DRAFT

Environmental Impact Report for the Tudor Flood Risk Reduction Project

SCH #2023010087

Lead Agency:

Sutter Butte Flood Control Agency
Post Office Box M
Yuba City, California 95992

May 2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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TUDOR FLOOD RISK REDUCTION PROJECT

DRAFT
ENVIRONMENTAL IMPACT REPORT

May 2023

State Clearinghouse #2023010087

Prepared for:

Sutter Butte Flood Control Agency
Post Office Box M
Yuba City, California 95992

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
°F	degrees Fahrenheit
µg/m^3	Micrograms Per Cubic Meter
2021 AQAP	*Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan*
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
AEP	Annual Exceedance Probability
AF	Acre-Feet
AG-80	Agricultural
ANS	Aquatic Nuisance Species
ANSI	American National Standards Institute
APE	Area of Potential Effects
AQAP	Air Quality Attainment Plan
ARD	Aquatic Resources Delineation
ATCM	Airborne Toxics Control Measure
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
Basin Plan	*Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin*
BCC	Birds of Conservation Concern
BERD	Built Environment Resource Directory
BIOS	Biogeographic Information and Observation System
BMPs	Best Management Practices
BO	Biological Opinion
BP	Before Present
BRA	Biological Resources Assessment
BTA	Burial Treatment Agreement
CAA	Clean Air Act

Acronym	Definition
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	Methane
CHL	California Historical Landmark
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIWM	California Integrated Waste Management
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
cy	Cubic Yards
dB	Decibel
dBA	A-weighted
Delta	Sacramento–San Joaquin River Delta
DMR	Division of Mine Reclamation
DOC	Department of Conservation
DOT	Department of Transportation
DPM	Diesel Particulate Matter

Acronym	Definition
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
DWSE	Design Water Surface Elevation
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
EPS	Emissions Performance Standard
ESA	Endangered Species Act
ETL	Engineering Technical Letter
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FHSZ	Fire Hazard Severity Zones
FIRM	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FR	Federal Register
FRAQMD	Feather River Air Quality Management District
FRRFMP	Feather River Regional Flood Management Plan
FRWL	Feather River West Levee
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GLO	General Land Office
GSAs	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
HMMH	Harris Miller, Miller & Hanson Inc.
HSC	Health and Safety Code
HUC	Hydrologic Unit Code
ICF	Institute for Canine Forensics
IEPR	Integrated Energy Policy Report
IPCC	Intergovernmental Panel on Climate Change
IWMP	Integrated Waste Management Plans
kWh	kilowatt-hours
LD	Levee District
L_{dn}	Day-Night Average
L_{eq}	Equivalent Noise Level
LID	Low Impact Development
LOS	Level of Service
LPG	Liquid Propane Gas
LRAs	Local Responsibility Areas
MA	Maintenance Areas
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Levels

Acronym	Definition
MEP	Maximum Extent Practicable
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MS4	Municipal Stormwater
MWh	Megawatt Hour
MTP	Metropolitan Transportation Plan
N_2O	Nitrous Oxide
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEIC	Northeast Information Center
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSF	National Science Foundation
NSVAB	Northern Sacramento Valley Air Basin
NTR	National Toxics Rule
NWP	Nation-Wide Permit
O_3	Ozone
O&M	Operations and Management
OES	Office of Emergency Services
OHWM	Ordinary High-Water Mark
OPR	Office of Planning and Research
OS	Open Space
OSHA	Occupational Safety and Health Administration
OWTS	On-Site Wastewater Treatment Systems
PCBs	Polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
PHS	Public Health and Safety
PM	Particulate Matter
$PM_{2.5}$	Fine Particulate Matter

