ATTACHMENT C

Draft Environmental Constraints Analysis, Nicolaus Flood Risk Reduction Feasibility Study

Environmental Constraints Analysis

Sutter County

Nicolaus Flood Risk Reduction Feasibility Study

Nicolaus, Sutter County, California
April 21, 2020

Contents

Figures

Tables

Appendices

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	Nicolaus Flood Risk Reduction Feasibility Study
FEMA	Federal Emergency Management Agency
FRRFMP	Feather River Regional Flood Management Plan
GHG	Greenhouse Gas
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	Nicolaus 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

This page is intentionally left blank.

1 Introduction

Sutter County (County), as lead agency, is initiating the Community of Nicolaus (Nicolaus) 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 Nicolaus (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 Nicolaus also compares implementation costs and schedules, and identifies local funding requirements to assess options which will reduce the flood risk to the community of Nicolaus. 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

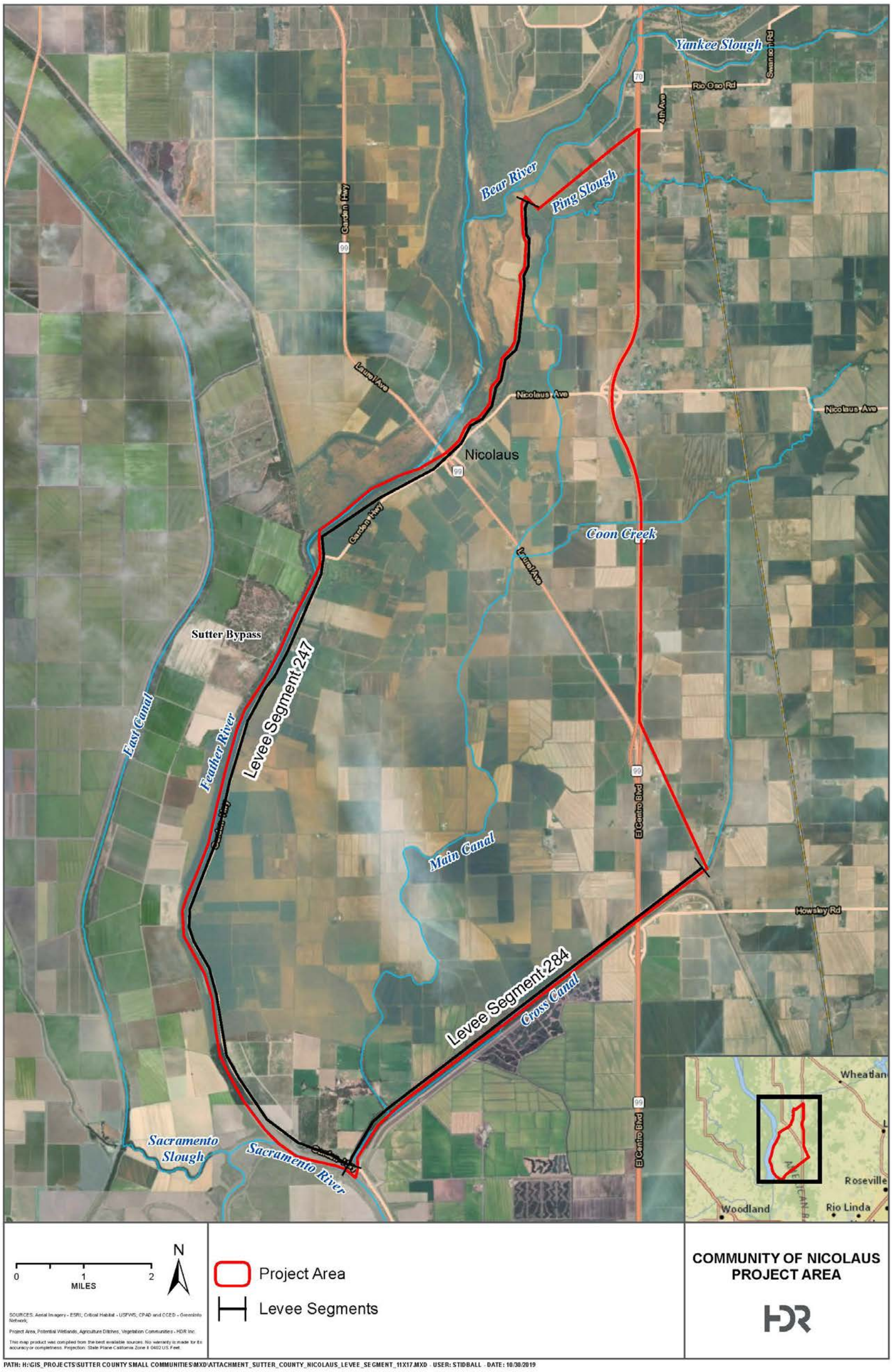
The project is located in the community of Nicolaus, a census-designated place in Sutter County, California. **Figure 1-1** provides an overview of the project area. Nicolaus is situated between State Highway 70 and State Highway 99 along the east bank levee of the Feather River. Nicolaus is approximately 20 miles north of Sacramento, California and approximately 20 miles south of Yuba City, California along State Route 99 in the southern portion of Sutter County. The community of East Nicolaus is located off Highway 70, which runs along the east side of the community of Nicolaus. Nicolaus occupies approximately 3.1 square miles of land (**Figure 1-1**). The community is at an elevation of approximately 26 feet and receives an average annual precipitation of 21 inches (Best Places 2019).

Reclamation District (RD) 1001 maintains the levees surrounding Nicolaus. Nicolaus 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 the Bear River, the left (east) bank of the Feather River, the right (north) bank of Natomas Cross Canal, and the right (west) bank of the East Side Interceptor Canal. The levee segments protecting Nicolaus are shown on **Figure 1-1**. The project area for this flood risk reduction feasibility study includes Segment 284 and Segment 247 (study carried out for the town of Rio Oso covers Segment 283 and Segment 145). This study focuses on the portion of the Segment 247 Feather River Levee alignment upstream of State Route 99 Bridge at Nicolaus on Segment 247 per the direction of RD 1001.

There are approximately 98 housing units in Nicolaus, no hospitals and one school. According to a 2010 census, the population of Nicolaus is approximately 211 residents, which has increased approximately 60% from 2000, with an estimated 132 residents in 2000 (Census Viewer 2012).

According to the Sutter County General Plan Land Use Map, predominant land uses in Nicolaus include agriculture, estate residential, agricultural rural community, commercial, park and recreation, and open space (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 Nicolaus Project Area



1.3 Objectives of the 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 Nicolaus 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 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.

Nicolaus 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 and 2015, Nicolaus and the surrounding areas were remapped by FEMA as Zone A and Zone AE 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 along segments 247 and 283 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 Nicolaus 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. Nicolaus and the surrounding areas are threatened from flooding from the Feather River and the Natomas Cross Canal.
2. Previous investigations by DWR, through the Non-Urban Levee Evaluation (NULE) program, showed that levees protecting Nicolaus and surrounding areas suffer from underseepage, through seepage, and levee slope stability issues (DWR 2015).

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 Nicolaus, a wide array of preliminary flood risk reduction alternatives were scoped for the community of Nicolaus 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 247 and 284 were divided into remediation reaches for the geotechnical evaluation. **Figure 1-2** shows the identified remediation reaches on segment 247 and 284. The reaches of segments 247 and 284 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, undrained seepage berm, drained seepage berm, combined drained stability and seepage berm, landside ditch fill, and waterside rock slope protection. 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 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

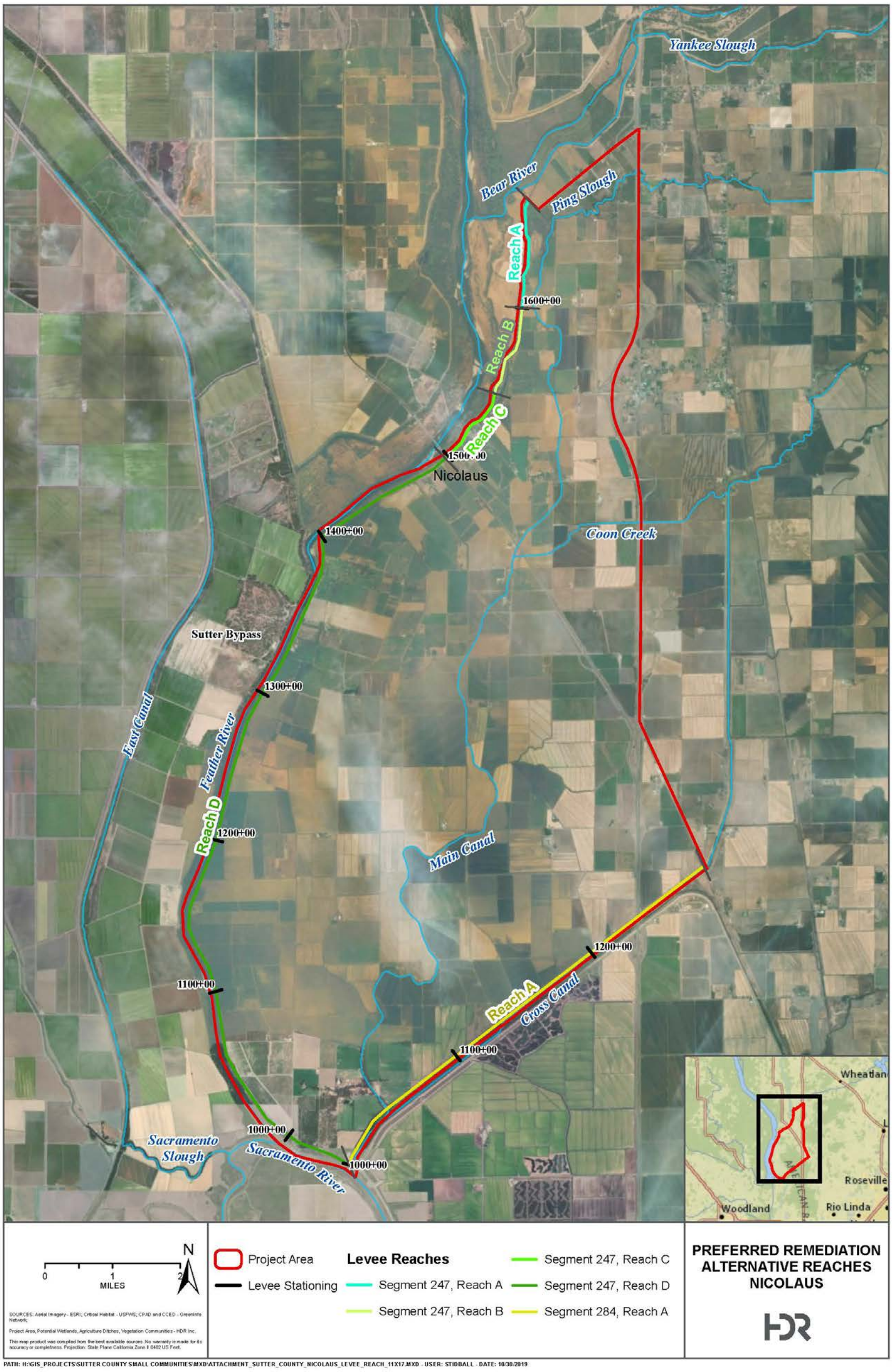


Table 1. 100 year Water Surface Remediation Alternative 1

Segment	Reach	Project Stationing	Remediation Alternative 1
247	A	FR 700+89 to FR 640+20	Cutoff Wall – 60 feet below half-levee degrade/ 65 feet below one third-levee degrade
247	B	FR 640+20 to FR 580+40	Drained Stability Berm - 15 feet wide and backfill landside depression with locally available materials
247	C	FR 580+40 to FR 531+55	Waterside Toe Berm - 30 feet wide and 10 feet high; Landside - Drained Stability Berm - 15 feet wide and backfill landside and waterside depression with locally available materials
247	D	FR 531+55 to FR 0+00	[1]Waterside Slope - Rock Slope Protection; Landside - Combined Drained Stability and Seepage Berm - 80 feet wide
284	A	CC 0+00 to CC 284+80	[2]Cutoff Wall – 71 feet below the half-levee degrade/ 76 feet below the one third-levee degrade (similar remediation as the levee on left bank of Natomas Cross Canal)

[1] Remediation identified in Feather River RFMP for Unit 4.
[2] Remediation identified in GER - Natomas North Study Area (URS, 2015b) for left bank of Natomas Cross Canal (Reach A)

1.5.1 Cutoff Wall

For cutoff wall construction, the existing levee crown is degraded one third to one half of the current levee height to create a working platform that provides sufficient space for construction equipment. Soil-bentonite cutoff walls are constructed using an excavator with a long-reach boom capable of digging a trench to a maximum depth of approximately 70 feet deep. The trench width is typically 3 feet. Bentonite or cement-bentonite slurry is placed in the trench as it is excavated to prevent caving while the backfill material is mixed. The excavated soil is then mixed with the appropriate soil-bentonite slurry to achieve the required cutoff wall permeability, and then backfilled into the trench. Deep Soil Mixing walls are used if the depth of the cutoff wall is greater than 70 feet. After installation of the cutoff wall, the levee is rebuilt to the pre-construction geometry using degraded levee material or imported fine-grained soils that meet requirements for levee fill.

