	No
Is the project located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	No. The project area is not located on a geologic unit or soil(s) that are unstable, or that would become unstable as a result of the project, thereby resulting in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. Approximately 34 percent of the soils in Sutter County have a high shrink-swell potential, however, these considerations would be factored into the project design.	No
Are mineral resources present in the project area?	No. According to the USGS Mineral Resources On-Line Spatial Data Map and the Sutter County General Plan, there are no significant mineral resources in the vicinity of the project area (USGS 2019; Sutter County 2011a).	No

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Do known paleontological resources exist in the project area?	Yes. University of California Museum of Paleontology (UCMP) has identified paleontological resources in the county and includes records of numerous vertebrate fossil localities (Sutter County 2011a). If paleontological resources were identified in the project area during construction, the project would follow policies outlined in the Sutter County General Plan Environmental Resources Element and the Society of Vertebrate Paleontology's standard procedures for the assessment and mitigation of adverse impacts on paleontological resources. With these measures in place, impacts on paleontological resources would not be substantial.	Yes
Hazards and Hazardous Materials		
Existing Conditions: According to Cal/EPA, the provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." A site's presence on the list has bearing on the local permitting process. The Cortese list, which includes the resources listed below, was reviewed for references to the project area and vicinity: • List of Hazardous Waste and Substances sites from the DTSC EnviroStor database; • List of Leaking Underground Storage Tank Sites from the SWRCB GeoTracker database; • List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit; • List of "active" Cease and Desist Orders and Cleanup and Abatement Orders from SWRCB; and • List of hazardous waste facilities subject to corrective action identified by DTSC. According to the DTSC EnviroStor Database and the SWRCB GeoTracker Database, one hazardous materials database listing is located less than 1 mile from the project area. Plumas Ranch Elementary School, located at Feather River Boulevard and River Oaks Boulevard is listed as a School Cleanup Site with an Inactive - Withdrawn status as of 10/21/2013. The potential contaminants of concern include metals and organochlorine pesticides; soil is the potential media affected (DTSC 2019). There are no airports within 2 miles of the project. According to the Cal Fire, Fire Hazard Severity Zone Map for Sutter County, portions of the project are located within Local Responsibility Area (LRA) Unzoned areas, and some are located within LRA Moderate fire hazard severity zones (CAL FIRE 2007). No schools are located within a quarter mile radius of the project.		
Would the project be located on a site which is included on a list of hazardous materials sites compiles pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No. One hazardous materials database listing is located within one mile of the project area, outside of the project's proposed area of disturbance. Further, this site has an Inactive - Withdrawn status as of 10/21/2013 and contamination did not reach the groundwater, making impacts during ground disturbing activities less likely. There would be no impact.	No
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	No. Implementation of the project is anticipated to include advanced construction traffic planning and development of a traffic safety plan, which would ensure the continuation of emergency response services during construction activities.	No
Does the project require the use or routine transport of hazardous materials?	Yes. Construction vehicles and equipment containing grease and oils would be utilized during the construction phase. Implementation of spill prevention measures to address the accidental or inadvertent release of oil, grease, or fuel into adjacent waterways would further help minimize potential construction-related water quality impacts. Impacts would not be substantial with the implementation of BMPs.	Yes

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	No. No schools are located within one-quarter mile of the an existing or proposed schools. Additionally, to the extent possible, emissions would be controlled and contained through the implementation of BMPs.	No
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No. No airports are located within two miles of the project area, and the project is not located within an airport land use plan.	No
Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	No. According to the Cal Fire, Fire Hazard Severity Zone Map for Sutter County, the project is located in an areas designated as Local Responsibility Area (LRA) unzoned and moderate fire hazard severity zone, outside of high and very high fire hazard severity zones. Therefore, it is unlikely that the project would lead to a significant risk of loss, injury or death involving wildland fires.	No
Hydrology and Water Quality		
Existing Conditions: The project area is located within a Special Flood Hazard Area. Portions of the project area are located in FEMA Flood Zone A, indicating that they are within the 100-year zone (Sutter County 2019). <u>Groundwater</u> The project area is located in the Sacramento Valley Groundwater Basin, a large basin which covers over 5,900 square miles and 10 counties. This basin is divided into several smaller subbasins. The project area is located within the Sutter subbasin. <u>Surface Water</u> The Sutter subbasin is considered part of the Sacramento River Hydrologic Region. North of the Sutter subbasin is the confluence of Butte Creek, Sacramento River and Sutter Buttes; west of the subbasin is the Sacramento River; south of the subbasin is the confluence of the Sacramento River and Sutter Bypass; and east of the subbasin is Feather River. The most notable hydrologic features in the Sutter subbasin are the Sacramento and Feather Rivers (DWR 2006).		
Would the project alter the drainage pattern of the site or area in a manner which would result in substantial erosion or siltation?	Yes. Ground disturbance and use of heavy construction equipment during installation of the levee improvement features could potentially cause or result in erosion and/or sedimentation. Erosion of onsite soils can lead to increased levels of suspended sediments and turbidity in receiving waters, and could potentially impact water quality and result in a violation of water quality standards during construction. Impacts would be temporary and increased erosion and sedimentation is not anticipated once construction is completed. Post construction, installation of rock slope protection proposed under the preferred remediation alternative would improve conditions of erosion in the project area.	Yes

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project alter the drainage pattern of the site or area or result in an increase in surface runoff in a manner which would result in flooding on- or off-site?	Yes. Installation of the drained stability berm and rock slope protection could alter the drainage pattern of the site or area; however, the project is intended to provide flood damage reduction and would therefore result in beneficial impacts on flooding.	Yes
Would the project conform to water quality standards and waste discharge requirements?	Yes. During construction, the project has the potential to result in erosion, which could lead to increased levels of suspended sediments and turbidity in receiving waters. However, the project would conform to water quality standards during construction through the implementation of BMPs, such as grading and erosion control measures, as well as the implementation of a project SWPPP to reduce polluted storm water runoff.	No
Is the project located within a 100-year flood hazard area?	Yes. According to FEMA floodplain maps, the project area is located within the 100-year flood zone and the project has the potential to temporarily increase flood risk during construction. However, post construction flood risks in the project area are not considered a restraint to project implementation, as the purpose of the project is to provide flood damage reduction.	Yes
Would the project require the use of groundwater or hinder groundwater recharge?	No. The project would not require the use of groundwater and would not involve the implementation of impervious surfaces to the extent that groundwater recharge would be hindered. Therefore, impacts on groundwater would not be substantial.	No
Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	No. Construction, ground disturbing activities and work along the existing levees have the potential to contribute to increased runoff on a temporary basis. However, the project would include a Stormwater Pollution Prevention Plan (SWPPP) and would not exceed the capacity of existing or planned storm water drainage or provide substantial additional sources of polluted runoff.	No
Land Use and Planning		
Existing Conditions: According the Rio Oso and Sutter County General Plan Land Use Maps, the project area is almost entirely designated for agricultural purposes. Open space land uses are also located along the levee alignment (Sutter County 2011a). Established residential neighborhoods are lacking in the project area.		
Is the project consistent with the predominant character of the existing built or natural landscape?	Yes. Agricultural zonings are predominant in the project area (Sutter County 2011a). Flood improvement measures under the project are consistent with these zonings and would not preclude current land uses.	No

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Is the project permitted under zoning regulations?	Yes. Agricultural zonings are predominant in the project area (Sutter County 2011a). Flood improvement measures under the project are consistent with these zonings and would not preclude current land uses.	No
Would the project physically divide an established community?	No. The project would not require the development of new roads or structures that have the potential to divide an established community. Flood control measures would be installed along the existing levee and would not divide communities within Rio Oso, as established communities are lacking the project area. Therefore, no impact would occur.	No
Noise		
Existing Conditions: Land uses typically considered sensitive to noise include hospitals, parks, churches, schools, libraries, and other uses where low interior noise levels are essential. According to the Sutter County General Plan Noise Element, sensitive receptors in Sutter County include residences, schools, child-care centers, hospitals, long-term health facilities, convalescent centers, and retirement homes. The primary source of noise in the county is motor vehicle traffic. Other significant noise occurs from airplane traffic and railroads (Sutter County 2011a). Noise standards specific to construction are included in the Sutter County General Plan Noise Element. The Sutter County General Plan states that for residential, commercial and agricultural land uses the exterior noise level standards for outdoor activity areas may range between 60 and 75 Ldn/CNEL, db (Sutter County 2011a).		
Would the project generate noise in excess of thresholds outlined in the county noise ordinance or general plan?	Yes. Sensitive receptors in Sutter County include residences, schools, child-care centers, hospitals, long-term health facilities, convalescent centers, and retirement homes. The project has the potential to generate noise in excess of local thresholds during the operation of construction vehicles and equipment. Construction activities, such as installation of the stability berm and use of heavy construction equipment, could result in increased noise levels. Generally, construction activities would not occur in the direct vicinity of sensitive resources. Construction would occur on a temporary and intermittent basis and thus, noise levels would return to pre-construction levels once construction is completed.	Yes
Would the project generate excessive ground borne vibration or ground borne noise levels?	Yes. Operation of construction equipment and ground disturbing activities would result in ground borne vibration and ground borne noise. However, ground borne noise and vibration impacts would occur on a short term, intermittent basis and would not be substantial.	Yes
Public Services and Recreation		
Existing Conditions: Police services in the unincorporated areas of Sutter County are provided by the Sutter County Sheriff's Department. The Sheriff's Department is responsible for law enforcement patrol services. California Highway Patrol (CHP) provides traffic enforcement on all highways in the county and all roadways in the unincorporated areas of Sutter County. Fire protection services in the project area are provided by four county service areas (CSA) and two independent fire protection districts. The project area is predominantly located in CSA-C. Parks and recreational areas within a 1.5 mile radius of the project area include Bear River Park and Constitution Splashpad Park. Browns Elementary School is the only school in Rio Oso.		