Acronym	Definition
PM_{10}	Particulate Matter
POTW	Publicly Owned Treatment Works
ppm	Parts Per Million
PPMP	Pollution Prevention Monitoring Plan
PPV	Peak Particle Velocity
Project, or Proposed Project	Tudor Flood Risk Reduction Project
PRC	Public Resources Code
RCEM	Road Construction Emissions Model
RCRA	Resource Conservation and Recovery Act
RMS	Root Mean Square
ROGs	Reactive Organic Gases
RSP	Rock slope protection
RPS	Renewables Portfolio Standard
RV	Recreational Vehicle
RWMA	Regional Waste Management Authority
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Application
SACOG	Sacramento Area Council of Governments
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SBEL	Sutter Bypass East Levee
SBFCA	Sutter Butte Flood Control Agency
SCS	Sustainable Communities Strategy
SCSOS	Sutter County Superintendent of Schools Office
SDWA	Safe Drinking Water Act
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SO_2	Sulfur Dioxide
SR 99	State Route 99
SRAs	State Responsibility Areas
SRFCP	Sacramento River Flood Control Project
SRRE	Source Reduction and Recycling Elements
SRWP	Sacramento River Watershed Program
SSC	Species of Special Concern
STC	Sound Transmission Class
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
SWIF	System-Wide Improvement Framework
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
T-BACT	Toxics Best Available Control Technology
TCPs	Traditional Cultural Properties
TCRs	Tribal Cultural Resources

Acronym	Definition
TDS	Total Dissolved Solids
TFRRP	Tudor Flood Risk Reduction Plan
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
UAIC	United Auburn Indian Community
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
ULDC	Urban Levee Design Criteria
USDA	U.S. Department of Agriculture
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
WDR	Waste Discharge Requirements
WEAL	Western Electro-Acoustic Laboratory, Inc.
WEAP	Worker Environmental Awareness Program
YCWA	Yuba County Water Agency

SECTION 1 EXECUTIVE SUMMARY

1.1 Introduction

This EIR chapter provides a summary description of the Project, a list of associated environmental issues to be resolved, a summary of significant impacts and mitigation measures, and a summary of alternatives to the Project (pursuant to CEQA Guidelines Section 15123, Summary).

1.2 Project Location and Setting

The Proposed Project would involve making improvements to an approximately 1.65-mile segment of the Feather River West Levee (FRWL) in Sutter County near where the Feather River meets the Sutter Bypass. Construction activities for the Proposed Project would extend from the Sutter Bypass East Levee on the west end (latitude 38°53'54.68" N, longitude 121°37'04.54" W), to Sacramento Avenue, which is approximately 870 feet east of State Route 99, on the east end (latitude 38°54'28.37" N, longitude 121°35'22.28" W). The west end of the Proposed Project alignment is approximately 7.4 miles south of the Community of Tudor, and the east end of the alignment is approximately 0.6-mile northwest of the Census-designated place of Nicolaus.

The levee landside is bound by an irrigation canal and orchards owned and operated by Odysseus Farms, and the waterside is bound by the Nelson Slough Unit of the Feather River Wildlife Area, which is open space owned and maintained by the California Department of Fish and Wildlife (CDFW). This portion of the FRWL is operated and maintained by MA3. Land use in the area is predominantly agricultural, though several recreation areas are also nearby.

The regional setting of the Proposed Project is the Sacramento River Flood Control Project (SRFCP), which extends from Redding to the Sacramento-San Joaquin River Delta (Figure 1-1). The Sutter Basin is part of the SRFCP, located in north-central California in Sutter and Butte counties. The elongated, irregularly shaped basin covers about 326 square miles and is about 44 miles long north to south and up to 14 miles wide east to west. It is roughly bounded by the Feather River to the east, and Cherokee Canal, the Sutter Buttes, and Sutter Bypass to the west. Floodwater potentially threatening the basin originates from the Feather River watershed or the upper Sacramento River watershed, above Colusa Weir. These waterways have drainage areas of 5,921 and 12,090 square miles, respectively. In addition to Yuba City, communities in the basin include Biggs, Gridley, Live Oak, Tudor, and Sutter.