1.5.2 Drained Stability Berm

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.

1.5.3 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.

1.5.4 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.

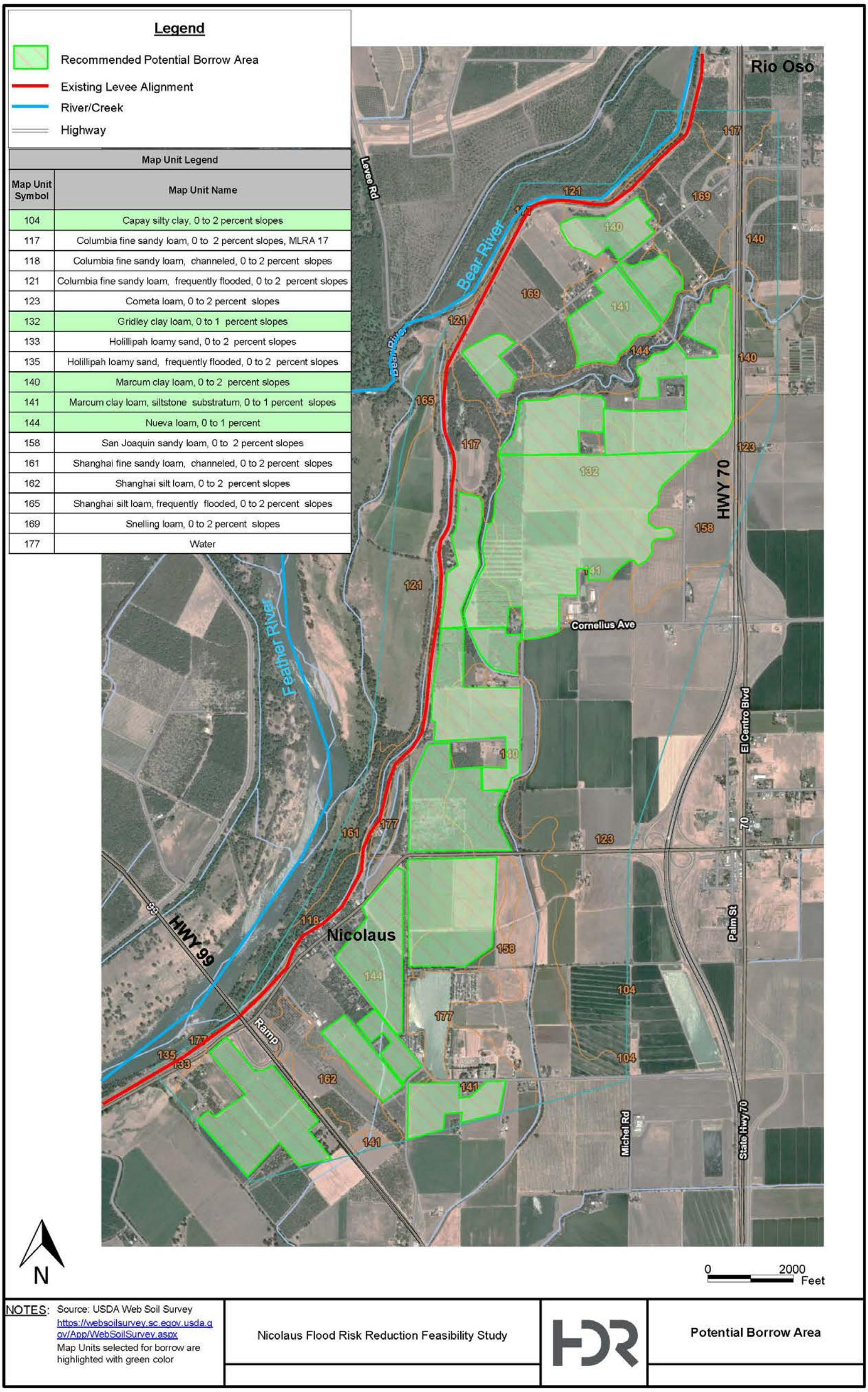
1.5.5 Waterside Toe Berm

Waterside toe berm can be used to remediate deep seated waterside slope instability during rapid drawdown and generally consists of a berm with six inches of sand bedding overlain by rip-rap. The toe berm is generally keyed in two to three feet into the existing ground surface. Waterside toe berm is primarily used for remediating waterside slope instability but can also act as an erosion remediation measure. However, a waterside toe berm cannot be used to remediate erosion for the entire waterside slope.

1.5.6 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
104	Capay silty clay, 0 to 2 percent slopes
117	Columbia fine sandy loam, 0 to 2 percent slopes, MLRA 17
118	Columbia fine sandy loam, channeled, 0 to 2 percent slopes
121	Columbia fine sandy loam, frequently flooded, 0 to 2 percent slopes
123	Cometa loam, 0 to 2 percent slopes
132	Gridley clay loam, 0 to 1 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
161	Shanghai fine sandy loam, channeled, 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
169	Snelling 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

Nicolaus 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, Nicolaus 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 Nicolaus. The measures are presented in order of feasibility and potential benefit to Nicolaus:

- 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 Nicolaus 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 Nicolaus 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);
- 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 Knights Landing, Nicolaus, and Verona 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**.

2.2.2 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 and along the Feather River levee 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. The data were reviewed again in November, 2019 following revisions to the project footprint. 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 would also potentially conflict with the Williamson Act Program as Williamson Act properties are located adjacent to the project (Sutter County 2011). Ground disturbing activities or work within these areas have the potential to disturb a property under a Williamson Act Contract.

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**, 3 previously recorded prehistoric archaeological sites, 5 historical sites, 7 built environment resources, 1 multi-component site, and 1 “unknown” site was identified within the project footprint. In addition, one previously recorded prehistoric sites, one historical site, and three built resources have been documented in the 0.25 mile buffer. Most sites were unevaluated for eligibility for the NRHP and CRHR. 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 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 2.**

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 **Table2**. 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?	✓
Is the project located on a Williamson Act Contract property, or would it disturb a property under the Williamson Act Contract?	✓
Air Quality and GHG Emissions	
Would project result in substantial emissions?	✓
Would the project expose sensitive receptors to substantial pollutant concentrations?	✓

Potential Environmental Constraints	Structural Preferred Alternative
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?	✓
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	

Potential Environmental Constraints	Structural Preferred Alternative
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 Nicolaus 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
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.

5 References

Best Places. 2019. Climate in Nicolaus, California. https://www.bestplaces.net/climate/city/california/nicolaus Accessed on October 23, 2019.

CAL FIRE (State of California Department of Forestry and Fire Protection). 2007. Draft Fire Hazard Severity Zones in LRA. October 3, 2007. Available online: https://osfm.fire.ca.gov/media/6829/fhszl06_1_map51.pdf

California Energy Commission. 2016. http://www.ecdms.energy.ca.gov/elecbycounty.aspx

Caltrans (California Department of Transportation). 2017. California Scenic Highways. February 24, 2017. Available online: https://www.arcgis.com/home/item.html?id=f0259b1ad0fe4093a5604c9b838a486a
CDFW (California Department of Fish and Wildlife). 2019. *California Natural Diversity Database – RareFind 5 and BIOS*. CDFW Biogeographic Data Branch, Sacramento, CA. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

CGS (California Geological Survey). 2016. Earthquake Zones of Required Investigation. Accessed October 25, 2019. Available online: https://maps.conservation.ca.gov/cgs/EQZApp/

CNPS (California Native Plant Society). 2019. *Inventory of Rare and Endangered Plants of California* (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org. Accessed 19 December 2018.

California Department of Conservation. 2016. California Important Farmland Finder. Accessed October 18, 2019. Available online: https://maps.conservation.ca.gov/DLRP/CIFF/CEC (California Energy Commission). 2016. California Energy Consumption Database. Accessed October 18, 2019. Available online: https://ecdms.energy.ca.gov/

DTSC (Department of Toxic Substances Control). 2019. EnviroStor. Accessed October 21, 2019. Available online: < https://www.envirostor.dtsc.ca.gov/public/>

DWR (Department of Water Resources). 2006. Sacramento Valley Groundwater Basin, Sutter Subbasin. January 20, 2006. Available online: https://www.suttercounty.org/assets/pdf/pw/wr/gmp/5-21.62%20DWR%20Sutter%20Subbasin%20Description.pdf

---. 2015. Levee Evaluation Program. Accessed October 24, 2019. Available online: http://dwr-lep.com/map/

---. 2016. Central Valley Flood Protection Plan Conservation Strategy. November 2016. Available online: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Flood-Management/Flood-Planning-and-Studies/Files/2016-Central-Valley-Flood-Protection-Plan-Conservation-Strategy.pdf

---. 2017. Central Valley Flood Protection Plan 2017 Update. August 2017. Available online: < https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Flood-Management/Flood-Planning-and-Studies/Central-Valley-Flood-Protection-Plan/Files/2017-Central-Valley-Flood-Protection-Plan-Update.pdf?la=en&hash=325F1530DEF28317996F76A512CCBCB9689710E3>

---. 2018. Central Valley Flood Protection Plan. Accessed October 26, 2019. Available online: < https://water.ca.gov/Programs/Flood-Management/Flood-Planning-and-Studies/Central-Valley-Flood-Protection-Plan>

---. 2019. Flood Risk Notification. Accessed October 24, 2019. Available online: < https://water.ca.gov/Programs/Flood-Management/Community-Resources/Flood-Risk>

FEMA. 2015. Flood Insurance Study. Sutter County, California. Accessed October 29, 2019. https://www.suttercounty.org/assets/pdf/bos/fema/060394V000B.pdf

PG&E (Pacific Gas and Electric). 2019. Exploring Clean Energy Solutions. Accessed October 18, 2019. Available online: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page

SWRCB (State Water Resources Control Board). 2015. GeoTracker. Accessed October 21, 2019. Available online: < geotracker.waterboards.ca.gov/>

USFWS (US Fish and Wildlife Service). 2019a. Information, Planning, and Conservation System. USFWS. Carlsbad, CA. https://ecos.fws.gov/ipac/. Accessed March 6, 2019.

----. 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.

US Fish and Wildlife Service. 2019. https://ecos.fws.gov/ecp/report/table/critical-habitat.html

USGS (United States Geological Survey). 2018. Mineral Resources Online Spatial Data. Accessed October 21, 2019. Available online: https://mrdata.usgs.gov/>

Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP). 2018. Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan. Approved December 7, 2018. Available online: https://www.fraqmd.org/files/f342b0261/Item+3+2018+Triennial+Report.pdf

Sutter County. 2011a. 2030 General Plan. March 29, 2011. Available online: https://www.suttercounty.org/doc/government/depts/ds/ps/gp/gp_home#ZoneMaps

---. 2011b. Sutter County General Plan Final Environmental Impact Report. February 2011. Available online: https://www.suttercounty.org/assets/pdf/cs/ps/gp/documents/GP_FEIR_02-16-2011.pdf

---. 2014. General Plan – Appendix A1 Land Use Diagrams. https://www.suttercounty.org/assets/pdf/cs/ps/General_Plan_Policy_Document.pdf Accessed October 22, 2019.

---. 2019. Development Services Lookup. Accessed October 28, 2019. Available online: https://suttercounty.maps.arcgis.com/apps/InformationLookup/index.html?appid=d0590c528e2c46f991c0912161a913dc

Yuba Sutter Recycles. 2019. About the Regional Management Authority. Accessed October 23, 2019. Available online: http://yubasutterrecycles.com/index.html

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 and residential 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, Williamson Act 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 Williamson Act Contract properties 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.

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 3 previously recorded prehistoric archaeological sites, 5 historical sites, 7 built environment resources, 1 multi-component site, and 1 “unknown” site within the project footprint. The “unknown” site (P-51-00003) record indicates a “house on mound” was originally recorded in 1934 and reportedly contains both prehistoric and historical artifacts. In addition, one previously recorded prehistoric sites, one historical site, and three built resources have been documented in the 0.25 mile buffer. Most of these sites are not eligible for the NRHP and CRHR or were unevaluated. 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 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 Feather River and the Natomas Cross Canal. 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.