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project result in an increase in response times for public services such as police and fire protection?	No. The project would not result in an increase in population that could result in an increased demand on public services or response times. Further, the project would not interfere with emergency routes and would implement a traffic safety plan. As a result there would be no impact on public services response times.	No
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection, police protection, schools, parks, other public facilities?	No. The project would not result in an increase in population that could result in an increased demand on public services, levels of service or service ratios. As it relates to emergency response times, the project would not interfere with emergency routes and would implement a traffic safety plan. As a result, there would be no impact on public services.	No
Would the project damage parks or other public facilities?	No. There are parks and public facilities within the vicinity of the project area. However, these facilities are outside of the area of disturbance for the project as work would be concentrated on existing levees. Further, construction vehicles and equipment would not be staged within park grounds or public facilities. Therefore, no impact would occur.	No
Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	No. The project does not include recreational facilities and would not require expansion of recreational facilities. Further, the project would not result in increased population growth resulting in the need for additional recreational facilities. Therefore, there would be no impact.	No
Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	No. The project would not result in increased population growth resulting in the increased use of parks and recreational facilities. Therefore, there would be no impact.	No
Traffic and Transportation		
Existing Conditions: Sutter County has a comprehensive transportation system consisting of State highways, local roads, urban arterials, rural highways, and streets, bus transit services, freight rail and airports. Major highways in Sutter County include 20, 113, 99, and 70 (Sutter County 2011a). Union Pacific Railroad Sacramento Subdivision is located east of the project area and intersects Levee Segment 145. Levee improvements along Segment 283 intersect with Highway 70.		
Would the project result in a substantial increase in traffic above present levels?	No. The project has the potential to temporarily increase the volume of traffic present on local roads and highways during construction. However, upon completion of construction, traffic would return to pre-project conditions.	No

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?	No. The project would conform to relevant plans, ordinances and policies addressing the circulation system. Construction vehicles and equipment would utilize local roads and highways on a temporary basis. Construction equipment would be staged to the extent possible when not in use. Prior to project activities, a Traffic Management Plan would be developed in coordination with Sutter County and Rio Oso. Additionally, implementation of the project is anticipated to include advanced construction traffic planning and development of a traffic safety plan, which would ensure the continuation of emergency response services during construction activities.	No
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	No. The project involves the construction of levee improvements. These activities would be consistent with the current uses and would not create traffic or transportation hazards due to a geometric design feature.	No
Would the project result in inadequate emergency access?	No. Implementation of the project is anticipated to include advanced construction traffic planning and development of a traffic safety plan, which would ensure the continuation of emergency response services during construction activities. The project would adhere to the traffic safety plan and would not interfere with emergency access routes.	No
Would the project result in disruptions to traffic or the circulation system?	Yes. The project would involve work within roadways and highways which would result in temporary disruptions to traffic and the circulation system. Improvements along Segment 145 intersect with Union Pacific Railroad Sacramento Subdivision, and improvements along Segment 283 intersect with Highway 70. Roads, highways, lanes and railroads through which the alignment passes could be blocked on a temporary basis. Construction equipment would be staged to the extent possible when not in use. Prior to project activities, a Traffic Management Plan would be developed in coordination with Sutter County and Rio Oso. Additionally, implementation of the project is anticipated to include advanced construction traffic planning and development of a traffic safety plan, which would ensure the continuation of emergency response services during construction activities. However, temporary disruptions to traffic would still occur.	Yes
Utilities and Service Systems		
Existing Conditions: Potable water in Sutter County is supplied primarily from groundwater sources. Most of the groundwater is pumped by privately owned wells in the rural areas of the county. Municipal and community potable water systems which rely on water supplies from Feather River and groundwater are also common in the county. Wastewater in the unincorporated areas of the county is treated and disposed of through on-site wastewater treatment systems (OWTS) or septic systems (Sutter County 2011a). Yuba-Sutter Regional Waste Management Authority operates a Joint Powers agreement between Sutter and Yuba Counties and the Cities of Live Oak, Marysville, Wheatland and Yuba City. Yuba-Sutter Regional Waste Management Authority is responsible for solid waste management in the area. Recology Yuba-Sutter has an agreement with Sutter and Yuba Counties and the Cities of Live Oak, Marysville, Wheatland and Yuba City to be solely responsible for collection, recycling, and disposal of solid waste from each jurisdiction. Their facilities include, Marysville Integrated Waste Recovery Facility, Ponderosa Transfer Station, Ostrom Road Landfill, and Yuba-Sutter Household Hazardous Waste Facility (Yuba Sutter Recycles 2019).		

	Preferred Remediation Alternative Impact Analysis	Potential for Environmental Constraints (Yes/No)
Impact Criteria and Existing Conditions		
Would the project connect to an existing public/private water supply?	No. The project would not require connection to an existing public or private water supply.	No
Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No. The project would not generate wastewater that would need to be treated by a local wastewater treatment provider.	No
Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Yes. Limited amounts of water would be used during construction; however no water would be required post construction. Therefore, no impacts on water supply would result from the project.	No
Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Yes. The project would generate limited amounts of solid waste during construction. No solid waste would be generated once construction is completed. The project would comply with federal, state and local regulations on solid waste.	No
Would the project generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure?	No. Limited amounts of solid waste such as construction debris, municipal waste and green waste would be generated during construction. Solid waste would not be generated once construction is completed. The project would not generate waste in excess of state or local standards and could be accommodated by local infrastructure.	No
Would the project require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects?	Yes. The project would not increase demand for solid waste disposal, water service, wastewater treatment, electric power, natural gas or telecommunications facilities, and would not require service by local utility providers. However, overhead utility lines are present along surface streets and highways in the project area, and there is potential that unseen underground utility infrastructure exists in the project area.	Yes

Appendix C. Biological Resources Analysis

Memo

Date:	April 2020
Project:	Rio Oso Flood Risk Reduction Feasibility Study
To:	Sutter County
From:	Scott Tidball, Biologist (HDR)
Reviewed:	Leslie Parker, Associate Biologist (HDR)
Subject:	Rio Oso – Biological Constraints Analysis

Introduction

This memo presents a preliminary review of potential biological constraints for the Rio Oso Flood Risk Reduction Feasibility Study project. Potential constraints are described below.

Methodology

Desktop Review

A desktop review was undertaken to assess potential biological constraints in the Rio Oso project area (Exhibit 1), which included two steps to collect data on special-status species, vegetation communities, sensitive communities, protected lands, and federally-protected aquatic resources with the potential to occur in the project area. First, preliminary database searches were performed to identify aquatic resources and special-status species with the potential to occur in the project area. Second, a preliminary review of recent aerial imagery and land ownership maps was conducted to collect site-specific data regarding habitat suitability for special-status species and to see if any protected lands overlap with the project area.

Database searches were performed on the following websites:

- U.S. Fish and Wildlife Service's (USFWS) Information Planning and Consultation (IPaC) System (2019a);
- USFWS Critical Habitat Portal (2019b);
- National Marine Fisheries Service (NMFS) (2016)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) in BIOS 5 (2019);
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (2019);
- USFWS National Wetland Inventory (2019c);
- U.S. Geological Survey (USGS) topographical map; and,
- Google Earth Pro (2019).

A query of the USFWS's IPaC system was performed to identify federally listed species that may occur in or adjacent to the project area. A review of the USFWS's Critical Habitat portal was also conducted to identify designated critical habitat units that fall within the project area. A query of the CNDDB provided a list of processed and unprocessed special-status species occurrences within the Nicolaus and Sheridan USGS 7.5 minute quadrangles (quads), as well as all adjacent quads. The CNDDB was also used to analyze land ownership data in the vicinity of the project area. Additionally, the CNPS database was queried to identify special-status plant species with the potential to occur in the aforementioned quads. Finally, USFWS National Wetland Inventory data and USGS topographical maps were used to aid in the digitization of vegetation communities and potential aquatic resources within the project area. The raw data returned from the database queries is provided in Appendix 1.

Reconnaissance Survey

A reconnaissance level survey was conducted on February 12, 2019 to verify the results of the desktop review. HDR biologists drove on publically accessible roads throughout the project area in order to record existing vegetation communities, aquatic resources, and species observed.

Results

The desktop and reconnaissance survey mapped seven vegetation communities in the project area including irrigated agriculture, oak woodland, orchard, pasture, rice, riparian, and urban. Agricultural ditches and potential aquatic resources were also recorded in the project area. These resources are described in detail below and are shown on Exhibit 1. The review of the project area also evaluated the potential for special-status species to occur in the project area. Table 1 provides a summary of special-status species with the potential to occur and their associated vegetation communities. Several special-status species included in the database query results were ruled-out due to absence of suitable habitat in the project area or being located outside of known species ranges. These species are not included in Table 1 but can be referenced in Appendix 1. Additionally, USFWS designated critical habitat units, conservation easements, and other protected areas located in or adjacent to the project area are described in greater detail below.

Vegetation Communities

IRRIGATED AGRICULTURE

Irrigated agriculture in the project area includes field and row crops. These are dryland crops that are irrigated throughout the growing season and can often have multiple harvests during the year. No crops were planted during the February 12, 2019 site visit, however typical agriculture crops in this part of the Sacramento Valley include corn (*Zea mays*), tomatoes (*Solanum lycopersicum*), and other grain and vegetable crops. While grape (*Vitis* spp.) vineyards are another abundant Central Valley crop, none were observed within the project area. Irrigated agriculture is found throughout the project area.

OAK WOODLAND

An area of oak woodland occurs adjacent to the Union Pacific rail line that bisects the western part of the project area. Oak woodland communities in the project area have a canopy of valley oak (*Quercus lobata*) with some unidentified trees of the *Prunus* genus. The understory consisted of non-native annual grasses similar to those species described in the pasture vegetation community below.

OPEN WATER

Open water consists of small, permanent water features that support little to no vegetation. Areas of open water include the linear water feature of the Bear River.

ORCHARD

Orchard crops consist of various tree grown agriculture products. Species observed during the February 12, 2019 survey included walnut (*Juglans regia*), and almond (*Prunus dulcis*). It is possible that additional nut and fruit crops could be grown in the project area. Orchards are the dominant vegetation community within the project area and are located throughout.

PASTURE

Pastures within the project area include undeveloped areas vegetated with herbaceous plants and primarily nonnative grasses that are regularly grazed or mowed. A site-specific list of plant species found in pastures was not compiled during the site visit due to lack of access; however, common species associated with pasture communities typically include annual grasses such as wild oat, ripgut brome, medusahead (*Elymus caput-medusae*), as well as herbaceous species such as filaree (*Erodium* spp.), blue dicks (*Dichelostemma capitatum*), clover (*Trifolium* spp.), and lupines (*Lupinus* spp.). Pastures are scattered throughout the project area.