1.3 Description of Proposed Project

The Proposed Project would make several improvements to the existing levee, primarily to address seepage under the levee. This would involve removing roughly the top third of the levee embankment, excavating a 38- to 64-foot-deep trench down the center of the levee, and filling it with a bentonite slurry mix that would harden to form a cutoff wall to block the seepage. After installation of the cutoff wall and the appropriate cutoff wall settlement period (typically 21 days), the levee embankment would be reconstructed to its original lines and grades. The reconstructed embankment would include a 6- to 8-foot-wide clay core. Generally, the levee crown would be 20 feet in width

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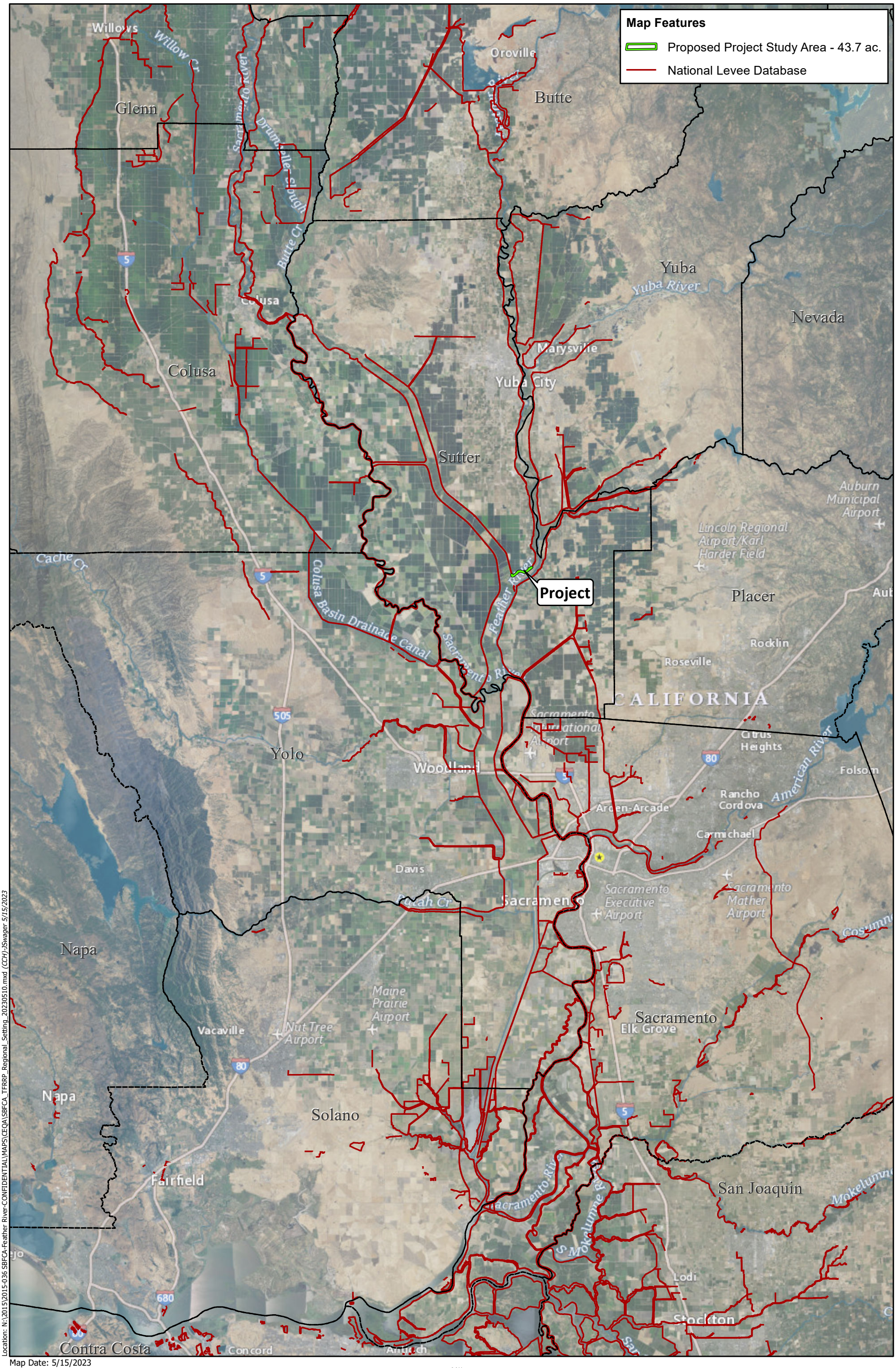