References

California Energy Commission. 2016. http://www.ecdms.energy.ca.gov/elecbycounty.aspx

California Department of Transportation (Caltrans). 2017. California Scenic Highways. February 24, 2017. Available online: https://www.arcgis.com/home/item.html?id=f0259b1ad0fe4093a5604c9b838a486a

California Department of Conservation (DOC). 2016. https://maps.conservation.ca.gov/DLRP/CIFF/

Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP). 2018. Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan. Approved December 7, 2018. Available online: https://www.fraqmd.org/files/f342b0261/Item+3+2018+Triennial+Report.pdfUS Fish and Wildlife Service. 2018. USFWS Threatened & Endangered Species Active Critical Habitat Report. Available online: https://ecos.fws.gov/ecp/report/table/critical-habitat.html

Sutter County. 2011. Sutter County 2030 General Plan. March 29, 2011. Available online: https://www.suttercounty.org/assets/pdf/cs/ps/General_Plan_Policy_Document_Dec_2015_Amended_Dec2016.pdf

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 Plan Land Use Map for Nicolaus, the project area is located in rural Sutter County and is primarily dominated by lands under agricultural and residential 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 Sutte 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 a cutoff wall, drained stability berm, waterside toe berm and waterside rock slope protection. These improvements would require widening of the base of the levee in some areas. The waterside toe berm would be approximately 10 feet high. This increase in levee height would not substantially interfere with public views and other improvements 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 improvement 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, with areas along the levee improvements, west of Feather River designated as Unique Farmland (California Department of Conservation 2016; Sutter County 2011). Williamson Act lands are located adjacent to the project along Segment 284 and the Natomas Cross Canal (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?	Yes. Williamson Act lands are located adjacent to the project along Segment 284 and the Natomas Cross Canal. Ground disturbing activities or work within these areas has the potential to disturb a property under a Williamson Act Contract.	Yes
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 are three schools in the area surrounding Nicolaus (South Sutter Charter School, Three Rivers High School, and East Nicolaus High School), each of which is located more than 1.5 mile from 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. 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. 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. Critical habitat units for Chinook salmon (Oncorhynchus tshawytscha), steelhead (Oncorhynchus mykiss), and green sturgeon (Acipenser medirostris) occur within and immediately adjacent to 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. 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. 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 NCCP/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 lands or conservation easements in the project area. However aquatic resources in the project area may act as movement corridors for both special-status and common species. These resources include riparian, agricultural ditches, open water, and other potential aquatic resources. Although substantial interference with movement is unlikely to result from project activities, the expansion of levees and installation of the soil bentonite cutoff wall 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. Various aquatic resources were identified in the project area. 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. 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 indicated 3 previously recorded prehistoric archaeological sites, 5 historical sites, 7 built environment resources, 1 multi-component site, and 1 “unknown” site within the project footprint. The “unknown” site (P-51-00003) record indicates a “house on mound” was originally recorded in 1934 and reportedly contains both prehistoric and historical artifacts. In addition, one previously recorded prehistoric sites, one historical site, and three built resources have been documented in the 0.25 mile buffer.	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, excavations, implementation of fill, 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, were identified by the cultural resources analysis. However, a cemetery and burial sites were identified. 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 open trenching, ground disturbance, levee degradation, 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 project also involves rock slope protection and a waterside toe berm 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.A49 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. The Verona Store is located at 6744 Garden Highway, adjacent to the project. This property is a LUST cleanup site with a completed-case closed status as of 3/16/1992. Gasoline is the potential contaminant of concern and soil is the potential affected media (SWRCB 2015). Four airports are located within a two mile radius of the project. These include Scheidel Ranch Airport-CA07, Metre NDB SM 230, Vestal Strip, and James Brothers Airport. 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 closed LUST cleanup site is located adjacent to the project area. However, this site is outside of the proposed area of disturbance for the preferred remediation alternative. Further, this site has a case closed-status as of 3/16/1992 and contamination did not reach the groundwater, making impacts during ground disturbing activities less likely. Therefore, impacts would likely be negligible.	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 project area. 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. Although four airports are located within two miles of the project, these airports are not in the immediate vicinity of the proposed construction. In addition, construction of the project would adhere to local ordinances and work hours for noise levels. Furthermore, construction noise would be temporary and once the project is constructed noise levels would return to current conditions.	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 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 Zones AE and 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. Open trenching, ground disturbance, levee degradation, 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 the cutoff wall, waterside toe berm and 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. Degrading the levee, raising and widening the levee, installation of the cut-off wall and rock slope protection may alter the drainage pattern of the 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 to the Nicolaus and Sutter County General Plan Land Use Maps, predominant land uses in the project area include agriculture, estate residential, commercial and open space. The majority of land in Sutter County and the project area is designated for agricultural purposes (Sutter County 2011a).		
Is the proposed action 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 proposed action 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 the established community of Nicolaus. 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 cut-off wall, and use of heavy construction equipment in particular 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 such as trenching, degrading the existing levee and installation of the cut-off wall 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 borders CSA-C, CSA-D, CSA-F, and Sutter Basin Fire Protection District. Parks and recreational areas within a 1.5 mile radius of the project include Lake Minden RV Resort, Bobelaine Sanctuary, Lake of the Woods State Wildlife Area, SSRA swimming pool, and Verona Village Campground. Schools in Nicolaus include East Nicolaus High School, Marcum-Illinois Union Elementary School, South Sutter Charter School, and Three Rivers High School.		

	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. Levee improvements along Segment 247 intersect with Highway 99 as it crosses Feather River and Garden Highway runs parallel to Segment 247.		
Would the proposed action 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		
	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 Nicolaus. 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
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 247 intersect with Highway 99 as it crosses Feather River. Roads, highways and lanes 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 the Nicolaus. 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
Would the project 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:	Nicolaus Flood Risk Reduction Feasibility Study
To:	Sutter County
From:	Scott Tidball, Biologist (HDR)
Reviewed:	Leslie Parker, Associate Biologist (HDR)
Subject:	Nicolaus – Biological Constraints Analysis

Introduction

This memo presents a preliminary review of potential biological constraints for the Nicolaus 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 Nicolaus 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 for 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 Knights Landing, Nicolaus, and Verona 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 at the end of this memo.

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 and along the Feather River levee in order to record existing vegetation communities, aquatic resources, and species observed.

Results

The desktop and reconnaissance survey mapped nine vegetation communities in the project area including annual grassland, irrigated agriculture, oak woodland, open water, orchard, pasture, rice, riparian, and urban. Agricultural ditches and potential aquatic resources were also recorded in the project area. Natural waterways that have been channelized, such as Coon Creek, are included in the agricultural ditches description provided below. 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 the database queries provided at the end of this memo. 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

ANNUAL GRASSLAND

Annual grasslands consist of a dense to sparse cover of annual grasses with flowering culms 0.5-1.5 feet high. They are often associated with numerous species of showy-flowered, native annual forbs, especially in years of favorable rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. Due to the timing of the site visit (February 12, 2019), biologists were not able to identify the species within these non-native grasslands. Typical species found within annual grasslands include wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), and Italian rye grass (*Festuca perennis*). Two small, isolated areas of annual grassland are found in the southern portion of the project area: one adjacent to Main Canal and the other bordering orchard and irrigated agriculture areas.

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. Some grain crops were observed growing during the February 12, 2019 survey; however, many agricultural fields were unplanted at the time of the survey. Some typical agriculture crops grown 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 and is one of the dominant vegetation communities.

OAK WOODLAND

Two isolated areas of oak woodland occur within the project area. One of these woodland areas is surrounded by irrigated agriculture near the center of the project area, while the other area is located in the south of the project area and is associated with a private residence bordered by orchard, irrigated agriculture, pastures, as well as the Main Canal and a small riparian corridor. Oak woodland communities in the project area have a canopy of valley oak (*Quercus lobata*) with an understory of mustard (*Brassica* sp.), Himalayan blackberry (*Rubus armeniacus*), clover (*Trifolium* sp.), and other non-native grasses.

OPEN WATER

Open water consists of small, permanent water features that support little to no vegetation. Areas of open water include agricultural stock ponds and detention basins, as well as linear water features such as the Sacramento and Feather Rivers, portions of the Main Canal, Cross Canal, Coon Creek, Ping Slough, and Yankee Slough.

ORCHARD

Orchard crops consist of various tree grown agriculture products. Species observed during the February 12, 2019 survey included walnut (*Juglans regia*), almond (*Prunus dulcis*), and numerous unidentified stone fruits (*Prunus* spp.). It is likely that other nut and fruit crops are grown within the project area. Orchards are found throughout the project area and is one of the dominant vegetation communities.

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, and lupines (*Lupinus* spp.). There are several large pasture areas in the southern portion of the project area, adjacent to where Main Canal empties into Cross Canal.

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 is the dominant vegetation community found in the project area and is located throughout.

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, riparian species observed included an overstory of valley oak, Fremont's cottonwood (*Populus fremontii*), and eucalyptus (*Eucalyptus* sp.), with an understory consisting of Himalayan blackberry, mint (*Mentha* sp.), geranium (*Geranium* sp.), willow (*Salix* sp.), cattail (*Typha* sp.), poison oak (*Toxicodendron diversilobum*), California wild grape (*Vitis californica*), and tule grass (*Schoenoplectus acutus*). Riparian communities are found along the shores of the Sacramento and Feather Rivers, Cross Canal, Main Canal, and a more substantial area around Ping Slough.

URBAN

Urban areas mapped in the project area include State Routes 70 and 99, portions of the levee along the Sacramento and Feather Rivers and Cross Canal, the River Oaks golf course, and other residential and commercial properties throughout the project area. Urban cover is also associated with paved roads and additional 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 throughout the project area. Coon Creek has been classified as an "agricultural ditch" as the portion of the creek that occurs in the project area is completely channelized and is used for irrigation purposes.

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 data (USFWS 2019c), 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 acorn woodpecker (*Melanerpes formicivorus*), American crow (*Corvos brachyrhynchos*), yellow-billed magpie (*Pica nutalli*), European starling (*Sturnus vulgaris*), coot (*Fulica* sp.), great egret (*Ardea alba*), mourning dove (*Zenaida macroura*), California scrub jay (*Aphelocoma californica*), finches (Fringillidae), killdeer (*Charadrius vociferus*), mallard duck (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), and other various shore birds, in addition to raptors such as red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), and American kestrel (*Falco zoniventris*). Dozens of Swainson's hawks (*Buteo swainsoni*) were observed along the riparian corridor adjacent to the Cross Canal along the southern edge of the project area. A northern harrier (*Circus hudsonius*) was observed foraging from an irrigated agriculture field in the southwest of the project area. While no other special status species or elderberry shrubs were observed during the survey, they still have the potential to occur in the project area (Table 1) and are discussed in more detail below.

Additionally, western gray squirrels (*Sciurus griseus*) were observed throughout the project area, and numerous domesticated animals were observed in pasture and residential areas including sheep, cattle, horses, and chickens.

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 (provided at the end of this memo). 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

Critical habitat units for Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), and green sturgeon (*Acipenser medirostris*) occur within and immediately adjacent to the project area. Steelhead unit V01 bisects the project area along Main Canal and Coon Creek. Additionally, this critical habitat unit follows the Cross Canal along the southern edge of the project area, the Sacramento and Feather Rivers along the southern and western boundaries of the project area, and the Bear River along the northern edge of the project area. Chinook salmon critical habitat unit V08 also follows the Sacramento and Feather Rivers along the southern and western edges of the project area, as well following the Bear River until approximately 2 miles upstream of the State Route 99 crossing. The green sturgeon unit, "Sutter Bypass", begins north of Sacramento Slough and continues following the Sutter Bypass north until crossing State Route 20. (USFWS 2019b). These critical habitat units are depicted on Exhibit 1.

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 a total of 17 protected areas that are located within two miles of the project area, including one area owned by CDFW, three areas owned by the Central Valley Flood Protection Zone, one area owned by the National Audubon Society, eight areas owned by the Natomas Basin Conservancy, three areas owned by the Olivehurst Public Utilities District, and one area owned by the Sacramento and San Joaquin Drainage District (CPAD 2018). There are a total of eight land parcels with conservation easements within two miles of the project area, including one area operated by CDFW, one area operated by the Nature Conservancy, one area operated by the USFWS, one area operated by the United States Natural Resources Conservation Service, and four areas operated by the Wildlife Heritage Foundation (CCED 2018).