RICE

Rice (*Oryza* spp.) is a seed producing annual grass that is grown as a flood irrigated crop. Rice is usually grown in leveed fields that are flooded much of the growing period, and dried out to mature and to facilitate harvesting. Rice fields typically produce 100 percent canopy closure as they mature. Crop rotation systems are common with rice fields in California, and they may be planted in rotation with other irrigated agriculture crops such as winter wheat or barley. Additionally some acres may be fallowed for a year or more or planted with legumes to fix nitrogen in the soil (CDFW 2018). For the purposes of this study, areas were designated as “rice” if they appeared to have been used primarily for rice production in the last ten years, using Google Earth historic imagery as a reference. Rice fields are found in the southern portion of the project area.

RIPARIAN

Riparian communities in the project area consists of multilayered woodlands with a tree overstory and a diverse shrub layer. During the February 12, 2019 field visit, it was observed that riparian areas consisted of an overstory of cottonwood (*Populus fremontii*), valley oak, and willows (*Salix* spp.). The understory consisted of California grape (*Vitis californica*), Himalayan blackberry (*Rubus armeniacus*), poison oak (*Toxicodendron diversilobum*), mustard (*Brassica* spp.), cattails (*Typha* spp.), coyote brush (*Baccharis pilularis*), filaree (*Erodium* sp.), and numerous other annual grassland species. A stretch of riparian habitat is found on the levee for the Bear River, along the western border of the project area, and on the levee for Yankee Slough, running along the northern border of the project area. There is also a small isolated patch of riparian habitat found within an orchard.

URBAN

Urban areas mapped in the project area include small semi-rural residential areas, in addition to State Route 70. Urban cover is also associated with paved roads and rural residences scattered throughout the project area; however, these were not mapped in detail on Exhibit 1. Vegetation is characterized as either landscaped areas or non-native herbaceous species growing in and around paved and developed features.

AGRICULTURAL DITCHES

Agricultural ditches are narrow, freshwater, linear features that can be either channelized natural features or anthropologically created. These features are typically unvegetated or support emergent, hydrophytic plants that are adapted to regular inundation. Agricultural ditches have the potential to fall under state or federal jurisdiction; however a formal aquatic resources delineation would need to be conducted to verify the jurisdiction of these features. Agriculture ditches are typically found adjacent to irrigated agriculture fields or orchards. In addition to multiple unnamed ditches, Yankee Slough has been classified as an agricultural ditch.

POTENTIAL AQUATIC RESOURCES

Aquatic resources mapped in the project area are areas that were identified as having the potential to be categorized as vernal pools or wetlands, including areas prone to seasonal flooding or topographic depressions. These features are typically seasonally pooled or saturated areas fed by precipitation or flooding from adjacent rivers and can be either natural or anthropologically created. Aquatic resources typically consist of hydrophytic plants that are adapted to regular inundation and have the potential to fall under state and/or federal jurisdiction; however, a formal wetland delineation would need to occur to verify jurisdiction. Aquatic resources shown on Exhibit 1 were identified by a combination of aerial review, National Wetlands Inventory, and field verification. Not all features were field verified in which case the mapped extent of potential aquatic resources is based on aerial interpretation and their presence, location, or extent should not be considered final.

Wildlife Observed

Wildlife observed during the February 12, 2019 site visit included numerous bird species such as red-winged blackbird (*Agelaius phoeniceus*), yellow-billed magpie (*Pica nuttalli*), California scrub jay (*Aphelocoma californica*), Brewer's blackbird (*Euphagus cyanocephalus*), great egret (*Ardea albus*), and other water fowl, in addition to raptors such as red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*). Numerous domestic sheep and chickens were also observed within pasture and urban areas. No special-status species or elderberry shrubs were observed during the survey, but they still have the potential to occur in the project area (Table 1) and are discussed in more detail below.

Special-Status Species

Database query results returned a large number of special-status species with a potential to occur in the vicinity of the project area (Appendix 1). Through review of these results, many species were determined to not have the potential to occur in the project area due to absence of suitable habitat or the project area being located outside of known species ranges. Table 1 provides a description of the special-status species that have the potential to occur in each of the delineated vegetation communities.

Any potential project related effects on these species or their habitats would require compliance with the California Environmental Quality Act as well as permits/authorizations from the appropriate state or federal agencies; as a result, a site-specific biological resources assessment would need to be conducted prior to project implementation to assess impacts on special-status species and their habitats.

Critical Habitat

There are no critical habitat units within the project area. However, final designated critical habitat for steelhead and Chinook salmon occurs along the Bear River, to the west and north of the project

area. The critical habitat unit for Chinook salmon (V08) ends approximately 2 miles upstream from the State Route 99 crossing, however the critical habitat unit for steelhead (V01) extends upstream to the outlet of Camp Far West Reservoir (USFWS 2019b).

Sensitive Habitats and Aquatic Resources

Sensitive habitats included are those that are of special concern to resource agencies or those that are protected under various state or federal regulations. Aquatic resources provide a variety of functions for plants and wildlife including habitat, foraging, cover, migration, and movement corridors. In addition to habitat functions, these features provide physical conveyance of surface water flows capable of handling large stormwater events.

Several aquatic resources and vegetation communities in the project area would be considered sensitive communities due to their unique hydrophytic vegetation and ability to support special-status species. These areas include the following communities: riparian, agricultural ditches, open water, and other potential aquatic resources. It is recommended that a formal delineation of aquatic resources be completed prior to any work in order to determine the level of impact on sensitive communities.

Depending on the project alternative chosen and the biological resources that may be affected, there are numerous agencies that may need to be consulted with and/or permits completed. It is likely that the project would require consultation with or completion of some or all of the following:

- US Army Corps of Engineers (USACE) Section 404 consultation – covers any impacts to waters of the U.S.
- USACE Section 408 consultation – covers any project work in or around federally managed levees.
- USFWS Section 7 consultation – covers any potential impacts to federally listed species managed by the USFWS.
- National Marine Fisheries Service (NMFS) Section 7 consultation – covers any potential impacts to federally listed species managed by the NMFS.
- CDFW Section 1602 permit – covers any alteration below the top-of-bank of a river channel or within the riparian corridor.
- CDFW Incidental Take Permit (ITP) – covers any potential impacts to state listed species.
- RWQCB Section 401 permit – covers any discharge of dredge or fill into waters of the State.

Protected Areas, Conservation Easements, and Wildlife Movement Corridors

There are no protected areas or easements within the project area. However, there are numerous protected areas and easements on the lands surrounding the project area.

There are six protected areas that are located within two miles of the project area, including one area owned by the Central Valley Flood Protection Board, four areas owned by the Olivehurst Public Utilities District, and one area owned by the Sacramento and San Joaquin Drainage District (CPAD 2018). There are five land parcels with conservation easements within two miles of the project area, including two areas operated by CDFW, one area operated by the Wildlife Heritage Foundation, and two areas operated by the United States Natural Resources Conservation Service (CCED 2018).

The Sutter Bypass is located approximately 6 miles southwest of the project area. The bypass is part of a large engineered floodway that runs adjacent to the Sacramento River from north of the Sutter Buttes, south to the Sacramento-San Joaquin Delta and acts as a wildlife movement corridor for numerous terrestrial and aquatic species.

Local Ordinances
There are no county or local ordinances that affect this project area.

Yuba and Sutter County NCCP/HCP

Yuba and Sutter Counties are currently in the process of developing a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) that incorporates valley floor communities for both counties. The project area falls completely within the proposed boundary for the NCCP/HCP. In 2006, a Report of Independent Science Advisors for the Yuba and Sutter County NCCP/HCP (Sutter County 2006) was prepared that summarizes recommendations for the continued development of the plan from a group of independent science advisors. Additionally, in 2011, the pertinent parties, local agencies, and wildlife agencies signed a planning agreement that worked to define goals and commitments for the NCCP/HCP (Yuba County 2011).

The Science Advisors report makes numerous recommendations for habitat areas that should have special protections as well as best practices for a variety of activities that are pertinent to this feasibility study. Specific habitats that are recommended to be protected include vernal pools and their watersheds, emergent wetlands, confluences of riparian/riverine systems, valley oak woodlands, mature riparian forests, wide riparian areas of more than 100 meters, and functional or potentially restorable floodplain areas. Additionally, the report calls out the confluence of the Bear and Feather Rivers and the Coon Creek watershed as areas of high biological potential. The report also outlines guidelines for riparian conservation and restoration, establishing wetland buffers, maintain and restoring hydrological connectivity including minimizing barriers to fish passage, and general levee maintenance.

The list of special-status species that are currently proposed for inclusion in the NCCP/HCP include:

- Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)
- bald eagle (*Haliaeetus leucocephalus*)
- bank swallow (*Riparia riparia*)
- Boggs Lake hedge-hyssop (*Gratiola heterosephala*)
- burrowing owl (*Athene cunicularia*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- dwarf downingia (*Doningia pusilla*)
- giant garter snake (*Thamnophis gigas*)
- greater sandhill crane (*Grus canadensis tabida*)
- legenere (*Legenere limosa*)
- steelhead – Central Valley ESU (*Oncorhynchus mykiss irideus*)
- Swainson's hawk (*Buteo swainsoni*)
- tricolored blackbird (*Agelaius tricolor*)
- valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- vernal pool fairy shrimp (*Lepidurus packardi*)

- western pond turtle (*Emys marmorata*)
- western spadefoot toad (*Spea hammondii*)
- western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Out of these 18 species that are proposed to be included in the NCCP/HCP, eight were determined to have very limited potential to occur within the project area, including Ahart's dwarf rush, bald eagle, Boggs Lake hedge, dwarf downingia, greater sandhill crane, legenere, steelhead, and western spadefoot toad. The remaining ten species have the potential to occur somewhere in the project area and are shown in Table 1.