Location: N:\2015\2015-036 SBFCA-Feather River-CONFIDENTIAL\MAPS\CEQA\SBFCA_TFRRP_Regional_Setting_20230510.mxd (CCH)-JSwager 5/15/2023

Map Date: 5/15/2023

Sources: ESRI, USGS, USACE, HDR

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Figure 1-1. Regional Setting

2015-036.11 Tudor Flood Risk Reduction Project

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The Project Area for the Proposed Project is defined as a corridor along the levee segment that is approximately 1.65 miles long and 200 feet wide, for a total of approximately 43.7 acres. All work planned for the Proposed Project would be conducted within the Project Area.

1.4 Project Alternatives

1.4.1 Alternative 1: No Project Alternative

In general, the No Project Alternative consists of continuation of current conditions and practices that would be reasonably expected to occur in the foreseeable future if the Proposed Project were not implemented. The levee segment would not be improved, and current seepage under it would continue indefinitely, and possibly lead to levee failure during a flooding event, which could lead to extensive damage and possible loss of life.

1.4.2 Other Alternatives Considered by Rejected:

Because it is the last levee segment along the FRWL requiring improvements to meet current engineering standards, the only other potential Alternative to constructing the Proposed Project would be to demolish the existing levee segment and construct a new levee on or adjacent to the existing site. This Alternative would involve demolition of the entire existing levee and construction of a new levee within the Project Area. All materials from the existing levee would be removed and evaluated for reuse in the new construction, and new materials would be delivered to the Project Area as needed for construction of the new levee.

All Project objectives would be met under this Alternative. However, because installation of the new cutoff wall into the existing levee would resolve the seepage through the levee, complete demolition of the existing levee and construction of a new levee on or adjacent to the existing levee site would not offer additional benefit compared to the Proposed Project. In addition, this Alternative would significantly expand the area of disturbance created by the Project because of the need to stockpile and ultimately dispose of the spoils created by demolition that could not be reused, and would increase the need for use of heavy equipment to remove, stockpile and dispose of existing levee materials. If not constructed on the exact site of the existing levee, this Alternative would also have potential for creating additional impacts to biological and cultural resources compared to the Proposed Project. Demolishing the existing levee and constructing a new one would also be considerably more expensive than the Proposed Project, which would remove only the top 30 percent of the existing levee and install a new cutoff wall. Therefore, this Alternative is considered economically infeasible, and would increase the potential for impact to the environment, and therefore is not considered further in this EIR.

1.4.3 Environmentally Superior Alternative

Alternative 1 (No Project Alternative) would result in the least direct environmental impacts because no construction would occur, but it could result in severe indirect impacts due to an increased risk for flooding in the area. Compared to other alternatives considered but rejected, the Proposed Project would result in reduced ground disturbance and therefore lower impacts on biological resources, cultural

resources, geology and soils, and hydrology and water quality compared to the alternative considered but rejected. Therefore, the Proposed Project is the Environmentally Superior Alternative.

1.5 Environmental Issues

As required by the CEQA Guidelines, this EIR addresses the following areas of potential environmental impact or controversy known to the Lead Agency (SBFCA), including those issues and concerns identified by other agencies during circulation of the NOP for this EIR. These environmental concerns relate to the following topics (listed in the order that they are addressed in this EIR):

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

1.6 Summary of Impacts and Mitigation Measures

For each of the environmental topics listed above, any potentially significant project or cumulative impact and associated mitigation measure or measures identified in this EIR are summarized in Table 2-1. More detailed impact discussions are contained in Chapter 4 of this EIR. These mitigation measures are subject to change as the needed permits are obtained from federal agencies. All final mitigation measures will be included in the Mitigation Monitoring and Reporting Plan that will be prepared and approved by SBFCA prior to commencing construction of the project.