The Sutter Bypass is located immediately adjacent to the southwestern half of the project area, on the west side of the Feather River Levee. Just downstream of the Bear River and Feather River

confluence the bypass turns to the northwest and away from the project area. The bypass is part of a large engineered floodway that runs adjacent to the Sacramento River from south of the Sacramento-San Joaquin Delta, to north of the Sutter Buttes. The bypass 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, six were determined to have very limited potential to occur within the project area, including Ahart's dwarf rush, bald eagle, Boggs Lake hedge-hyssop, greater sandhill crane, legenere, and western spadefoot toad. The remaining 12 species have the potential to occur 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	annual grassland
Downingia pusilla	dwarf downingia	--	2B.2	potential aquatic resources
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	--	1B.2	potential aquatic resources, riparian
Monardella venosa	veiny monardella	--	1B.1	annual grassland
Pseudobahia bahiifolia	Hartweg's golden sunburst	--	1B.2	annual grassland
Sagittaria sanfordii	Sanford's arrowhead	--	1B.2	potential aquatic resources, agricultural ditches
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				
Acipenser medirostris	green sturgeon	FT	SSC	open water (Sacramento and Feather Rivers)
Acipenser transmotanus	white sturgeon	--	SSC	open water (Sacramento and Feather Rivers)
Lavinia exilicauda	Sacramento hitch	--	SSC	open water

[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
Mylopharodon conocephalus	hardhead	--	SSC	open water (Sacramento, Feather, and Bear Rivers)
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	FT	--	open water (Sacramento, Feather, and Bear Rivers, Main Canal)
Oncorhynchus mykiss irideus pop. 8	steelhead - Central California Coast DPS	FT	--	open water (Sacramento, Feather, and Bear Rivers, Main Canal)
Oncorhynchus tshawytscha pop. 6	Chinook salmon - Central Valley spring-run ESU	FT	ST	open water (Sacramento, Feather, and Bear Rivers)
Oncorhynchus tshawytscha pop. 7	Chinook salmon - Sacramento River winter-run ESU	FE	SE	open water (Sacramento, Feather, and Bear Rivers)
Oncorhynchus tshawytscha pop. 13	Chinook salmon - Central Valley fall / late fall-run ESU	--	SSC	open water (Sacramento, Feather, and Bear Rivers)
Pogonichthys macrolepidotus	Sacramento splittail	--	SSC	open water
Reptiles				
Emys marmorata	western pond turtle	--	SSC	open water, agricultural ditches
Thamnophis gigas	giant garter snake	FT	ST	open water, riparian, agricultural ditches (and adjacent uplands), rice
Birds				
Agelauis tricolor	tricolored blackbird	--	ST/SSC	open water, riparian, agricultural ditches, irrigated agriculture
Athene cunicularia	burrowing owl	--	SSC	annual grassland, pasture, urban
Buteo swainsoni	Swainson's hawk	--	ST	foraging: orchard, irrigated agriculture, annual grassland, pasture, rice nesting: riparian and other large trees throughout project area
Charadrius montanus	mountain plover	--	SSC	winter foraging: pasture
Circus hudsonius	northern harrier	--	SSC	foraging: orchard, irrigated agriculture, annual grassland, pasture, rice
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT	SE	riparian

Scientific Name	Common Name	Federal Listing[2]	State Listing[3]/CRPR[4]	Vegetation Community Description
Elanus leucurus	white-tailed kite	--	FP	foraging: irrigated agriculture, annual grassland, 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, annual grassland, pasture, rice nesting: shrubs and trees throughout project area
Laterallus jamaicensis coturniculus	California black rail	--	ST/FP	potential aquatic resources, open water
Melospiza melodia	song sparrow (Modesto population)	--	SSC	riparian
Riparia	bank swallow	--	ST	riparian
Mammals				
Antrozous pallidus	pallid bat	--	SSC	orchard, urban
Lasiurus blossevillii	western red bat	--	SSC	riparian, orchard
Taxidea taxus	American badger	--	SSC	pasture, irrigated agriculture, annual grassland, oak woodland

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.

Literature Cited

CCED (California Conservation Easement Database). 2018. Data is available for viewing, exploration, and download at http://calands.org. Accessed March 6, 2019.

CPAD (California Protected Areas Database). 2018. Data is available for viewing, exploration, and download at http://calands.org. Accessed March 6, 2019.

CDFW (California Department of Fish and Wildlife). 2019. California Natural Diversity Database – RareFind 5 and BIOS. CDFW Biogeographic Data Branch, Sacramento, CA. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

CDFW. 2018. California Wildlife Habitat Relationship System - Rice. CDFW Biogeographic Data Branch, Sacramento, CA. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67412&inline

CNPS (California Native Plant Society). 2019. *Inventory of Rare and Endangered Plants of California* (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org. Accessed March 6, 2019.

Google Earth Pro. 2019. Imagery date range: 1993-2019.

National Marine Fisheries Service (NMFS 2016). Intersection of USGS 7.5" topographic Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California. Dataset downloaded from < https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html>. Accessed April 4, 2019.

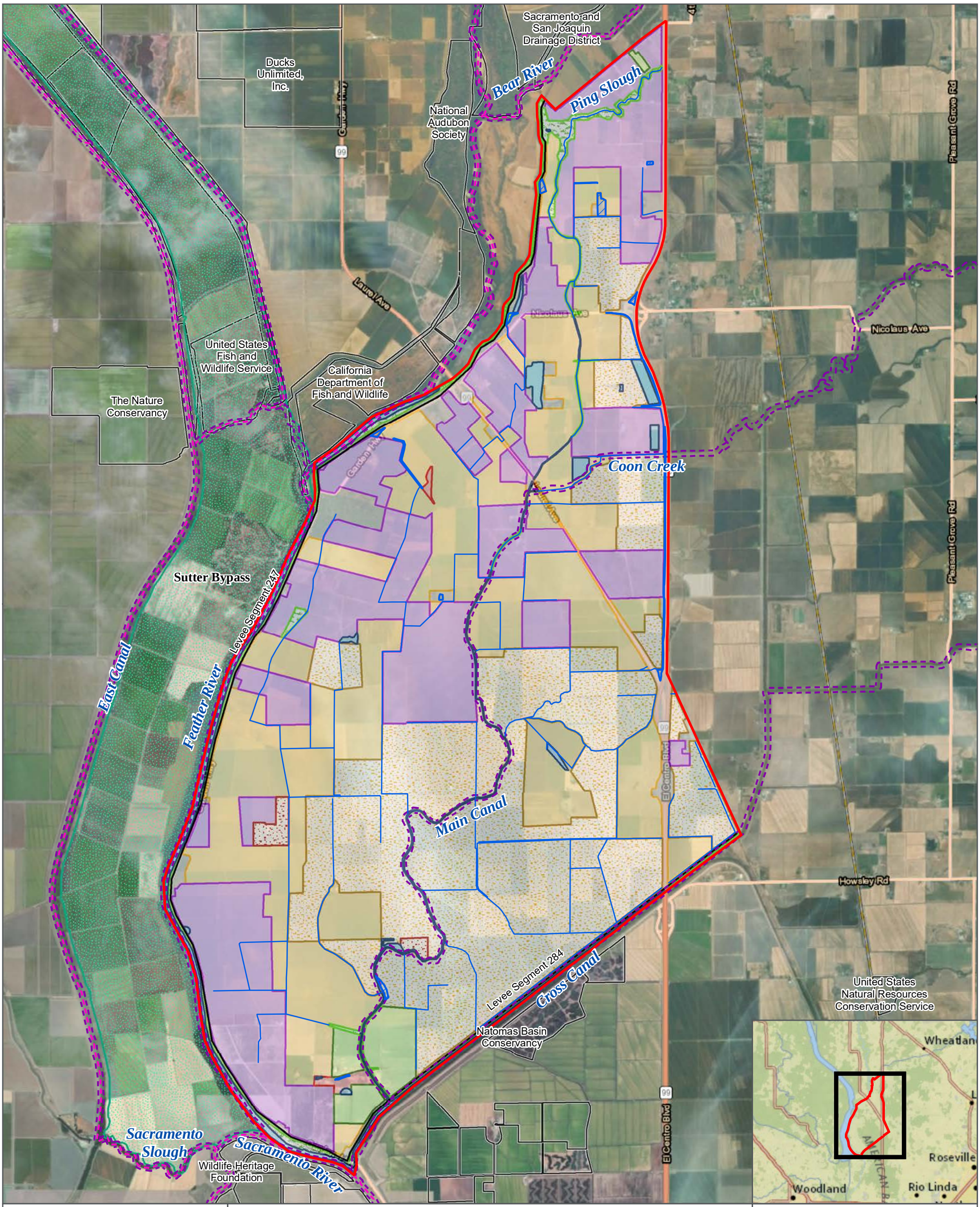
Sutter County. 2006. *Report of Independent Science Advisors for Yuba and Sutter County Natural Community Conservation Plan/Habitat Conservation Plan.* Produced by the Conservation Biology Institute.

USFWS (US Fish and Wildlife Service). 2019a. Information, Planning, and Conservation System. USFWS. Carlsbad, CA. https://ecos.fws.gov/ipac/. Accessed March 6, 2019.

----. 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.

Yuba County. 2011. *Planning Agreement Regarding the Yuba-Sutter Natural Community Conservation Plan and Habitat Conservation Plan.*



N

0 1 2
MILES

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
- Final Critical Habitat for Chinook Salmon *(Oncorhynchus tshawytscha)*
- Final Critical Habitat for Steelhead *(Oncorhynchus mykiss)*
- Final Critical Habitat for Green Sturgeon *(Acipenser medirostris)*
- Agriculture Ditches
- Potential Aquatic Resources
- California Protected Areas Database (CPAD) and California Conservation Easement Database (CCED) Units

Vegetation Communities

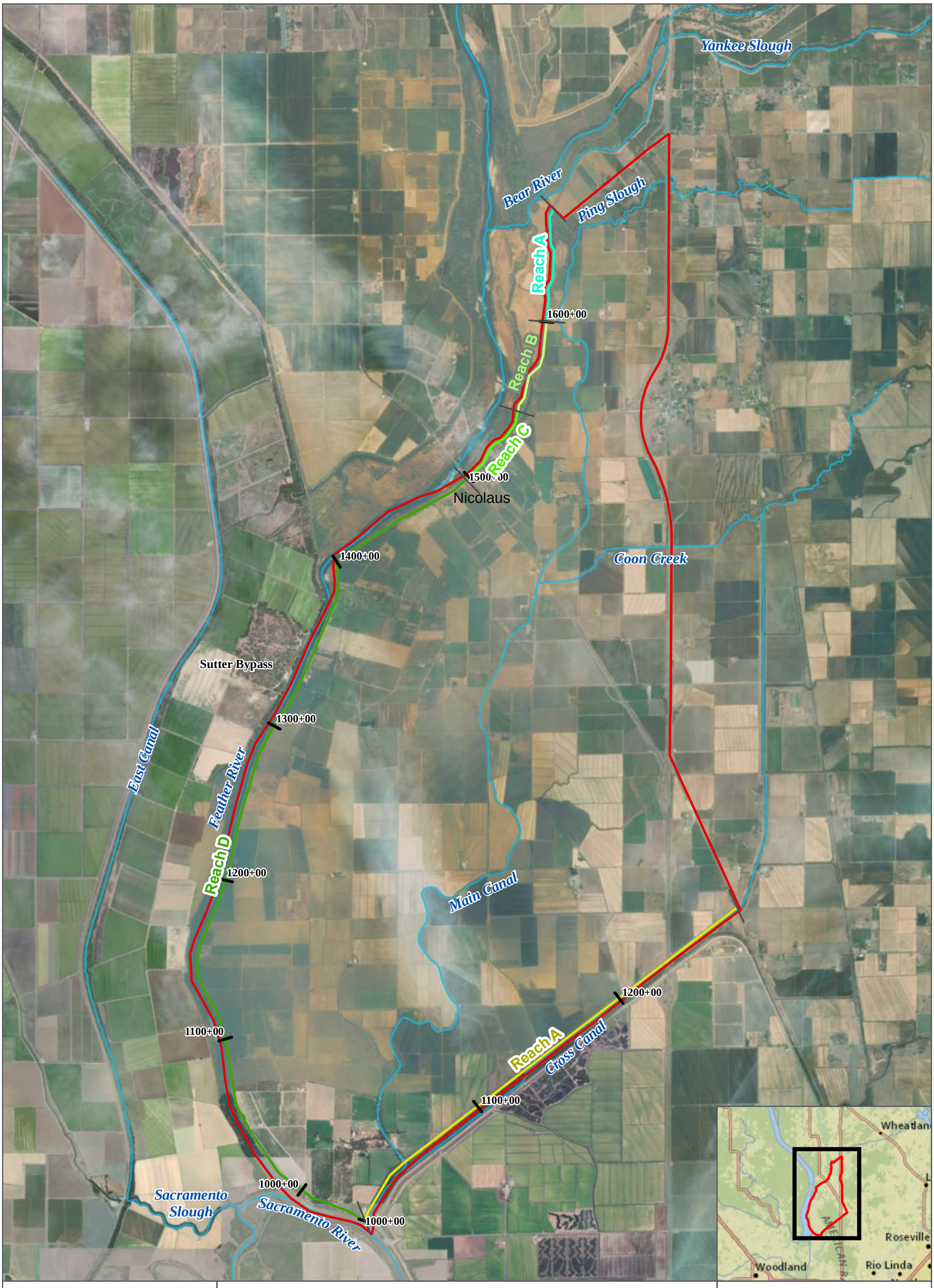
- Annual Grassland
- Irrigated Agriculture
- Oak Woodland
- Open Water
- Orchard
- Pasture
- Rice
- Riparian
- Urban