Table 1. Special-Status Species with the Potential to Occur in the Project Area[1]

Scientific Name	Common Name	Federal Listing[2]	State Listing[3]/CRPR[4]	Vegetation Community Description
Plants				
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	--	1B.1	potential aquatic resources
Delphinium recurvatum	Recurved larkspur	--	1B.2	pasture
Downingia pusilla	dwarf downingia	--	2B.2	potential aquatic resources
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	--	1B.2	riparian, potential aquatic resources
Monardella venosa	veiny monardella	--	1B.1	pasture
Pseudobahia bahiifolia	Hartweg's golden sunburst	--	1B.2	pasture
Sagittaria sanfordii	Sanford's arrowhead	--	1B.2	riparian, agricultural ditches, potential aquatic resources
Invertebrates				
Branchinecta conservatio	Conservancy fairy shrimp	FE	--	potential aquatic resources
Branchinecta lynchi	vernal pool fairy shrimp	FT	--	potential aquatic resources
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	--	throughout the project area wherever elderberry host plant occurs, but most likely to occur in riparian areas
Lepidurus packardi	vernal pool tadpole shrimp	FE	--	potential aquatic resources
Fish				
Lavinia exilicauda	Sacramento hitch	--	SSC	Yankee Slough

[1] This list was compiled based on a preliminary habitat assessment, and should not be considered a final list of all species with potential to occur in the project area.
[2] FT = Federally Threatened, FE = Federally Endangered
[3] SSC = Species of Special Concern, ST = State Threatened, SE = State Endangered, FP = Fully Protected, CE = Candidate for Endangered
[4] CRPR (California Rare Plant Ranking); 1B.1 = Seriously rare, threatened, or endangered in CA and elsewhere, 1B.2 = Moderately rare, threatened, or endangered in CA and elsewhere, 2B.2 = Moderately rare, threatened, or endangered in CA but more common elsewhere

Scientific Name	Common Name	Federal Listing[2]	State Listing[3]/CRPR[4]	Vegetation Community Description
Pogonichthys macrolepidotus	Sacramento splittail	--	SSC	Yankee Slough
Reptiles				
Emys marmorata	western pond turtle	--	SSC	Yankee Slough, agricultural ditches
Thamnophis gigas	giant garter snake	FT	ST	rice, riparian, Yankee Slough, agricultural ditches
Birds				
Agelauis tricolor	tricolored blackbird	--	ST/SSC	irrigated agriculture, rice, riparian, Yankee Slough, agricultural ditches
Athene cunicularia	burrowing owl	--	SSC	pasture, urban
Buteo swainsoni	Swainson's hawk	--	ST	foraging: irrigated agriculture, orchard, pasture nesting: riparian and other large trees throughout project area
Circus hudsonius	northern harrier	--	SSC	foraging: irrigated agriculture, orchard, pasture, rice
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT	SE	riparian
Elanus leucurus	white-tailed kite	--	FP	foraging: irrigated agriculture, pasture, rice nesting: riparian and other large trees throughout project area
Icteria virens	yellow-breasted chat	--	SSC	riparian
Ixobrychus exilis	least bittern	--	SSC	riparian
Lanius ludovicianus	loggerhead shrike	--	SSC	foraging: irrigated agriculture, pasture, rice nesting: shrubs and trees throughout project area
Laterallus jamaicensis coturniculus	California black rail	--	ST/FP	Yankee Slough, potential aquatic resources
Riparia	bank swallow	--	ST	riparian
Mammals				
Antrozous pallidus	pallid bat	--	SSC	orchard, urban
Lasiurus blossevillii	western red bat	--	SSC	orchard, riparian

Conclusion

The findings in this memo represent a preliminary, high-level review of potential biological constraints in the project area and should not be considered final and all-encompassing. Based on this preliminary review of biological resources databases and the site reconnaissance, the project area appears to contain suitable habitat for several special-status species and includes various sensitive communities and aquatic resources. Project activities have the potential to impact any of the aforementioned biological resources, should they be present in the vicinity of the proposed work area. Prior to project implementation, consultation with resource agencies and acquisition of permits may be necessary.

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----. 2019b. Critical Habitat Mapper. https://fws.maps.arcgis.com/home/webmap/viewer.html Accessed March 6, 2019.

----. 2019c. "National Wetlands Inventory Wetlands Mapper." https://www.fws.gov/wetlands/ Accessed March 6, 2019.

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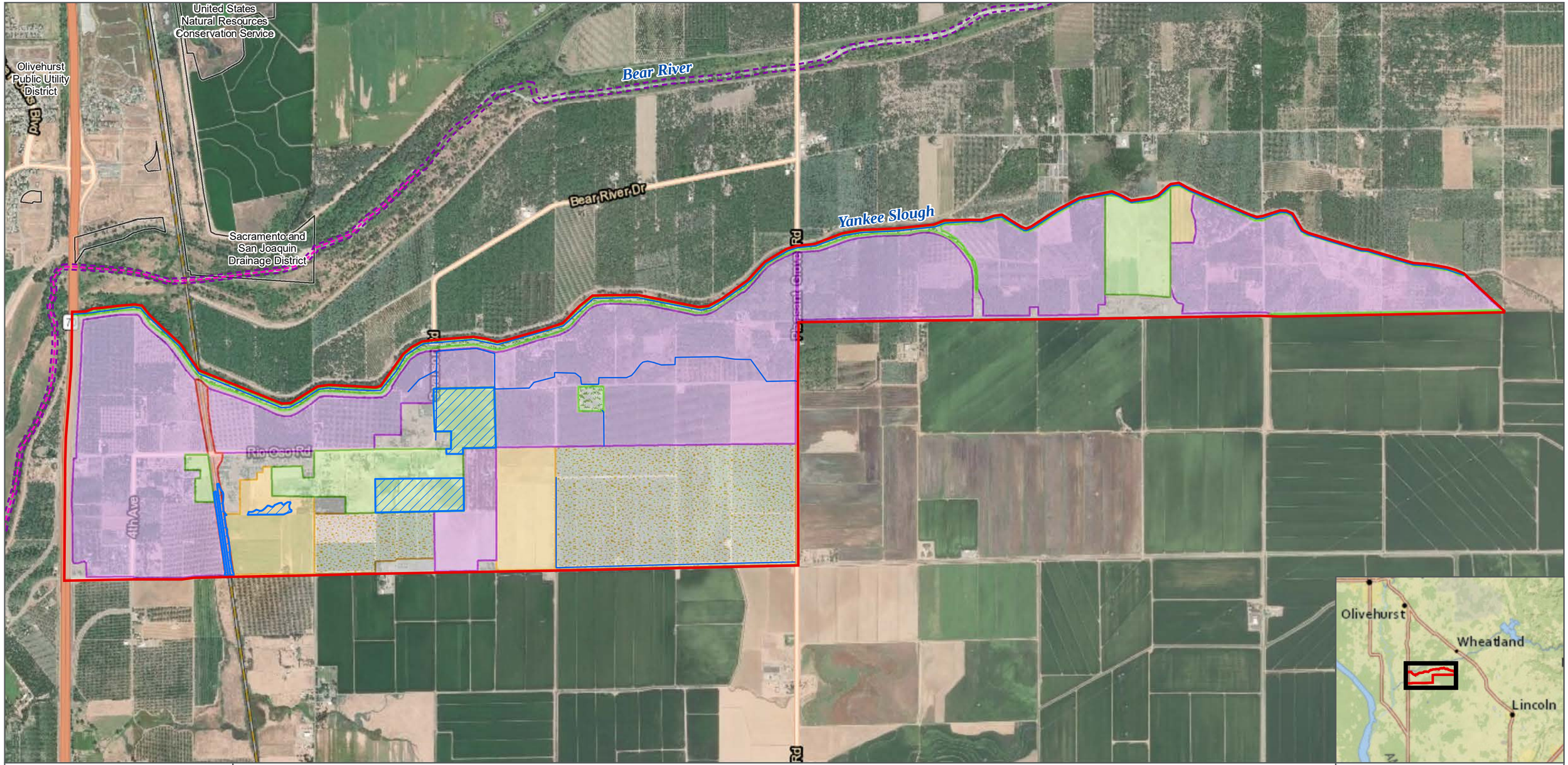


N

0 MILES 1

SOURCES: Aerial Imagery - ESRI; Critical Habitat - USFWS; CPAD and CCED - GreenInfo Network;

Project Area, Potential Wetlands, Agriculture Ditches, Vegetation Communities - HDR Inc.

This map product was compiled from the best available sources. No warranty is made for its accuracy or completness. Projection: State Plane California Zone II 0402 US Feet.

- Project Area
- Agriculture Ditches
- Potential Wetlands
- Final Critical Habitat for Chinook Salmon *(Oncorhynchus tshawytscha)*
- Final Critical Habitat for Steelhead *(Oncorhynchus mykiss)*
- California Protected Areas Database (CPAD) and California Conservation Easement Database (CCED) Units