The chart is arranged in four columns: (1) identified impacts; (2) level of significance without mitigation; (3) recommended mitigation measures; and (4) the level of impact significance after implementation of the mitigation measure(s).

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
NI = No Impact, LTS = Less than Significant, S = Significant, SU = Significant and Unavoidable, LLC = Less than Cumulatively Considerable, CC = Cumulatively Considerable, NA = Not applicable			
Aesthetics			
Impact 4.1-1 Implementation of the proposed Project would have a substantial adverse effect on a scenic vista.	NI	NA	NI
Impact 4.1-2 Implementation of the proposed Project would substantially damage scenic resources.	NI	NA	NII
Impact 4.1-3 Implementation of the proposed Project would substantially degrade the existing visual character or quality of public views of the site or its surroundings.	NI	NA	NA

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Impact 4.1-4 Implementation of the proposed Project would create a new source of substantial light or glare which would adversely affect day or nighttime views of the area.	S	**AES-1: Lighting.** To the maximum extent feasible, Project lighting shall be directed and shielded to focus illumination on the desired areas only and avoid directing light into adjacent areas. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **AES-2: Implement a Community Outreach Program.** SBFCA will provide advance public notification to residents located within a 1-mile radius to the Project regarding planned construction activities, including activities that must be performed at night or on weekends. Mail and, where feasible, emails to nearby residents shall be sent notifying them of unavoidable nighttime or weekend construction activities each year prior to construction.. *Timing/Implementation: This measure shall be implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	LTS
Impact 4.1-5 Result in a considerable contribution to cumulative impacts on scenic vistas.	LTS	NA	LTS
Agriculture and Forestry Resources			
Impact 4.2-1: Implementation of the proposed Project would result in conversion of farmland to non-agricultural use.	NI	NA	NI
Impact 4.2-2: Implementation of the proposed Project would conflict with existing zoning for agricultural use, or a Williamson Act contract.	NI	NA	NI
Impact 4.2-3: Implementation of the proposed Project would impact forestry resources.	NI	NA	NI

Table ES-1. Summary of Impacts and Mitigation Measures			
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Air Quality			
Impact 4.3-1 Implementation of the proposed Project would conflict with or obstruct implementation of applicable air quality plan.	S	**AIR-1: CARB Tier 4 Certified Equipment** The Project applicant and/or its contractor shall require that all Project off-road equipment used during construction activities be CARB Tier 4 Certified, as set forth in Section 2423 of Title 13 of the CCR, and Part 89 of Title 40 of the Code of Federal Regulations (CFR). The Project applicant and/or its contractor shall require that all Project haul trucks entering and leaving the Project Site are Model Year 2010 or newer. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead*.	LTS
Impact 4.3-2 Implementation of the proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard.	S	Implementation of **AIR-1** will be required.	LTS
Impact 4.3-3 Implementation of the proposed Project would expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs).	LTS	NA	LTS
Impact 4.3-4 Implementation of the proposed Project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	NI	NA	NI