NICOLAUS FLOOD RISK REDUCTION FEASIBILITY STUDY

FIGURE 1

HDR

PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_NICOLAUS_10292019_11X17.MXD - USER: STIDBALL - DATE: 10/29/2019



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

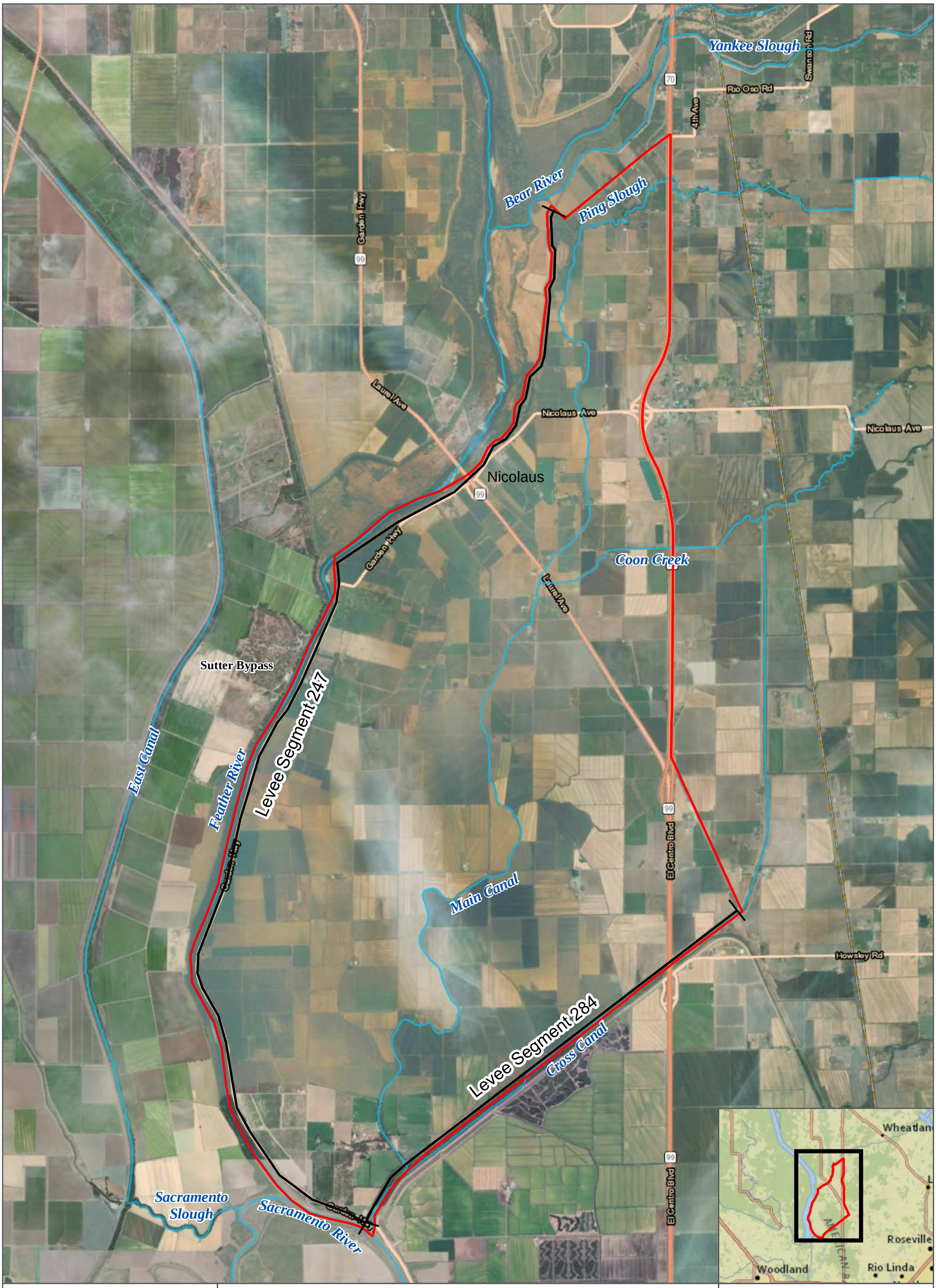
Project Area, Potential Wetlands, Agriculture Ditches, Vegetation Communities - HDR Inc.

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.

PREFERRED REMEDIATION ALTERNATIVE REACHES NICOLAUS

HDR

PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_NICOLAUS_LEVEE_REACH_11X17.MXD - USER: STIDBALL - DATE: 10/30/2019



PATH: H:\GIS_PROJECTS\SUTTER COUNTY SMALL COMMUNITIES\MXD\ATTACHMENT_SUTTER_COUNTY_NICOLAUS_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-0820
Event Code: 08ESMF00-2019-E-02506
Project Name: Nicolaus

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

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08ESMF00-2019-SLI-0820

Event Code: 08ESMF00-2019-E-02506

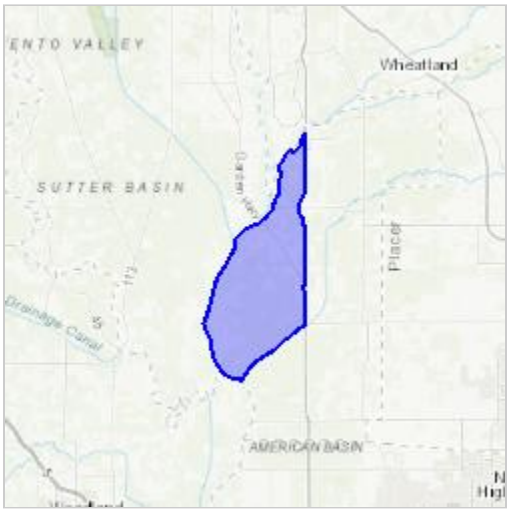
Project Name: Nicolaus

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/38.87315765215807N121.58013640977079W



Counties: Sutter, CA | Yolo, 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.

---

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
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

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

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

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

Nicolaus Flood Risk Reduction Feasibility Study

Quad Name **Verona**
Quad Number **38121-G5**

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 - **X**
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 - X
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 **Knights Landing**
Quad Number **38121-G6**

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 - **X**
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 - X
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 **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 -

CNDDB 9-Quad Species List 202 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 - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812167	Woodland	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	-	-	3812177	Eldorado Bend	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	-	-	3812186	Sutter Causeway	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812187	Kirkville	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812167	Woodland	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812177	Eldorado Bend	Unprocessed	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	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	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812187	Kirkville	Mapped and 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	-	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
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	-	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812187	Kirkville	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias

Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812166	Grays Bend	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	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812167	Woodland	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812187	Kirkville	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	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812187	Kirkville	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812167	Woodland	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812165	Taylor Monument	Mapped and 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	Charadrius alexandrinus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius alexandrinus nivosus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812176	Knights Landing	Mapped	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812177	Eldorado Bend	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812187	Kirkville	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
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	-	-	3812176	Knights Landing	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812165	Taylor Monument	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis

Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812166	Grays Bend	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812167	Woodland	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	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	-	-	3812177	Eldorado Bend	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812187	Kirkville	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812187	Kirkville	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	-	3812177	Eldorado Bend	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	-	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	-	3812167	Woodland	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812165	Taylor Monument	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	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Melospiza melodia	song sparrow (- inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812166	Grays Bend	Mapped	Animals - Birds - Passerellidae - Melospiza melodia

Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812165	Taylor Monument	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
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	-	3812187	Kirkville	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Numenius americanus	long-billed curlew	ABNNF07070	None	None	WL	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Scolopacidae - Numenius americanus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812167	Woodland	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	-	3812177	Eldorado Bend	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812165	Taylor Monument	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812166	Grays Bend	Mapped	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 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	-	-	3812165	Taylor Monument	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812165	Taylor Monument	Mapped	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	-	-	3812185	Nicolaus	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	-	-	3812175	Verona	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812166	Grays Bend	Mapped and Unprocessed	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	-	3812185	Nicolaus	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
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	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
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	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812166	Grays Bend	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812177	Eldorado Bend	Mapped	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	-	-	3812166	Grays Bend	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
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	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812165	Taylor Monument	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812166	Grays Bend	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
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	-	-	3812166	Grays Bend	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812165	Taylor Monument	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	-	-	3812177	Eldorado Bend	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	-	-	3812187	Kirkville	Mapped	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. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812165	Taylor Monument	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	-	3812166	Grays Bend	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	-	3812165	Taylor Monument	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	-	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	-	-	3812165	Taylor Monument	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. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
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	Bombus crotchii	Crotch bumble bee	IIHYM24480	None	None	-	-	3812187	Kirkville	Mapped	Animals - Insects - Apidae - Bombus crotchii
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	None	-	-	3812167	Woodland	Mapped	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812176	Knights Landing	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
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	-	-	3812176	Knights Landing	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812167	Woodland	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	-	-	3812165	Taylor Monument	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812167	Woodland	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	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812167	Woodland	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus

Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3812167	Woodland	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Mammals	Lasionycteris noctivagans	silver-haired bat	AMACC02010	None	None	-	-	3812167	Woodland	Mapped	Animals - Mammals - Vespertilionidae - Lasionycteris noctivagans
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 - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812167	Woodland	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04020	None	None	-	-	3812166	Grays Bend	Unprocessed	Animals - Mollusks - Unionidae - Anodonta californiensis
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	-	3812167	Woodland	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812166	Grays Bend	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812165	Taylor Monument	Mapped and 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	-	3812186	Sutter Causeway	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
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	-	-	3812187	Kirkville	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	-	-	3812177	Eldorado Bend	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812166	Grays Bend	Mapped and Unprocessed	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	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812187	Kirkville	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812177	Eldorado Bend	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	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812167	Woodland	Mapped	Community - Terrestrial - Valley Oak Woodland
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	Nicolaus	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812167	Woodland	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812166	Grays Bend	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812165	Taylor Monument	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Lessingia hololeuca	woolly-headed lessingia	PDAST5S030	None	None	-	3	3812167	Woodland	Unprocessed	Plants - Vascular - Asteraceae - Lessingia hololeuca
Plants - Vascular	Trichocoronis wrightii var. wrightii	Wright's trichocoronis	PDAST9F031	None	None	-	2B.1	3812187	Kirkville	Mapped	Plants - Vascular - Asteraceae - Trichocoronis wrightii var. wrightii
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812177	Eldorado Bend	Mapped	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Atriplex depressa	brittlescale	PDCHE042L0	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex depressa
Plants - Vascular	Extriplex joaquinana	San Joaquin spearscale	PDCHE041F3	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Chenopodiaceae - Extriplex joaquinana
Plants - Vascular	Astragalus pauperculus	depauperate milk-vetch	PDFAB0F6N0	None	None	-	4.3	3812166	Grays Bend	Unprocessed	Plants - Vascular - Fabaceae - Astragalus pauperculus
Plants - Vascular	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Fabaceae - Astragalus tener var. tener
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Fabaceae - Trifolium hydrophilum

Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812166	Grays Bend	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812165	Taylor Monument	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812167	Woodland	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	3812185	Nicolaus	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812187	Kirkville	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
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	3812166	Grays Bend	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Chloropyron palmatum	palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	-	1B.1	3812166	Grays Bend	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron palmatum
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812167	Woodland	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812177	Eldorado Bend	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Navarretia cotulifolia	cotula navarretia	PDPLM0C040	None	None	-	4.2	3812166	Grays Bend	Unprocessed	Plants - Vascular - Polemoniaceae - Navarretia cotulifolia

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 209 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	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	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812166	Grays Bend	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	-	-	3812186	Sutter Causeway	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812164	Rio Linda	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812164	Rio Linda	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812166	Grays Bend	Unprocessed	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	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	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812165	Taylor Monument	Mapped and 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	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812166	Grays Bend	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	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812164	Rio Linda	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812165	Taylor Monument	Mapped and 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	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812164	Rio Linda	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	Charadrius alexandrinus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius alexandrinus nivosus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
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	-	-	3812164	Rio Linda	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis

Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812165	Taylor Monument	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	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812166	Grays Bend	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Progne subis
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	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812185	Nicolaus	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
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	-	3812186	Sutter Causeway	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	-	3812174	Pleasant Grove	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	-	3812164	Rio Linda	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812165	Taylor Monument	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Candidate Endangered	SSC	-	3812166	Grays Bend	Mapped and Unprocessed	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	-	3812164	Rio Linda	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	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	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia

Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	Nicolaus	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812166	Grays Bend	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812164	Rio Linda	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812165	Taylor Monument	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812176	Knights Landing	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812186	Sutter Causeway	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Numenius americanus	long-billed curlew	ABNNF07070	None	None	WL	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Scolopacidae - Numenius americanus
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	-	3812166	Grays Bend	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812165	Taylor Monument	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812166	Grays Bend	Mapped	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	-	-	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	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812165	Taylor Monument	Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Crustaceans - Linderiellidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812165	Taylor Monument	Mapped	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	-	-	3812174	Pleasant Grove	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	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	-	-	3812174	Pleasant Grove	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812166	Grays Bend	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	-	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi

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	-	3812175	Verona	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	-	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	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
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	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812166	Grays Bend	Mapped	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	-	-	3812166	Grays Bend	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
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	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812165	Taylor Monument	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812165	Taylor Monument	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	SSC	-	3812166	Grays Bend	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
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	-	-	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	-	-	3812166	Grays Bend	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812165	Taylor Monument	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	-	-	3812164	Rio Linda	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
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	-	-	3812185	Nicolaus	Mapped	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. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812165	Taylor Monument	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	-	3812166	Grays Bend	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	-	3812165	Taylor Monument	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. 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	-	-	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	-	-	3812165	Taylor Monument	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. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812165	Taylor Monument	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 - 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	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	-	-	3812184	Sheridan	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	-	-	3812175	Verona	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812165	Taylor Monument	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812164	Rio Linda	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	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812184	Sheridan	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
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	-	-	3812166	Grays Bend	Unprocessed	Animals - Mollusks - Unionidae - Anodonta californiensis

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	-	3812185	Nicolaus	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	-	3812174	Pleasant Grove	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812164	Rio Linda	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812166	Grays Bend	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812166	Grays Bend	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812165	Taylor Monument	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812164	Rio Linda	Mapped and Unprocessed	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	-	-	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	-	-	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	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	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 Claypan Vernal Pool	Northern Claypan Vernal Pool	CTT44120CA	None	None	-	-	3812164	Rio Linda	Mapped	Community - Terrestrial - Northern Claypan Vernal Pool
Community - Terrestrial	Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	CTT44110CA	None	None	-	-	3812164	Rio Linda	Mapped	Community - Terrestrial - Northern Hardpan Vernal Pool
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812164	Rio Linda	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	Nicolaus	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii

Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812165	Taylor Monument	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812166	Grays Bend	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
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	3812164	Rio Linda	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	3812164	Rio Linda	Mapped	Plants - Vascular - Campanulaceae - Legenere limosa
Plants - Vascular	Atriplex depressa	brittlescale	PDCHE042L0	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex depressa
Plants - Vascular	Extriplex joaquinana	San Joaquin spearscale	PDCHE041F3	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Chenopodiaceae - Extriplex joaquinana
Plants - Vascular	Astragalus pauperculus	depauperate milk-vetch	PDFAB0F6N0	None	None	-	4.3	3812166	Grays Bend	Unprocessed	Plants - Vascular - Fabaceae - Astragalus pauperculus
Plants - Vascular	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Fabaceae - Astragalus tener var. tener
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812166	Grays Bend	Mapped and Unprocessed	Plants - Vascular - Fabaceae - Trifolium hydrophilum
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812166	Grays Bend	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812164	Rio Linda	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Juglans hindsii	Northern California black walnut	PDJUG02040	None	None	-	1B.1	3812165	Taylor Monument	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	3812185	Nicolaus	Unprocessed	Plants - Vascular - Juglandaceae - Juglans hindsii
Plants - Vascular	Fritillaria agrestis	stinkbells	PMLIL0V010	None	None	-	4.2	3812164	Rio Linda	Mapped and Unprocessed	Plants - Vascular - Liliaceae - Fritillaria agrestis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812166	Grays Bend	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	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	Chloropyron palmatum	palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	-	1B.1	3812166	Grays Bend	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron palmatum
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	3812164	Rio Linda	Mapped	Plants - Vascular - Plantaginaceae - Gratiola heterosepala
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812166	Grays Bend	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Navarretia cotulifolia	cotula navarretia	PDPLM0C040	None	None	-	4.2	3812166	Grays Bend	Unprocessed	Plants - Vascular - Polemoniaceae - Navarretia cotulifolia

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

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

Search Criteria

Found in Quads 3812187, 3812186, 3812185, 3812177, 3812176, 3812175, 3812167 3812166 and 3812165;

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
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S3?	G3?
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
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
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 01 February 2019].

Join CNPS

The Consortium of California Herbaria

CalPhotos

Questions and Comments

rareplants@cnps.org

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

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

Search Criteria

Found in Quads 3912116, 3912115, 3912114, 3812186, 3812185, 3812184, 3812176 3812175 and 3812174;

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

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 01 February 2019].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

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

Search Criteria

Found in Quads 3812186, 3812185, 3812184, 3812176, 3812175, 3812174, 3812166 3812165 and 3812164;

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
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
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
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 01 February 2019].

Advanced Search
Glossary

About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments

rareplants@cnps.org

Appendix D. Cultural Resources Analysis

Memo

Date:	April 2020
Project:	Nicolaus 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:	Nicolaus – Cultural Resources Constraints Analysis

Introduction

This memo presents a preliminary review of potential cultural resources constraints for the Nicolaus 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. The data were reviewed again in November, 2019 following revisions to the project footprint.

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 28 cultural resources investigations intersecting the project footprint. Previous investigations were primarily archaeological field studies, including investigations for highway work, levee improvements, habitat restoration, transmission lines, and cell towers. Excavations of two prehistoric sites (CA-SUT-021 and CA-SUT-022) are also included. Literature reviews and site evaluations were also conducted. These studies recorded 155 archaeological sites and historical built environment resources, with 17 negative surveys. In addition, there have been seven cultural resources investigations within 0.25 mile of the project footprint. Projects included flood control, levee repairs/improvements, and academic field research. The information provided by the information centers revealed two negative surveys, with five surveys recording a total of 28 resources. These studies are summarized in **Appendix 1**.

The records search indicated 3 previously recorded prehistoric archaeological sites, 5 historical sites, 7 built environment resources, 1 multi-component site, and 1 “unknown” site within the project footprint. The “unknown” site (P-51-00003) record indicates a “house on mound” was originally recorded in 1934 and reportedly contains both prehistoric and historical artifacts. In addition, one previously recorded prehistoric sites, one historical site, and three built resources have been documented in the 0.25 mile buffer.

Prehistoric Sites

There are three previously recorded prehistoric sites plotted within the project footprint, and one prehistoric site within the 0.25 mile buffer (**Table 1**). Previously recorded site types include a burial (P-51-00032), and artifact scatters and middens largely associated with obliterated mound sites. The burial was exposed in a cut bank on the west side of the Feather River, just east of the Southern Pacific Railroad grade. Sites (P-51-00021 and P-51-00022) lie along a levee on an unnamed drainage of the Feather River between Nicolaus and Rio Oso. Site P-51-00132 is adjacent to Highway 70 on the western edge of Rio Oso.

Table 1: Previously Recorded Prehistoric Archaeological Sites

Primary No.	Trinomial	Resource Type	NRHP[1] / CRHR[2] Status	Intersects Project Area?
P-51-00021	CA-SUT-00021	AP15 (habitation debris)	Unevaluated	Yes
P-51-00022	CA-SUT-00022	AP09 (burials), AP15 (habitation debris)	Unevaluated	Yes
P-51-00032	CA-SUT-00032	AP09 (burials), AP15 (habitation debris)	Unevaluated	No
P-51-00132	CA-SUT-00132	AP01 (unknown)	Unevaluated	Yes

[1]National Register of Historic Places

[2]California Register of Historical Resources

Historical Archaeological Sites

There are five historical sites within the project boundary, and one historical site within the 0.25 mile buffer (**Table 2**). Sites inside the buffer include Stolp Station, which was determined ineligible for the NRHP, the Natomas Cross Canal (unevaluated), and the Scheiber Race Track (unevaluated). Two historic artifact scatters are also indicated in the project area. The Feather River Road segment is recorded west of the Bear River in the 0.25 mile radius outside the project area.

Table 2: Previously Recorded Historical Archaeological Sites

Primary No.	Trinomial	Resource Type	NRHP / CRHR Status	Intersects Project Area?
P-51-00082	CA-SUT-00082H	Stolp Station - AH02 (Foundations/structure pads), AH07 (Roads/trails/railroad grades), AH11(Walls/fences)	6Y – Determined ineligible for the National Register by consensus through the Section 106 process – Not evaluated for the California Register or Local Listing	Yes
P-51-00084	CA-SUT-00084H	Natomas Cross Canal – AH06 (Water conveyance system)	Unevaluated	Yes
P-51-00133	CA-SUT-01333H	AH04 (Privies/dumps/trash scatters)	Unevaluated	Yes
P-51-00142	CA-SUT-00142H	Scheiber Race Track – HP42 (Sports arena)	Unevaluated	Yes
P-51-00309	n/a	AH04 (Privies/dumps/trash scatters)	Unevaluated	Yes
P-58-01371	n/a	Feather River Road – AH07 (Road)	Unevaluated	No

Historical Built Environment Resources

There are seven built resources within the project boundary, and three built resources within the 0.25 mile buffer. These resources include 20th century homesteads, pump stations, levees, and canals. The Feather River Levee appears to be awaiting State Historic Preservation Officer (SHPO) concurrence for eligibility, according to the site record.

Table 3: Previously Recorded Historical Built Environment Resources

Primary No.	Trinomial	Resource Type	Construction Date (circa [c.])	NRHP / CRHR Status	Intersects Project Area?
P-51-00136	CA-SUT-00133H	HP02 (Single family home), HP04 (Ancillary building)	c. 1920	Unevaluated	Yes
P-51-00139	CA-SUT-0139H	AH15 (Habitation debris), HP02 (Single family home), HP04 (Ancillary building)	1957	Unevaluated	Yes
P-51-00150	CA-SUT-00150H	Feather River Levee - HP11 (Engineering structure)	"portions of the segment date back as early as 1868 – 1910"	"previously evaluated as eligible for NRHP, but awaiting SHPO concurrence."	Yes

Primary No.	Trinomial	Resource Type	Construction Date (circa [c.])	NRHP / CRHR Status	Intersects Project Area?
P-51-00153	n/a	AH02 (Foundations/structure pads)	n/a	Unevaluated	Yes
P-51-00162	n/a	Northern Main Pump Station – HP11 (Engineering structure)	1930	Unevaluated	Yes
P-51-00163	n/a	Bennett Pump Station – HP11 (Engineering structure)	1930	Unevaluated	Yes
P-51-00164	n/a	Odysseus Diversion Pump – HP11 (Engineering structure)	1920	Unevaluated	Yes
P-58-01366	n/a	FB2; Bear River Levee – AH16 (levee)	n/a	Unevaluated	No
P-58-01368	n/a	C-YCWA-2 (RD 784 Ditch) – HP20 (Canal/aqueduct)	1908	Unevaluated	No
P-58-01369	CA-YUB-01443H	Feather River Levee – HP39 (other), AH16 (other: levee)	1908	Unevaluated	No

Multicomponent Sites

There is one previously recorded multicomponent site within the project footprint, with an additional "unknown" site (P-51-00003) that reportedly contains historical and prehistoric components (**Table 4**). CA-SUT-00011/H includes the still standing Verona schoolhouse, which is briefly described with a rough plan map, but not appended with a Building, Sites, and Objects form, nor is it coded with an attribute. The 1992 site record only briefly discusses the structure and mentions that it was being used for storage at the date of recordation. An uncited Wikipedia.org entry posits that the Verona schoolhouse was built in 1863, and is possibly the oldest standing schoolhouse in the state. This general date is verified in the 1870 GLO plat map, which confirms the Verona schoolhouse in its location (see below). A recent blog post by Jim Morris, Communications Director of the California Rice Commission, attests that the schoolhouse is still standing, with a photo of the structure which appears to be in good condition (Morris 2019). The April 2, 2019 field reconnaissance also confirms that the schoolhouse is still standing.