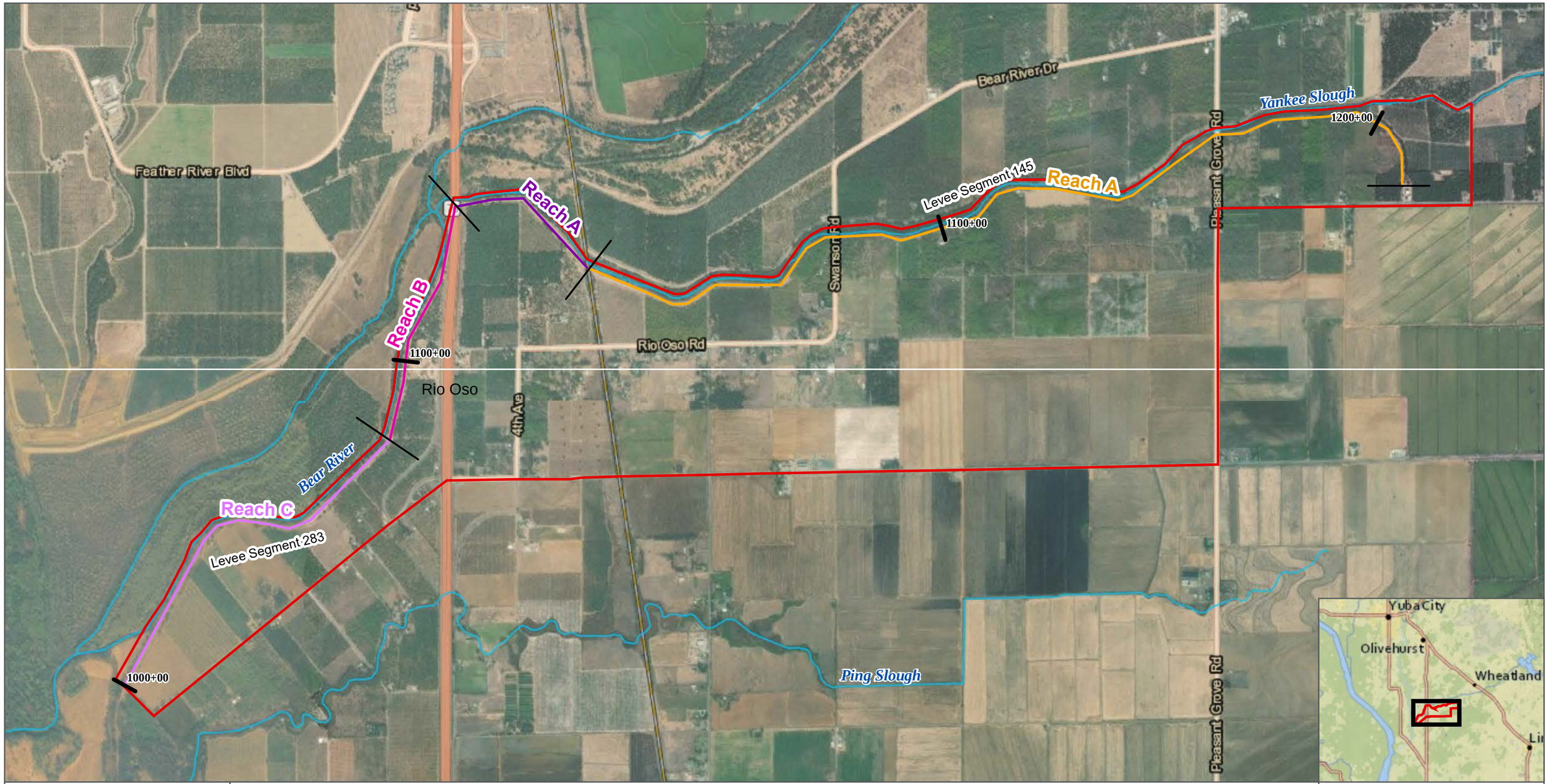
Vegetation Communities

- Irrigated Agriculture
- Oak Woodland
- Orchard
- Pasture
- Rice
- Riparian
- Urban

RIO OSO FLOOD RISK REDUCTION FEASIBILITY STUDY

FIGURE 1

PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_RIO_OSO_11X17.MXD - USER: STIDBALL - DATE: 4/5/2019



Project Area

Levee Stationing

Levee Reaches

Segment 145, Reach A

Segment 283, Reach A

Segment 283, Reach B

Segment 283, Reach C

N

0 MILES 1

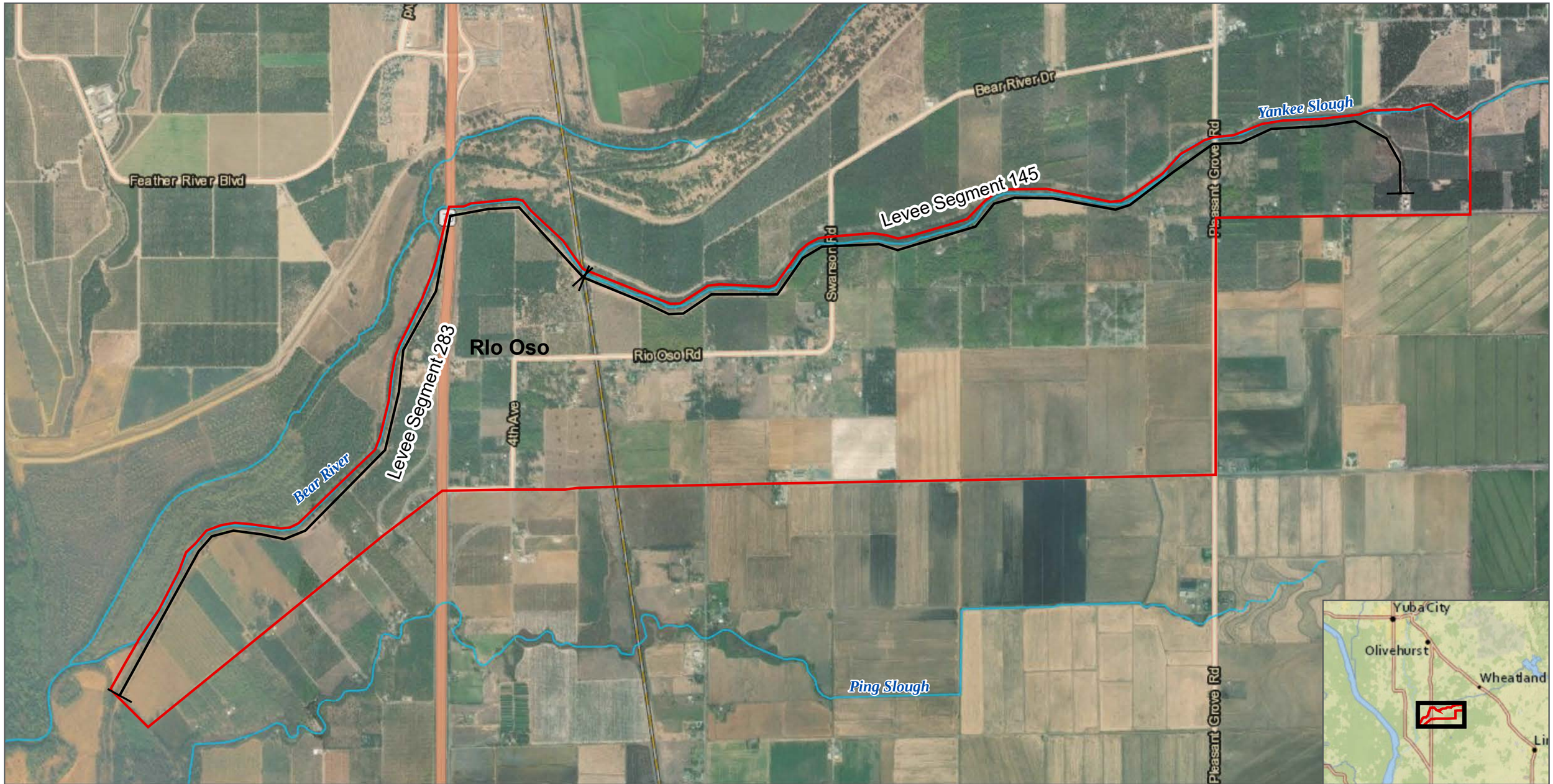
SOURCES: Aerial Imagery - ESRI; Critical Habitat - USFWS; CPAD and CCED - GreenInfo Network;

Project Area, Potential Wetlands, Agriculture Ditches, Vegetation Communities - HDR Inc.

This map product was compiled from the best available sources. No warranty is made for its accuracy or completness. Projection: State Plane California Zone II 0402 US Feet.

PREFERRED REMEDIATION ALTERNATIVE REACHES RIO OSO

PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_RIO_OSO_LEVEE_REACH_11X17.MXD - USER: STIDBALL - DATE: 10/30/2019



SOURCES: Aerial Imagery - ESRI; Critical Habitat - USFWS; CPAD and CCED - GreenInfo Network;

Project Area, Potential Wetlands, Agriculture Ditches, Vegetation Communities - HDR Inc.

This map product was compiled from the best available sources. No warranty is made for its accuracy or completness. Projection: State Plane California Zone II 0402 US Feet.

Project Area

Levee Segments

N

0 MILES 1

COMMUNITY OF RIO OSO PROJECT AREA

PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_RIO_OSO_LEVEE_SEGMENT_11X17.MXD - USER: STIDBALL - DATE: 10/30/2019

Appendix 1. Database Results

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2019-SLI-0819
Event Code: 08ESMF00-2019-E-02503
Project Name: Rio Oso

January 31, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2019-SLI-0819

Event Code: 08ESMF00-2019-E-02503

Project Name: Rio Oso

Project Type: LAND - FLOODING

Project Description: Flood reduction feasibility study

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.96558058170463N121.50342507586126W

Counties: Sutter, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7850
Habitat assessment guidelines:
https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp *Lepidurus packardi*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2246

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Rio Oso Flood Risk Reduction Feasibility Study

Quad Name **Nicolaus**
Quad Number **38121-H5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Sheridan**
Quad Number **38121-H4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

CNDDB 9-Quad Species List 173 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812174	Pleasant Grove	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812186	Sutter Causeway	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812184	Sheridan	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812185	Nicolaus	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3912116	Gilsizer Slough	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3912114	Wheatland	Mapped	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3912115	Olivehurst	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	-	-	3912116	Gilsizer Slough	Mapped	Animals - Birds - Anatidae - Branta hutchinsii leucopareia
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3912116	Gilsizer Slough	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Ardeidae - Ardea alba

Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3912116	Gilsizer Slough	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Ixobrychus exilis	least bittern	ABNGA02010	None	None	SSC	-	3912116	Gilsizer Slough	Unprocessed	Animals - Birds - Ardeidae - Ixobrychus exilis
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812175	Verona	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812176	Knights Landing	Mapped	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812176	Knights Landing	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3912115	Olivehurst	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812185	Nicolaus	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812185	Nicolaus	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812175	Verona	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812174	Pleasant Grove	Mapped	Animals - Birds - Icteridae - Agelaius tricolor

Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812175	Verona	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812176	Knights Landing	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3912115	Olivehurst	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812186	Sutter Causeway	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3912114	Wheatland	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812184	Sheridan	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812185	Nicolaus	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3912116	Gilsizer Slough	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Baeolophus inornatus	oak titmouse	ABPAW01100	None	None	-	-	3812175	Verona	Unprocessed	Animals - Birds - Paridae - Baeolophus inornatus
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Laterallus jamaicensis coturniculus	California black rail	ABNME03041	None	Threatened	FP	-	3912116	Gilsizer Slough	Mapped	Animals - Birds - Rallidae - Laterallus jamaicensis coturniculus
Animals - Birds	Asio otus	long-eared owl	ABNSB13010	None	None	SSC	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Strigidae - Asio otus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812175	Verona	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3912114	Wheatland	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii

Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3812184	Sheridan	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3912115	Olivehurst	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912116	Gilsizer Slough	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812185	Nicolaus	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi

Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812185	Nicolaus	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus

Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812175	Verona	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812176	Knights Landing	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	3812176	Knights Landing	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812174	Pleasant Grove	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812185	Nicolaus	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 8
Animals - Fish	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 8
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30

Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	None	None	SSC	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812185	Nicolaus	Mapped	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812176	Knights Landing	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Insects	Anthicus antiochensis	Antioch Dunes anthicid beetle	IICOL49020	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Anthicidae - Anthicus antiochensis
Animals - Insects	Anthicus sacramento	Sacramento anthicid beetle	IICOL49010	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Anthicidae - Anthicus sacramento
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812176	Knights Landing	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812176	Knights Landing	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812175	Verona	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812184	Sheridan	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus

Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3912114	Wheatland	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3812184	Sheridan	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Mammals	Lasiurus blossevillii	western red bat	AMACC05060	None	None	SSC	-	3812176	Knights Landing	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus blossevillii
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812176	Knights Landing	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04020	None	None	-	-	3812176	Knights Landing	Unprocessed	Animals - Mollusks - Unionidae - Anodonta californiensis
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812174	Pleasant Grove	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812185	Nicolaus	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912114	Wheatland	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812186	Sutter Causeway	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912116	Gilsizer Slough	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3912116	Gilsizer Slough	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812186	Sutter Causeway	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812185	Nicolaus	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas

Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812176	Knights Landing	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	-	-	3812186	Sutter Causeway	Mapped	Community - Terrestrial - Coastal and Valley Freshwater Marsh
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	-	-	3912116	Gilsizer Slough	Mapped	Community - Terrestrial - Coastal and Valley Freshwater Marsh
Community - Terrestrial	Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	-	-	3912115	Olivehurst	Mapped	Community - Terrestrial - Great Valley Cottonwood Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3912115	Olivehurst	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812185	Nicolaus	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812176	Knights Landing	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3912114	Wheatland	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	Nicolaus	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3912115	Olivehurst	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Pseudobahia bahiifolia	Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	-	1B.1	3912116	Gilsizer Slough	Mapped	Plants - Vascular - Asteraceae - Pseudobahia bahiifolia
Plants - Vascular	Pseudobahia bahiifolia	Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Asteraceae - Pseudobahia bahiifolia
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3912114	Wheatland	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812184	Sheridan	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812174	Pleasant Grove	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Astragalus tener var. ferrisiae	Ferris' milk-vetch	PDFAB0F8R3	None	None	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Fabaceae - Astragalus tener var. ferrisiae
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3912115	Olivehurst	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812185	Nicolaus	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812176	Knights Landing	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3912116	Gilsizer Slough	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii

Plants - Vascular	Monardella venosa	veiny monardella	PDLAM18082	None	None	-	1B.1	3912116	Gilsizer Slough	Mapped	Plants - Vascular - Lamiaceae - Monardella venosa
Plants - Vascular	Monardella venosa	veiny monardella	PDLAM18082	None	None	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Lamiaceae - Monardella venosa
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812186	Sutter Causeway	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812176	Knights Landing	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812175	Verona	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3912116	Gilsizer Slough	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812174	Pleasant Grove	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Delphinium recurvatum	recurved larkspur	PDRAN0B1J0	None	None	-	1B.2	3912115	Olivehurst	Mapped	Plants - Vascular - Ranunculaceae - Delphinium recurvatum

CNDDB 9-Quad Species List 203 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	Rana draytonii	California red-legged frog	AAABH01022	Threatened	None	SSC	-	3912113	Camp Far West	Unprocessed	Animals - Amphibians - Ranidae - Rana draytonii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812173	Roseville	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Amphibians	Spea hammondii	western spadefoot	AAABF02020	None	None	SSC	-	3812174	Pleasant Grove	Mapped	Animals - Amphibians - Scaphiopodidae - Spea hammondii
Animals - Birds	Accipiter cooperii	Cooper's hawk	ABNKC12040	None	None	WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3812173	Roseville	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP , WL	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Accipitridae - Aquila chrysaetos
Animals - Birds	Buteo regalis	ferruginous hawk	ABNKC19120	None	None	WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Buteo regalis
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812183	Lincoln	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812184	Sheridan	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812185	Nicolaus	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812173	Roseville	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3912114	Wheatland	Mapped	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3912113	Camp Far West	Mapped	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius

Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812173	Roseville	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3912115	Olivehurst	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3912113	Camp Far West	Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	3812183	Lincoln	Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Eremophila alpestris actia	California horned lark	ABPAT02011	None	None	WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Alaudidae - Eremophila alpestris actia
Animals - Birds	Aythya americana	redhead	ABNJB11030	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Anatidae - Aythya americana
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3912113	Camp Far West	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812183	Lincoln	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax

Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812175	Verona	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812185	Nicolaus	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3912115	Olivehurst	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Falco mexicanus	prairie falcon	ABNKD06090	None	None	WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Falconidae - Falco mexicanus
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812173	Roseville	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812175	Verona	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812185	Nicolaus	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3912113	Camp Far West	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3912115	Olivehurst	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3912114	Wheatland	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812185	Nicolaus	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812184	Sheridan	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812183	Lincoln	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812174	Pleasant Grove	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812175	Verona	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812173	Roseville	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Xanthocephalus xanthocephalus	yellow-headed blackbird	ABPBXB3010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Icteridae - Xanthocephalus xanthocephalus
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3912113	Camp Far West	Mapped	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus

Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Chlidonias niger	black tern	ABNNM10020	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Laridae - Chlidonias niger
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3912113	Camp Far West	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	3812183	Lincoln	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Baeolophus inornatus	oak titmouse	ABPAW01100	None	None	-	-	3812175	Verona	Unprocessed	Animals - Birds - Paridae - Baeolophus inornatus
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3912113	Camp Far West	Mapped	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3912113	Camp Far West	Mapped	Animals - Birds - Passerellidae - Ammodramus savannarum
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Passerellidae - Ammodramus savannarum
Animals - Birds	Ammodramus savannarum	grasshopper sparrow	ABPBXA0020	None	None	SSC	-	3812173	Roseville	Mapped	Animals - Birds - Passerellidae - Ammodramus savannarum
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812183	Lincoln	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Pelecanus erythrorhynchos	American white pelican	ABNFC01010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus erythrorhynchos
Animals - Birds	Melanerpes lewis	Lewis' woodpecker	ABNYF04010	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Picidae - Melanerpes lewis
Animals - Birds	Laterallus jamaicensis coturniculus	California black rail	ABNME03041	None	Threatened	FP	-	3812183	Lincoln	Mapped	Animals - Birds - Rallidae - Laterallus jamaicensis coturniculus
Animals - Birds	Laterallus jamaicensis coturniculus	California black rail	ABNME03041	None	Threatened	FP	-	3912113	Camp Far West	Mapped	Animals - Birds - Rallidae - Laterallus jamaicensis coturniculus
Animals - Birds	Asio otus	long-eared owl	ABNSB13010	None	None	SSC	-	3812174	Pleasant Grove	Unprocessed	Animals - Birds - Strigidae - Asio otus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812175	Verona	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia

Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812173	Roseville	Mapped	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812183	Lincoln	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3912114	Wheatland	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3912115	Olivehurst	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Contopus cooperi	olive-sided flycatcher	ABPAE32010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Birds - Tyrannidae - Contopus cooperi
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812183	Lincoln	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Crustaceans	Branchinecta conservatio	Conservancy fairy shrimp	ICBRA03010	Endangered	None	-	-	3812184	Sheridan	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta conservatio
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812183	Lincoln	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812173	Roseville	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3912113	Camp Far West	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3912115	Olivehurst	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi

Animals - Crustaceans	Branchinecta mesovallensis	midvalley fairy shrimp	ICBRA03150	None	None	-	-	3812183	Lincoln	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta mesovallensis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812183	Lincoln	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812173	Roseville	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912113	Camp Far West	Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3912114	Wheatland	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812173	Roseville	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi

Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812185	Nicolaus	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812184	Sheridan	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812183	Lincoln	Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812185	Nicolaus	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812175	Verona	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Lampetra ayresii	river lamprey	AFBAA02030	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra ayresii
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812183	Lincoln	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812185	Nicolaus	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11

Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812174	Pleasant Grove	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812173	Roseville	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 8
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	None	None	SSC	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3812185	Nicolaus	Mapped	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812175	Verona	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Insects	Andrena subapasta	An andrenid bee	IIHYM35210	None	None	-	-	3812173	Roseville	Mapped	Animals - Insects - Andrenidae - Andrena subapasta
Animals - Insects	Anthicus antiochensis	Antioch Dunes anthicid beetle	IICOL49020	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Anthicidae - Anthicus antiochensis
Animals - Insects	Anthicus sacramento	Sacramento anthicid beetle	IICOL49010	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Anthicidae - Anthicus sacramento
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812185	Nicolaus	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus

Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812184	Sheridan	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812175	Verona	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3912114	Wheatland	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Hydrochara rickseckeri	Ricksecker's water scavenger beetle	IICOL5V010	None	None	-	-	3812173	Roseville	Mapped	Animals - Insects - Hydrophilidae - Hydrochara rickseckeri
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	3912115	Olivehurst	Mapped and Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3812184	Sheridan	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812185	Nicolaus	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812183	Lincoln	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812173	Roseville	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812174	Pleasant Grove	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912115	Olivehurst	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912114	Wheatland	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3912113	Camp Far West	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812175	Verona	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas

Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812185	Nicolaus	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Community - Terrestrial	Alkali Meadow	Alkali Meadow	CTT45310CA	None	None	-	-	3812173	Roseville	Mapped	Community - Terrestrial - Alkali Meadow
Community - Terrestrial	Alkali Seep	Alkali Seep	CTT45320CA	None	None	-	-	3812173	Roseville	Mapped	Community - Terrestrial - Alkali Seep
Community - Terrestrial	Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	-	-	3912115	Olivehurst	Mapped	Community - Terrestrial - Great Valley Cottonwood Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3912115	Olivehurst	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812185	Nicolaus	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812183	Lincoln	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812173	Roseville	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3912114	Wheatland	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Community - Terrestrial	Northern Volcanic Mud Flow Vernal Pool	Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	-	-	3812173	Roseville	Mapped	Community - Terrestrial - Northern Volcanic Mud Flow Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	Nicolaus	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3912115	Olivehurst	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Balsamorhiza macrolepis	big-scale balsamroot	PDAST11061	None	None	-	1B.2	3812183	Lincoln	Mapped	Plants - Vascular - Asteraceae - Balsamorhiza macrolepis
Plants - Vascular	Balsamorhiza macrolepis	big-scale balsamroot	PDAST11061	None	None	-	1B.2	3812173	Roseville	Mapped	Plants - Vascular - Asteraceae - Balsamorhiza macrolepis
Plants - Vascular	Pseudobahia bahiifolia	Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Asteraceae - Pseudobahia bahiifolia
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3912114	Wheatland	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla

Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3912113	Camp Far West	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812173	Roseville	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812174	Pleasant Grove	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812183	Lincoln	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Downingia pusilla	dwarf downingia	PDCAM060C0	None	None	-	2B.2	3812184	Sheridan	Mapped	Plants - Vascular - Campanulaceae - Downingia pusilla
Plants - Vascular	Legenere limosa	legenere	PDCAM0C010	None	None	-	1B.1	3812173	Roseville	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Astragalus tener var. ferrisiae	Ferris' milk-vetch	PDFAB0F8R3	None	None	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Fabaceae - Astragalus tener var. ferrisiae
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3912115	Olivehurst	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812185	Nicolaus	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812183	Lincoln	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juncus leiospermus var. ahartii	Ahart's dwarf rush	PMJUN011L1	None	None	-	1B.2	3812183	Lincoln	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. ahartii
Plants - Vascular	Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	PMJUN011L2	None	None	-	1B.1	3812173	Roseville	Mapped	Plants - Vascular - Juncaceae - Juncus leiospermus var. leiospermus
Plants - Vascular	Monardella venosa	veiny monardella	PDLAM18082	None	None	-	1B.1	3912115	Olivehurst	Mapped	Plants - Vascular - Lamiaceae - Monardella venosa
Plants - Vascular	Wolffia brasiliensis	Brazilian watermeal	PMLEM03020	None	None	-	2B.3	3912113	Camp Far West	Mapped	Plants - Vascular - Lemnaceae - Wolffia brasiliensis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLIL0V010	None	None	-	4.2	3912113	Camp Far West	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLIL0V010	None	None	-	4.2	3812173	Roseville	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLIL0V010	None	None	-	4.2	3812183	Lincoln	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812175	Verona	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis

Plants - Vascular	Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	PDONA05053	None	None	-	4.2	3912113	Camp Far West	Mapped	Plants - Vascular - Onagraceae - Clarkia biloba ssp. brandegeeae
Plants - Vascular	Chloropyron molle ssp. hispidum	hispid salty bird's-beak	PDSCR0J0D1	None	None	-	1B.1	3812173	Roseville	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron molle ssp. hispidum
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812173	Roseville	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812174	Pleasant Grove	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Gratiola heterosepala	Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	-	1B.2	3812183	Lincoln	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Navarretia myersii ssp. myersii	pincushion navarretia	PDPLM0C0X1	None	None	-	1B.1	3812183	Lincoln	Mapped	Plants - Vascular - Polemoniaceae - Navarretia myersii ssp. myersii
Plants - Vascular	Delphinium recurvatum	recurved larkspur	PDRAN0B1J0	None	None	-	1B.2	3912115	Olivehurst	Mapped	Plants - Vascular - Ranunculaceae - Delphinium recurvatum

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7 matches found. *Click on scientific name for details*

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Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Monardella venosa	veiny monardella	Lamiaceae	annual herb	May,Jul	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	2B.1	S1	G4T3

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Search Criteria

Found in Quads 3912115, 3912114, 3912113, 3812185, 3812184, 3812183, 3812175 3812174 and 3812173;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.1	S1	G2T1
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	May-Jul	4.2	S4	G4G5T4
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	1B.2	S1	G2T1
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	1B.1	S2	G2T2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Monardella venosa	veiny monardella	Lamiaceae	annual herb	May,Jul	1B.1	S1	G1
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	1B.1	S2	G2T2
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Wolffia brasiliensis	Brazilian watermeal	Araceae	perennial herb (aquatic)	Apr,Dec	2B.3	S2	G5

Suggested Citation

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Appendix D. Cultural Resources Analysis

Memo

Date:	April 2020
Project:	Rio Oso Flood Risk Reduction Feasibility Study
To:	Sutter County
From:	John “Jay” Lloyd, Senior Archaeologist (HDR) Jonathan Schwartz, Cultural Resource Specialist I (HDR)
Reviewed:	Danielle Risse, Senior Archaeologist (HDR)
Subject:	Rio Oso – Cultural Resources Constraints Analysis

Introduction

This memo presents a preliminary review of potential cultural resources constraints for the Rio Oso Flood Risk Reduction Feasibility Study Project (project). Potential constraints are described below.

Methodology

Records Search and Historic Map Review

Records search requests for the project area were submitted on February 14, 2019 to the North Central Information Center (NCIC) at California State University, Sacramento and the Northeastern Information Center (NEIC) at California State University, Chico of the California Historical Resources Information System. The search area for which data was requested included all alternatives for the project footprint, plus a 0.25-mile buffer. Search results were received from the NCIC on February 20, 2019 and from the NEIC on March 13, 2019. The information requests included a search of previous cultural resources investigations, and previously recorded archaeological sites and built environment resources. To gather these data the records searches reviewed the following including the:

- NCIC and NEIC Resource Databases,
- NCIC and NEIC Report Databases,
- Office of Historic Preservation (OHP) Historic Properties Directory for Sutter County,
- OHP Archaeological Determinations of Eligibility for Sutter County,
- California Inventory of Historical Resources (1976), and
- General Land Office (GLO) and/or Rancho Plat Maps.

Information was also requested on the Caltrans Bridge Survey, ethnographic information, and local inventories, where present. Historic United States Geological Service (USGS) topographic maps were also reviewed in order to track land-use and historic-era development. An additional data review was performed in November 2019 due a revision on the project area.

Reconnaissance Survey

A field reconnaissance of the project area was conducted on April 2, 2019 by John “Jay” Lloyd, M.A. Linguistics, who meets the Secretary of the Interior’s Qualification Standards for archaeology and is a Registered Professional Archaeologist (RPA). Methods included reviewing the results of the

records search, confirming the absence/presence of previously recorded (and accessible) resources, generally driving across the breadth of the project area on publicly accessible roads, and assessing major topographical differences between the historic and modern landscape using historic-era maps for comparison.

Results

Records Search

There have been six cultural resources investigations intersecting the project footprint (**Table 1**). Previous investigations were primarily archaeological field studies, including investigations for transmission lines, fiber optics and other telecommunications infrastructure, academic research, and levee repairs, as well as a National Register of Historic Places (NRHP) evaluation of the Sacramento Northern Electric Railroad (SNERR). These studies recorded 23 archaeological sites and historical built environment resources, both within and outside the project area.

Table 1: Previous cultural resources investigations within the project area

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Bouey, Paul	May 1990	Cultural Resource Inventory of the Cottonwood-Elverta #3 Transmission Line	Archaeological, Field study, Other research	001042	4 resources recorded
Grant, Joanne S.	Apr 2006	Cultural Resources Evaluation for the Emergency Levee-Banks Repairs of 16 Critical Erosion Sites	Archaeological, Field Study	008361	Negative survey
JRP Historical Consulting Services	Nov 1994	Historic Resource Evaluation Report of the Northern Electric (California Northern) Railroad	Architectural/ historical, Evaluation	007587	7 resources recorded
Nelson, Wendy J., Maureen Carpenter, and Kimberley L. Holanda	June 2000	Cultural Resource Inventory for the Level (3) Communications Long Haul Fiber Optics Project: Segment WPO4: Sacramento to Redding	Archaeological, Field study	004658	10 resources recorded
Peak, Melinda A.	Jan 2000	Archaeological Inventory Report for the Sprint PCS Site No. SF33XC042A, Rio Oso, Sutter County, California	Archaeological, Field Study	005363	Negative survey
Stoll, M. and S. Thompson	Jan 1961	Report on the Archaeological Survey of the Bear River	Archaeological, Field Study	007576	2 resources recorded

There have been an additional eight cultural resources investigations within 0.25 mile of the project footprint (**Table 2).** Projects included flood control, highway projects, levee repairs/improvements, and academic field research. Details provided by the information centers indicate that three of the projects consist of negative surveys, with the other five projects recording a total of 20 resources. A total of five reports were prepared for the California Department of Transportation's (Caltrans) State Route 70 Highway/Expressway Project (Information Center File No. 008351).

Table 2: Previous Cultural Resources Investigations within the 0.25 Radius Surrounding the Project Area

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Berg, John E. Julia G. Costello, and Stephen R. Wee	Jun 1995	Archaeological Survey Report and Historic Study Report State Route 70 Expressway/Freeway Project in Sutter and Yuba Counties, California	Archaeological, Excavation, Field study	008351C	n/a
Bouey, Paul D.	Mar 1990	Sacramento River Flood Control System Evaluation Marysville- Yuba City Area Cultural Resources Survey	Archaeological, Excavation, Field study	007922	1 resource recorded
EDAW, Inc.	Apr 2006	Cultural Resources Inventory and Evaluation Report for the Southern Floodway Restoration Area of the Feather-Bear Rivers Levee Setback Project, Yuba and Sutter Counties, CA	Archaeological, Field study	006927	Negative survey
EDAW, Inc.	Oct 2004	Cultural Resources Inventory and Evaluation Report for the Proposed Feather-Bear Rivers Levee Setback Project	Archaeological, Architectural/ historical, Evaluation, Field study	006297	7 resources recorded
Grant, Joanne S.	Jul 2008	Cultural Resources Survey for the Urban Levee Project	Archaeological, Field study	009423	Negative survey
Jensen, Peter	Mar 2000	Archaeological Inventory Survey Proposed Sawyer's Landing Development Project, Apx. 54 acres near Rio oso and the Bear River, Southern Yuba County, California	Archaeological, Field study	008349	Negative survey
Jones & Stokes	May 2004	Cultural Resources Inventory and Evaluation Report for the Bear River and Western Pacific Interceptor Canal Levee Improvements Project	Archaeological, Evaluation, Field study	006298	3 resources recorded
Mikesell, Stephen D.	Jun 1995	Addendum Historic Architectural Survey Report, Route Adoption Study, Route 70 in Sutter and Yuba Counties	Architectural/ Historical, Evaluation, Field study	008351D	n/a
Morgan, Sally S., and Jeffrey D. Zimmerman	Jun 1995	Historic Property Survey Report, Request for Determination of Eligibility and Finding of Effect, State Route 70 Expressway/Freeway Project in Sutter and Yuba Counties, California	Evaluation, Other research	008351B	n/a
Stoll, M., and S. Thompson	Jan 1960	Report on the Archaeological Survey of the Bear River	Archaeological, Field study	000511	8 resources recorded
Wee, Stephen R.	Jun 1995	Historic Resource Evaluation Report, Western Pacific Railroad	Evaluation	008351E	n/a

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Wee, Stephen, Stephen Mikesell, and Rand Herbert	Nov 1994	Historic Architectural Survey Report and Resource Evaluation Report State Route 70 Expressway/Freeway Project in Sutter and Yuba Counties	Architectural/ historical, Field study	008351	1 resource recorded

The NEIC and NCIC databases indicate that there have been nine cultural resources recorded within the project area and 0.25 mile search radius – two prehistoric sites, one historical site, and six built environment resources. Resource CA-YUB-001911H, a segment of the Western Pacific Railroad (WPRR), was determined ineligible for listing on the NRHP; all other sites are considered unevaluated. Interestingly, the Historic Properties Data File for Sutter County lists nine buildings in the community of Rio Oso determined ineligible for NRHP listing.[1] However, no corresponding resource records were provided. Based on a review of available information, it seems likely that these structures were evaluated for Caltrans' Route 70 project and were removed for the highway realignment.