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Impact 4.3-5 Implementation of the proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard.	S	Implementation of **AIR-1** will be required.	LTS
Biological Resources			
Impact 4.4-1 Implementation of the proposed Project would 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 Wildlife or U.S. Fish and Wildlife Service.	S	**BIO-1: The Project will implement erosion control measures and Best Management Practices (BMPs) to reduce the potential for sediment or pollutants at the Project site.** Measures shall include: • Erosion control measures will be placed between aquatic resources, and the outer edge of the staging areas, within an area identified with highly visible markers (e.g., construction fencing, flagging, silt barriers) prior to commencement of construction activities. Such identification and erosion control measures will be properly maintained until construction is completed and the soils have been stabilized. • Fiber rolls used for erosion control will be certified by the California Department of Food and Agriculture as weed free. • Seed mixtures applied for erosion control will not contain California Invasive Plant Council designated invasive species (http://cal-ipc.org/) and will be composed of native species appropriate for the site. • Trash generated onsite will be promptly and properly removed from the site. • Any fueling in the upland portion of the Project Area will use appropriate secondary containment techniques to prevent spills. • A qualified biologist will conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel on the potential for special status species to occur on the Project site. The training will provide an overview of habitat and characteristics of the species, the need to avoid certain areas, and the possible penalties for non-compliance. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented at all times during construction*.	LTS

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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		Monitoring/Enforcement: SBFCA and Project construction lead. **PLANT-1: Preconstruction floristic surveys shall be conducted for any areas of vegetation removal in the Project Area with the potential to support habitat for Boggs-lake hedge hyssop, woolly-rose mallow, Sanford's arrowhead, or Suisun marsh aster.** The area of ground disturbance and a 25-foot buffer would be surveyed by a qualified biologist during the appropriate blooming period prior to the start of Project activities. If no special status species are found during the preconstruction surveys, no further measures are necessary. If surveys identify any special-status plants, the Project Proponent shall identify them with flagging and avoid them with a 25-foot no-disturbance buffer during Project activities. If this avoidance is not feasible, the Project Proponent shall consult with CDFW to determine whether alternative avoidance measures that are equally protective are possible. *Timing/Implementation: This measure shall be implemented prior to construction. Any avoided areas will be printed on construction plan sets and avoidance implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **FISH-1: To avoid and minimize potential adverse effects to listed and special status fish species,** the following shall be implemented: • Minimize the removal of riparian and aquatic vegetation. • Deploy measures, as practicable, to reduce sediment resuspension such as a turbidity curtain. • In-water Project activities will require de-watering of surrounding area (if water is present), and a fish rescue/relocation effort completed by a qualified fisheries biologist. • A qualified fisheries biologist should perform a fish exclusion from the in-water construction footprint using seines, if necessary. • If the Project requires pouring concrete, avoid allowing wet uncured concrete to contact surface water, and conduct water quality monitoring to ensure that the wet concrete is not affecting the pH of the surface water. *Timing/Implementation: This measure shall be implemented during any in-water construction. Any avoided areas will be printed on construction plan sets and avoidance implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead*	

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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		NPT-1: Conduct a pre-construction survey for northwestern pond turtle and their nests 48 hours prior to construction activities. Any northwestern pond turtle individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found. *Timing/Implementation: Surveys shall be conducted within 48 hours prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **GGS-1: Prior to the start of ground-disturbing activities in areas considered potential habitat for giant garter snake, a qualified biologist shall conduct a preconstruction survey.** This survey shall be conducted within 48 hours prior to the start of ground disturbing activities. If a giant garter snake is found, the biologist shall allow the animal to leave on its own volition. Coverage from USFWS under Sections 7 or 10 of the ESA will be required for any impacts to giant garter snake and/or their habitat. In addition, take coverage from CDFW under Section 2081 of the California Fish and Game Code will be required for any impacts to giant garter snake and/or its habitat. *Timing/Implementation: Surveys shall be conducted within 48 hours prior to construction. Coverage under USFWS Section 7, and CDFW Section 2081 shall be obtained prior to the start of construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **BIRD-1: To protect nesting birds, no Project activity shall begin from February 1 through August 31 unless the following surveys are completed by a qualified wildlife biologist.** Separate surveys and avoidance requirements are listed below for all nesting birds and raptors, including bald eagle, and Swainson's hawk. • All Nesting Birds (Non-raptors) – If Project construction begins during February 1 through August 31, a qualified biologist will perform a preconstruction nesting bird survey within 7 days prior to construction (or less if recommended by CDFW), within the Project work area and a 100-foot radius. If any active nests are observed, these nests shall be designated a sensitive area and	