Table 4: Previously Recorded Multicomponent Resources

Primary No.	Trinomial	Resource Type	NRHP / CRHR Status	Intersects Project Area?
P-51-00003	CA-SUT-00003/H	"house on mound" (recorded 1934) – AH01 (Unknown), AP01 (Unknown)	Unevaluated	Yes
P-51-00011	CA-SUT-00011/H	AH04 (Privies/dumps/trash scatters), AP02 (Lithic scatter), AP03 (Ceramic scatter), AP04 (Bedrock milling feature), AP15 (Habitation debris)	Unevaluated	Yes

Historic Map Review

GLO survey plats were reviewed to identify potential historic-era resources within the project area and 0.25-mile buffer (**Table 5**). Some resources depicted on historical maps may become archaeological sites as they disintegrate over time. These plats date to 1860, 1870, 1878, and 1887. A good portion of the project area was swampy and prone to inundation; however, many potential resources of interest were revealed. Given the settlement and flooding history of the area, many of these resources may no longer be present. The Verona schoolhouse is plotted on the 1870 map, confirming the antiquity of the structure that still stands at multicomponent site CA-SUT-00011/H.

Table 5: Resources Depicted on GLO Survey Plats

Date	Resource Type	Location	Intersects Project Area?
1870	Brokin's House	T11N R3E NW ¼ Sec. 3	Yes
1870	McGrath's Pasture	T11N R3E NW ¼ Sec. 3	Yes
1870	Lanai's House	T11N R3E SE ¼ Sec. 4	Yes
1870	Dewico's (?) House	T11N R3E NE ¼ Sec. 9	Yes
1870	Dewico's (?) Pasture	T11N R3E SW ¼ Sec. 3; T11N R3E SE ¼ Sec. 4	Yes
1870	Donavan's House	T11N R3E NE ¼ Sec. 9	Yes
1870	Hennessy's House	T11N R3E NW ¼ Sec. 15	Yes
1870	Burn's Cabin	T11N R3E SE ¼ / SW ¼ Sec. 15	Yes
1870	Abdill's House	T11N R3E NE ¼ Sec. 22	Yes
1870	Abdill's Field	T11N R3E Sec. 14, 15, 22, 23	Yes
1870	Verona Schoolhouse	T11N R3E NE ¼ Sec. 22	Yes
1870	Mahukka House	T11N R3E NE ¼ Sec. 22	Yes
1870	Kanaka Saloon	T11N R3E NE ¼ Sec. 22	Yes
1870	Burn's House	T11N R3E NE ¼ Sec. 22	Yes
1870	Roth's House	T11N R3E NW ¼ Sec. 23	Yes
1870	Levee	T11N R3E, east bank of Feather and Sacramento Rivers.	Yes
1870	Faust's Hopyard	T11N R3E Sec. 23	Yes
1870	"Lane" (road?)	T11N R3E SW ¼ Sec. 24	Yes
1870	Roth's Field	T11N R3E SE ¼ Sec. 25	Yes
1870	Brown's House, Orchard, Barn, Old House	T11N R3E N ½ Sec. 36	Yes
1870	Gray's Old House	T11N R3E SW ¼ Sec. 36	Yes
1868	Road	T11N R4E Sec. 1, 2, 12, 13, 14, 23, 26	Yes
1868	Schoolhouse (at end of Road)	T11N R4E SE ¼ Sec. 2	Yes
1868	Stage Road	T11N R4E Sec. 5, 6, 8, 9, 16, 21, 28, 33	Yes
1868	House	T11N R4E SE ¼ Sec. 23	Yes
1868	Levee	T12N R3E, along Feather River	Yes
1868	Road	T12N R3E Sec. 15, 22, 27, 28	No
1860, 1878, 1887	Parts of New Helvetia Rancho	T12N R3E; T12N R4E, Lot Nos. 37 & 38	Yes
1860	Dr. Mitchell (house)	T12N R4E Sec. 4	No
1860	Various roads	T12N R4E Sec. 4, 5, 8, 9	Yes
1860	Wagner's (house)	T12N R4E SE ¼ Sec. 5	Yes
1860	Parker's (house) and fence	T12N R4E SW ¼ Sec. 5	Yes
1860	Ring's (house)	T12N R4E NW ¼ Sec. 5	Yes
1860	Harris (house) + roads & fence	T12N R4E SE ¼ Sec.6, SW ¼ Sec. 5	Yes
1860	Road (crosses Coon Creek)	T12N R4E Sec. 5, 8, 17, 20, 28, 29, 33	Yes
1860	Haswell's (house)	T12N R4E NE ¼ Sec. 7	Yes
1860	[Creamer's or Geamer's] (house)	T12N R4E NE ¼ Sec. 7	Yes

Date	Resource Type	Location	Intersects Project Area?
1860	Harman's (house)	T12N R4E SE ¼ Sec. 7, SW ¼ Sec. 8,	Yes
1860	Wessinger's (house)	T12N R4E NE ¼ Sec. 8	Yes
1860	Cate's (house)	T12N R4E SE ¼ Sec. 8	Yes
1860	Road	T12N R4E Sec. 8, 9	Yes
1860	Miller's (house)	T12N R4E NW ¼ Sec. 16	No
1860	School House	T12N R4E SW ¼ Sec. 16	No
1860	West's (house)	T12N R4E NE ¼ Sec. 17	Yes
1860	Jacob's (house)	T12N R4E SW ¼ Sec. 17	Yes
1860	Various fences	T12N R4E	Yes
1860	Noel's (house)	T12N R4E NE ¼ Sec. 18	Yes
1860	Road	T12N R4E Sec. 18, 19, 30, 31	Yes
1860	Soule's (house)	T12N R4E NE ¼ Sec. 19	Yes
1860	Stalp's (house)	T12N R4E SE ¼ Sec. 19	Yes
1860	Leary's (house)	T12N R4E NW ¼ Sec. 20	Yes
1860	Rufus Seller's (house)	T12N R4E SW ¼ Sec. 20	Yes
1860	G. Heddin's (house)	T12N R4E NE ¼ Sec. 20	Yes
1860	S. Strihling's (house)	T12N R4E SE ¼ Sec. 20	Yes
1860	J. Lemane's (house)	T12N R4E NW ¼ Sec. 21	No
1860	Wallace's (house)	T12N R4E SW ¼ Sec. 28	No
1860	J.M. Algoe's (house)	T12N R4E NW ¼ Sec. 29	Yes
1860	L. Stripling's (house)	T12N R4E NE ¼ Sec. 29	Yes
1860	Thomas Vestal's (house)	T12N R4E SW ¼ Sec. 29	Yes
1860	Warrington's (house)	T12N R4E SE ¼ Sec. 30	Yes
1860	Uman's (house)	T12N R4E NW ¼ Sec. 33	No
1860	H. Vestal's (house)	T12N R4E SW ¼ Sec. 33	No
1860	Wheel Bridge (?) and associated roads – Bear River	T13N R4E NW ¼ Sec. 15	No
1860	Webster's House and associated roads	T13N R4E SW ¼ Sec. 16	No
1860	"Burying Ground"	T13N R4E SE ¼ Sec. 17	No
1860	Jopson's house	T13N R4E NW ¼ Sec. 21	Yes
1860	Berry's house	T13N R4E SW ¼ Sec. 21	Yes
1860	Crabtree's house	T13N R4E NW ¼ Sec. 22	No
1860	Orchard	T13N R4E NW ¼ Sec. 22	No
1860	Brown's house	T13N R4E NW ¼ Sec. 22	No
1860	Road from Nicolaus to Johnson's Rancho	T13N R4E Sec. 12, 13, 23, 27, 32, 33	Yes
1860	G. Smith's house	T13N R4E NE ¼ Sec. 28	Yes
1860	Hughes' house	T13N R4E NE ¼ Sec. 29	Yes
1860	Bear River house	T13N R4E NW ¼ Sec. 29	Yes
1860	McLane's house	T13N R4E SE ¼ Sec. 29	Yes
1860	Telegraph and Stage Road (north-south)	T13N R4E Sec. 20, 29, 30, 33	Yes
1860	Bridge (Bear River)	T13N R4E Sec. 29	Yes
1860	Thompson's (house)	T13N R4E SE ¼ Sec. 32	Yes
1860	Various roads and fences	T13N R4E	Yes

Of particular note are the residences with Hawaiian names (Kanaka Saloon, Lanai's House, and Mahukka House). Editions of the Sutter County Historical Society News Bulletin (Gibson 1956, Kenn 1956, Hoffman 1959) provided by the NEIC discuss the importance of Hawaiian immigration to the town of Verona (then known as Vernon). According to Charles W. Kenn (1956), John Sutter had travelled to Honolulu in 1838. There, he connected with a number of Hawaiian merchants and families, some of whom (perhaps between 15 to 20 individuals) travelled to Sacramento with him.

This Hawaiian contingent was instrumental in establishing Sutter's eponymous fort in Sacramento. Sutter referred to several of the Hawaiians as "Kanakas" (or "Canacas"). Individuals included William Heath Davis, a Sandwich Islander and ferryboat captain nicknamed "Kanaka Jack" by Sutter, who according to Kenn, was the grand uncle to the Governor of Hawaii at the time of his writing; as well as "Kanaka Harry" who ran Sutter's Hock Farm after 1847. Many Kanakas moved to Verona after Sutter left California. Thus, it seems likely that the "Kanaka Saloon" is related to a Hawaiian who travelled with Sutter. The owner of the saloon may have been a person named Mohonka, who, according to Bernice Gibson (1956), ran a livery and saloon in Verona. Gibson also notes that later settlers from Hawaii not connected with Sutter would establish themselves in Verona.

One such individual discussed by Kenn is Edwin Mahuka, a Hawaiian who settled in Verona independent of John Sutter's expeditions. He "became a wealthy fisherman, merchant and landowner of Verona, He (sp.) was naturalized an American citizen on September 4, 1871..." Mahuka married a Wintu woman, and together had two sons who eventually relocated to Honolulu. It seems likely that the "Mahukka House" is connected with this family.

The Verona Schoolhouse, Kanaka Saloon, and Mahukka House were all situated in the center of the town of Verona, at the east bank of the confluence of the Sacramento and Feather Rivers. As discussed, the schoolhouse still stands (although with modifications). It is unclear if any of the existing buildings were originally the saloon or Mahukka House.

Finally, a number of different residences, roads, fences, and fields are plotted on the 19th century plat maps. A large portion of the New Helvetia Rancho also exists within the project footprint along the Feather River. A photo of the "Verona Creamery Located on (the) Feather River" is included with Gibson (1956) and is probably the "Creamer's" indicated on an 1860 plat map.

Early USGS topographic maps were also reviewed to identify potential areas where historical structures may be found (**Table 6**). The Lee and Illinois schools appear on the Nicolaus 1910 maps, but are no longer plotted on the Nicolaus 1952 maps. The East Nicolaus High School (ENHS) appears on the Nicolaus 1952 map. Information provided by NEIC indicates that the ENHS is a Historical Residence and is a local Point of Interest as of 1974, and documents the construction of ENHS in 1924. Cross Canal and associated infrastructure appear in the Nicolaus 1952 map. The Nicolaus Cemetery also appears on the Nicolaus 1952 map. The Nicolaus 1910 and 1952 depicts the Sacramento Northern Electric Railroad (SNERR) running north-south along the eastern boundary of the project, which is Highway 70. The SNERR was determined ineligible for the NRHP ahead of widening of Highway 70 (JRP Historical Consulting Services 1994), and images on Google Earth seem to confirm that the railroad has been obliterated, though associated features (e.g. grades, bridges, spurs, culverts) may still be present on the landscape. Various residences, roads, and other features are also depicted on the USGS maps. The Ping Slough may have associated infrastructure.

Table 6. Resources depicted on historical USGS topographic maps

Date	Map (scale)	Resource Type	Intersects Project Area?
1910	Knight's Landing (1:31680)	Southern Pacific Railroad	No
1910	Verona (1:31680)	Lee School	Yes

Date	Map (scale)	Resource Type	Intersects Project Area?
1910	Nicolaus (1:31680)	Illinois School Nicolaus Cemetery Ping Slough Sacramento Northern Electric Railroad	Yes
1952	Vernon (1:24000)	Cross Canal Pump House and Levee (CA-SUT-0081) Feather River Levee and Gaging Station (CA-SUT-00150H) Ping Slough	Yes
1952	Nicolaus (1:24000)	East Nicolaus High School Sacramento Northern Electric Railroad	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. Historic-era farm and ranch and complexes – with their collection of associated barns, sheds, pump houses, silos, and other outbuildings – are scattered throughout the project area, including the Holden Scheiber ranch which, according to their sign, was established in 1860. The residential and business core of Nicolaus has been largely abandoned and contains a sparse mix of historical and modern buildings. No historical signage was observed despite the town's establishment in 1850 and association with John Sutter.

As noted above, the Verona schoolhouse at P-51-00011 was relocated. The building is dilapidated and not in use, but is standing. Cursory observations indicate the much of the original siding has been replaced and the building was, at one point, retrofitted for indoor plumbing and electricity. A sparse scatter of historical ceramics and glass is scattered throughout the vicinity of the building. No evidence of the mound originally recorded at this location was noted, although freshwater mussel shell fragments and a few small faunal bones were observed.