Prehistoric Sites

There are no previously recorded sites plotted within the project footprint; however there is one prehistoric mound site plotted directly adjacent to the west of the project footprint near the town of Rio Oso, "ca. 200 yds. West of Highway 24, and about ½ mi. south of Rio Oso Bridge" (**Table 3**). It appears to be plotted to the west of El Centro Boulevard, within the 0.25 mile buffer. The site is a prehistoric mound that included projectile points, charm stones, and midden and was recorded in December 1960 by Sacramento State College. The site record is sparse, but is reported to be "no longer mounded-small in area." Active "pot-hunting" was mentioned by the recorder, and the site components were reported by the property owner. Site P-58-01276 sits north of the Bear River in the 0.25 mile buffer and may be the ethnographic village of *Lelikian*. The 2004 site record update noted that no surface artifacts were observed but that there was a high likelihood for buried subsurface deposits.

Table 3: Previously Recorded Prehistoric Archaeological Sites

Primary No.	Trinomial	Resource Type	NRHP[1] / CRHR[2] Status	Intersects Project Area?
P-51-00132	CA-SUT-00132	Mound, projectile points, charm stones, midden	Unevaluated	No
P-58-01276	CA-YUB-01313	AP02 (lithic scatter), AP15 (habitation debris) - midden	Unevaluated	No

[1]National Register of Historic Places
[2]California Register of Historical Resources

Historical Archaeological Sites

There is one previously recorded historic archaeological site within the project footprint (**Table 4**). The site is the remains of the Rio Oso Brick Company kiln (dating to 1922). The site has not been evaluated for the NRHP or CRHR.

[1] Each of the listed structures is coded as "6Y – determined ineligible for NR by consensus through Section 106 process."

Table 4: Previously Recorded Historical Archaeological Sites

Primary No.	Trinomial	Resource Type	NRHP / CRHR Status	Intersects Project Area?
P-51-000081	CA-SUT-81	Remains of the Rio Oso Brick Company kiln (1922).	7K – "Resubmitted to OHP for action but not re-evaluated."	Yes

Historical Built Environment Resources

Two previously recorded built environment resources are within the project footprint (**Table 5**). The sites include the Palermo-East Nicolaus Transmission Line, and the Palermo-Rio Oso No. 2 Transmission Line. Neither of these transmission lines have been evaluated. An additional four historic built environment resources were recorded within the 0.25 mile radius surrounding the project area – the Bear River Levee, a Union Pacific Railroad (UPRR) segment, a Sacramento Northern Railroad grade, and Feather River Road. The UPRR segment has been determined to be ineligible for the NRHP. The other three are unevaluated.

Table 5: Previously Recorded Historical Built Environment Resources

Primary No.	Trinomial	Resource Type	Construction Date (circa [c.])	NRHP / CRHR Status	Intersects Project Area?
P-51-00222	CA-SUT-222H	Palermo-East Nicolaus Transmission line.	1908	Unevaluated	Yes
P-51-00223	CA-SUT-223H	Palermo-Rio Oso No. 2 Transmission Line	1919	Unevaluated	Yes
P-58-01366	N/A	Bear River Levee	N/A	Unevaluated	No
P-58-01371	N/A	Feather River Road	1939	Unevaluated	No
P-58-01372	CA-YUB-01911H	Union Pacific Railroad Segment over 5th Street along the Marysville Ring Levee	1909	Ineligible (NRHP)	No
P-58-01642	CA-YUB-01449H	Sacramento Northern Railroad Spur	1928	Unevaluated	No

Historic Map Review

General Land Office (GLO) plat maps were reviewed to identify potential historical era resources within the project footprint and the 0.25-mile buffer (**Table 6**). These plats date to 1856 and 1860. Some resources on historic maps may become archaeological sites as they disintegrate over time. Potential cultural resources identified include houses, fences, roads, and sloughs. The "Johnson Rancho" is indicated north of the Bear River in the 0.25-mile buffer in Section 11.

Table 6: Resources Depicted on GLO Survey Plats

Date	Resource Type	Location	Intersects Project Area?
1860	Road	SW ¼ of T13N R5E Sec. 16	No
1860	Barn	SW ¼ of T13N R5E Sec. 16; SE ¼ of T13N R5E Sec. 18	Yes
1860	Road to Nicolaus	N ½ of T13N R5E Sec. 18	No
1860	Yankee Slough	T13N R5E Sec. 17, 18; T13N R4E Sec. 13, 14, 15, 16, 21, 22	Yes
1860	"Negroe's Ho." (house)	SW ¼ of T13N R4E Sec. 13	Yes

Date	Resource Type	Location	Intersects Project Area?
1860	Road from Nicolaus to Johnson's Rancho (and various associated roads)	T13N R4E Sec. 13, 21, 22, 23, 27	Yes
1860	Fence	NW ¼ of T13N R4E Sec.13; NE ¼ of T13N R4E Sec. 14	No
1860	Jopson's House	NW ¼ of T13N R4E Sec. 21	Yes
1860	Berry's House	SW ¼ of T13N R4E Sec. 21	Yes
1860	Various fencing	T13N R4E Sec. 21	Yes
1860	Crabtree's House	NW ¼ of T13N R4E Sec. 22	Yes
1860	Brown's House	NW ¼ of T13N R4E Sec. 22	Yes

Early USGS topographic maps were also reviewed to identify potential areas where historical structures may be found (**Table 7**). Nicolaus 1910 and 1952 maps show the town of Rio Oso in its present-day location (USGS 1910, 1952) with a few scattered residences. Nicolaus 1910 depicts the WPRR running northwest-southeast just east of the town of Rio Oso, while the SNERR railroad runs north-south through Rio Oso along a section line (currently Highway 70 / El Centro Boulevard) that forms the western boundary of the project. The Nicolaus 1952 quadrangle shows a proliferation of residences located within Rio Oso and spreading east through the project area. This map also indicates a levee constructed along the south side of Yankee Slough within the project area, as well as a levee along the northern side of the slough in the 0.25 mile buffer. Sheridan 1953 shows more residences on the eastern part of the project area as well as various paved and unpaved county roads. A windmill and silo are plotted within the project area on USGS maps from the early 1950s (USGS 1952, 1953).

Table 7. Resources depicted on historical USGS topographic maps

Date	Map (Scale)	Resource Type	Intersects Project Area?
1910	Nicolaus (1:31680)	Sacramento Northern Electric Railroad Western Pacific Railroad	Yes
1952	Nicolaus (1:24000) Sheridan (1:24000)	Sacramento Northern Electric Railroad Western Pacific Railroad Yankee Slough (levee) Windmill (T13N, R4E, Sec. 22)	Yes
1953	Lincoln (1:62500)	Silo (T13N R5E Sec. 18)	Yes

Reconnaissance Survey

Today the project area is generally low and topographically flat and land use is predominantly walnut orchards, row-crop agriculture (alfalfa), and cattle pasture. Irrigation water is provided by a network of canals and ditches. A few historic-era farm and ranch complexes – with their collection of associated barns, sheds, pump houses, silos, and other outbuildings – are scattered throughout the project area. The area specifically around Rio Oso consists primarily of rural residences dating to the 1960s and later, mostly along Rio Oso Road and Pacific Avenue. The (former) townsite is today only marked by the Rio Oso Community Hall and a small post office. The railroad underpass on Rio Oso Road is stamped "Western Pacific 1927." The plotted location of the former mound site, P-51-00132, was located within a grove of mature walnut trees. No archaeological material was observed. The available documentation for the site indicated that the mound had been, or was in the process of

being, levelled. The record also notes that the then-property owner likely had collected artifacts associated with the site and actively allowed pot-hunting.

Conclusion

Archaeological and built environment sensitivity within the project area and 0.25-mile buffer is variable and contingent on the type of resource (prehistoric vs. historical) and geography (proximity to the river, one of the historical ranch complexes, or the central portion of Rio Oso). For most of the project area, near-surface archaeological sites have likely been disturbed, and possibly destroyed, by decades of agricultural practices and levee construction. Most of the project area has not been previously surveyed for archaeological sites and, accordingly, there is a low-to-moderate potential for near-surface unrecorded prehistoric or Native American sites within the unsurveyed portions of the project area; as well as a moderate to high potential for buried archaeological sites throughout the entire project area due to the flood plain along the Feather and Bear rivers and Yankee Slough where it is common to find archaeological sites that have been buried by alluvial sediment. Sensitivity for historic-era archaeological sites and historical built environment resources ranges from low to high throughout the project area and is largely contingent on proximity to historical roadways, residences, and ranches. Furthermore, the project is traversed by two historical railroads (the WPRR and SNERR) and, accordingly, there is a moderate-to-high likelihood of resources associated with the railroads (e.g. grades, spurs, culverts, and other infrastructure) within the project area.

Summary

The findings in this memo represent a preliminary, high-level review of potential cultural resources constraints in the project area and should not be considered an identification effort sufficient for complying with local, state, or federal laws. The prehistoric, ethnographic, and historical contexts indicate a low to moderate sensitivity of the project area for unrecorded surficial archaeological sites with a high potential for those sites, when identified, to have buried components. Further, the project exhibits a high sensitivity for historical features and buildings in the vicinity of known historical resources. Project activities have the potential to impact any of the aforementioned cultural resources, should they be identified within, or potentially in the vicinity of, a proposed work area.

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