The mapped location of prehistoric mound site P-51-00022 was also relocated in a small triangle of open land between the Sacramento River levee and Scheiber Road. The area is currently used for dumping tree trimmings and exhibits dense seasonal grasses, limiting surface visibility. However, despite earlier notations that the mound had been destroyed, an intact bifacially ground granite *mano* (handstone) was observed, indicating that there may be remnant traces of the prehistoric deposit.

Historically, the land has been graded and levelled for agricultural purposes, obscuring much, if not all, of the original topography. In the general vicinity of the Sacramento and Feather Rivers, prehistoric archaeological sites tended to be located on natural, high spots adjacent to the river. Often, early European settlers utilized the same locations, thus it is not uncommon for intact prehistoric site remnants to be present within historic-era settlements, as observed at P-51-00011.

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 or one of the historical ranch complexes). 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. However, as evidenced by the handstone noted at P-51-00022,

there may be remnants of these sites. 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 Sacramento and Feather Rivers 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.

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.

Literature Cited

JRP Historical Consulting Services. 1994. *Historic Resource Evaluation Report of the Northern Electric (California Northern) Railroad*. Report on file at the Northeastern Information Center at California State University, Chico.

Gibson, Bernice B. 1956. The Hawaiian Colony of Vernon. *Sutter County Historical Society News Bulletin*, Vol. 1 No. 7.

Hoffman, Glenn. 1959. Some Miscellaneous Notes From Hawaii. *Sutter County Historical Society News Bulletin*, Vol. 2 No. 2.

Kenn, Charles W. 1956. Sutter's Canacas. *Sutter County Historical Society News Bulletin*, Vol. 1 No. 4.

Morris, Jim. 2019. Two Gentlemen in Verona, California (http://calrice.org/two-gentlemen-in-verona-california/). Accessed March 25, 2019.

U.S. Department of Interior, General Land Office (GLO). 1860. Original survey plat map of Township 12 North, Range 4 East. Available online at https://glorecords.blm.gov.

----.1860. Original survey plat map of Township 13 North, Range 4 East. Available online at https://glorecords.blm.gov. (3 Maps total)

----.1868. Original survey plat map of Township 11 North, Range 4 East. Available online at https://glorecords.blm.gov.

----.1868. Original survey plat map of Township 12 North, Range 3 East. Available online at https://glorecords.blm.gov.

----.1870. Original survey plat map of Township 11 North, Range 3 East. Available online at https://glorecords.blm.gov.

----.1872. Original survey plat map of Township 12 North, Range 4 East. Available online at https://glorecords.blm.gov.

----.1878. Original survey plat map of Township 12 North, Range 3 East. Available online at https://glorecords.blm.gov.

----.1879. Original survey plat map of Township 12 North, Range 3 East (addendum). Available online at https://glorecords.blm.gov.

U.S. Geological Survey (USGS). 1910. Topographic map of Knight's Landing (1:31680). Available online at http://historicalmaps.arcgis.com/usgs.

----. 1910. Topographic map of Nicolaus (1:31680). Available online at http://historicalmaps.arcgis.com/usgs.

----. 1910. Topographic map of Verona (1:31680). Available online at http://historicalmaps.arcgis.com/usgs.

----.1952. Topographic map of Knight's Landing (1:24000). Available online at http://historicalmaps.arcgis.com/usgs.

----.1952. Topographic map of Nicolaus (1:24000). Available online at http://historicalmaps.arcgis.com/usgs.

----.1953. Topographic map of Vernon (1:24000). Available online at http://historicalmaps.arcgis.com/usgs.

Wikipedia.org. 2019. List of oldest schools in California. (https://en.wikipedia.org/wiki/List_of_oldest_schools_in_California#1857). Accessed March 25, 2019.

APPENDIX 1

Previous Cultural Resources Investigations

Appendix 1, Table 1: Previous Cultural Resource Studies within the Project Area

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Bass, Henry	Jun 1987	Negative Archaeological Survey Report for the Widening of State Route 99 & 70, Sutter County, California	Archaeological, Field Study	009287	Negative Survey
Bass, Henry O.	Apr 1983	Negative Archaeological Survey Report for the Proposed State Route 99 Expansion Project between Interstate 5 and Striplin Road	Archaeological, Field Study	001135	Negative Survey
Childers, Roberta and Anne King	Jun 2007	Environmental Assessment for the Natomas Cross Canal South Levee Phase 1 Improvements	Archaeological	008911	Negative Survey
Crawford, Kristina	Mar 2009	Archaeological Resources Reconnaissance Investigation at Seven Erosion Sites along the Sacramento and Feather Rivers in Colusa, Sacramento, and Sutter Counties, California	Archaeological, Evaluation, Field study, Management/ planning	010394	Negative Survey
Davis-King, Shelly	Jan 2014	Report to Assist in Due Diligence Analysis for the Proposed Acquisition of Assessor's Parcel Number 34-190-016 and -018, Sutter County, California	Archaeological, Management/ planning	013007	1 resource recorded
Deis, Richard	May 2010	Cultural Resources Inventory Report, Phase 4a: Natomas Levee Improvement Program Landside Improvements Project, Sacramento and Sutter Counties, California	Archaeological, Evaluation, Excavation, Field study	010916	4 resources recorded
Deitz, Frank	Nov 1998	Cultural Resources Assessment within Reclamation District 1001, Sutter County, California (SAC 14)	Archaeological, Field study	002986	1 resource recorded
Derr, Eleanor H.	Jun 2002	American Basin Fish Screen and Habitat Improvement Project, Feasibility Study: Alternative 1C, 2C, 3, Sacramento and Sutter Counties, California	Archaeological, Field study, Other research	006892	1 resource recorded
Farber, Alfred	Jun 1992	Archaeological Survey of the 364-Acre Verona Site Project Area, Sutter County, California	Archaeological, Field study	007174	1 resource recorded
Glover, Leslie C., and Paul D. Bouey	Oct 1990	Sacramento River Flood Control System Evaluation, Mid-Valley Area Cultural Resources Survey, Colusa, Sacramento, Sutter, Yolo, and Yuba Counties, California	Archaeological, Evaluation, Field study	001091	1 resource recorded

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Grant, Joanne	Aug 2007	Cultural Resources Report for Geotechnical Evaluations along the Natomas East Main Drainage Canal	Archaeological, Field study	008698	Negative Survey
Grant, Joanne	Nov 2006	Cultural Resources Evaluation for the Emergency Levee-Banks Repairs of Three (3) New Critical Erosion Sites, November 2006	Archaeological, Field study	008955	1 resource recorded
Grant, Joanne	Jul 2008	Cultural Resources Survey Report for the Urban Levee Project	Archaeological, Field study	009500	Negative Survey
Grant, Joanne	Jul 2008	Cultural Resources Baseline Literature Review for the Urban Levee Project	Literature search	009873	9 resources reviewed
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
Gross, Charlane	May 2007	Natomas Cross Canal South Levee Phase I Improvements Cultural Resources Survey Report Sutter County, California	Archaeological, Field study	008911	Negative Survey
Hoffman, Robin and Paul Zimmer	Dec 2016	Rodent Abatement and Damage Repair Activities Project, Archaeological Sensitivity Assessment, Butte, Glenn, and Sutter Counties, California	Literature search, Other research	013478	No Survey Performed
Holman, Miley Paul and Matthew Clark	Jun 1980	An Archaeological Reconnaissance of the Feather River Project Area: 718 Acre Proposed Feather River Sand and Gravel Quarry near the Town of Nicolaus, Sutter County, California	Archaeological, Field study	001133	1 resource recorded
Jewell, Donald P.	Aug 1958	Preliminary Report: Archeological Salvage Excavations of Two Sites (Sut-21 and Sut-22) On the Feather River Levee Near Nicolaus, California.	Archaeological, Excavation	001149	2 resources recorded
Jewell, Donald P. and John S. Clemmer	Aug 1985	Final Report: Archaeological Salvage Excavation of Two Sites (4 Sut 21 nd 4 Sut 22) on the Feather River Levee Near Nicolaus, California	Archaeological, Excavation	001149	See above
Johnson, Jerald Jay and Patti Johnson	Oct 1974	Cultural Resources Along the Sacramento River from Keswick Dam to Sacramento	Other research	001137	Multiple sites reviewed
JRP Historical Consulting Services	Nov 1994	Historic Resource Evaluation Report of the Northern Electric (Sacramento Northern) Railroad	Architectural/ Historical, Evaluation	007587	2 resources recorded

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Leach-Palm, Laura, Pat Mikkelsen, Paul Brandy, Jay King, and Lindsay Hartman	Jun 2008	Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways in Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Sacramento, Sierra, Sutter, Yolo and Yuba Counties	Archaeological, Field study	009539	119 sites recorded
Maniery, James G.	Feb 1989	Cultural Resources Inventory of Structural Section Repair and Rehabilitation for Sutter 99 (P.M. 9.3-11.98 - HA22), Sutter County, California	Archaeological, Field study	007171	Negative Survey
Martinez, Amanda L. and Nancy E. Sikes	Sep 2008	Cultural Resources Survey for the Levee Repair Project at 20 Locations in Colusa, Sacramento, Sutter, Tehama, and Yolo Counties, California	Archaeological, Field study	009874	Negative Survey
Millet, Marshall	Dec 2008	Cultural Resources Constraints Study for the Replacement of Wood Poles of PG&E High Voltage Transmission Lines, PAR Reference #08-8015	Archaeological, Field study	010558	13 resources recorded
Nilsson, Elena, Jerald J. Johnson, Michael S. Kelly, Russell Bevill, Amy Huberland, Mark Hale, and Margaret E. Scully	Nov 1994	Archaeological Inventory Report, Natomas Locality, Cultural Resources Inventory and Evaluation, American River Watershed Investigation, El Dorado, Placer, Sacramento, and Sutter Counties, California	Archaeological, Field study	005777	2 resources recorded
Noble, Daryl G., Janis Offermann, and Jeff Haney	Sep 2001	Negative Archaeological Survey Report, State Routes 99/70 Split to O'Bannion Road, Sutter County, California	Archaeological, Field study	004959	Negative Survey
Offermann, Janis and Daryl Noble	Oct 1992	Negative Archaeological Survey Report for the Proposed Widening of Bridge #18-26 on State Route 99, Sutter County, California	Archaeological, Field study	007585	Negative Survey
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
Sharp, Jessica	Jun 2016	Cultural Resources Survey Report for NRCS Project #15FY51-0013: Nguyen Proposed Irrigation System, Sutter County, California	Archaeological, Field study	013937	Negative Survey
St. John, Gail	Jul 2007	A Supplemental Historic Property Survey Report for Proposed Improvements to State Highway 99, Sutter County, California	Archaeological, Evaluation, Field study	013974	2 resources recorded
Stoll, M. and S. Thompson	Jan 1961	Report on the Archaeological Survey of the Bear River	Archaeological, Field study	007586	2 resources recorded

Author(s)	Date	Report Title	Study Type	IC File No.	Results
Tibbetts, Deborah and Blossom Hamusek	Oct 1991	A Cultural Resource Survey of the Wise Property General Plan Amendment and Zone Change, Sutter County, California	Archaeological, Field study	007584	Negative Survey
True, D.L.	n/a	Archaeological Investigation of a 2.45 acre Parcel near Verona, Sutter County, California	Archaeological, Field study	001143	Negative Survey
Werner, Roger H.	Oct 1988	Cultural Resources Inventory and Evaluation, Sacramento River Bank Protection Project, Units 42 and 43	Archaeological, Field study	007172	Negative Survey
Wilson, Kenneth L.	Sep 1978	Sacramento River Bank Protection Unit 34 Cultural Resources Survey Final Report	Archaeological, Field study	001141	1 resource recorded
Windmiller, Ric	Apr 2007	Scheiber Parcel Split Archaeological Resources Inventory & Evaluation Nicolaus Vicinity, Sutter County, California	Archaeological, Field study	009208	1 resource recorded

Appendix 1, Table 2: Previous Cultural Resource Studies within the 0.25 mile Search Radius

Author(s)	Date	Report Title	Study Type	IC File No.	Results
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	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
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
Joanne S. Grant	Jul 2008	Cultural Resources Survey for the Urban Levee Project	Archaeological, Field study	009423	Negative Survey
Jones & Stokes	Nov 2003	Cultural Resources Inventory and Evaluation Report for the Yuba-Feather Supplemental Flood Control Project, Yuba County, California	Archaeological, Evaluation, Field study	006014	10 resources recorded
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
M. Stoll and S. Thompson	Jan 1960	Report on the Archeological Survey of the Bear River	Archaeological, Field study	000511	8 resources recorded