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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		protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. • Raptors – If Project construction begins during February 1 through August 31, a qualified biologist will perform a preconstruction nesting raptor survey within 7 days prior to construction (or less if recommended by CDFW), within the Project work area and a 500-foot radius. If any active raptor nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. • Burrowing Owl – A qualified wildlife biologist shall survey for burrowing owl within the Project work area and a 250-foot radius of the Project work area within 7 days prior to starting Project activities. Surveys shall be conducted at appropriate times (dawn or dusk) to maximize detection. If any occupied burrows are observed, these burrows shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW. Consult with CDFW to develop avoidance and minimization measures, which could include preparing and implementing a passive relocation plan. • Swainson's Hawk – If Project construction begins during March 1 through August 31, a qualified biologist will perform a preconstruction nesting Swainson's hawk survey within 7 days prior to construction (or less if recommended by CDFW), within the Project work area and a 0.25-mile radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. To protect potentially nesting yellow-billed cuckoo, the following is recommended: • To encourage yellow-billed cuckoos to choose nesting sites away from construction activities, crews will make every effort possible to begin construction activities within 500 feet of suitable habitat before the start of the	

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		breeding season (i.e., before May 31). • If construction activities occur during the yellow-billed cuckoo nesting season (June 1 to September 30) and if it is anticipated that construction-related disturbances within 500 feet of suitable habitat cannot be avoided, protocol surveys for yellow-billed cuckoo will be conducted. Surveys will follow the latest version of A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo (Halterman et al. 2016). • Biologists will coordinate with the USFWS and CDFW prior to conducting surveys. Survey methods and results will be reported to the USFWS and CDFW at the conclusion of the surveys. If cuckoos are detected during surveys, the nest or general location, will be mapped by the biologists and a 500-foot buffer will be established, or other distance as approved by the USFWS and CDFW, no-disturbance buffer between construction activities and the area identified. The no-disturbance buffer will be maintained until it has been determined by a qualified biologist that young have fledged or the nest is no longer active. • If removal of vegetation identified as suitable habitat is proposed, consultation with USFWS may be required. Through the CWA Section 404 and/or 408 Permit, request the USACE initiate ESA Section 7 Consultation with USFWS, if necessary, on the Project effects to ESA-listed yellow-billed cuckoo. *Timing/Implementation: Surveys shall be conducted within 7 days prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **MAM-1: A qualified biologist will conduct a bat habitat assessment for suitable roosting habitat prior to any construction activities.** The habitat assessment should be conducted at least one year prior to the initiation of construction activities. If no suitable roosting habitat is identified, no further measures are necessary. If suitable roosting habitat and/or signs of bat use is identified during the assessment, the roosting habitat should be avoided to the extent possible, and the following shall be implemented: • If suitable roosting habitat and/or signs of bat use is identified in a tree or other habitat structure that much be removed, a qualified biologist shall prepare a Bat Management Plan for CDFW's review. The Plan shall	

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		identify methods for determining occupation of the roosting habitat by special-status bats (e.g., acoustic monitoring, evening emergence surveys). If an active bat roost is found, a plan for passive exclusion of bats from the roost will be prepared for CDFW's review. Exclusion shall be scheduled either (1) between approximately March 1 (or when evening temperatures are above 45 degrees Fahrenheit [°F] and rainfall less than 0.5 inch in 24 hours occurs) and April 15, prior to parturition of pups; or (2) between September 1 and October 15 (or prior to evening temperatures dropping below 45°F and onset of rainfall greater than 0.5 inch in 24 hours). The qualified biologist shall monitor the roost prior to exclusion to confirm that it does not support a maternity colony. If a maternity colony is or may be present, the roost shall be avoided until it is no longer active, or until the qualified biologist can confirm that no maternity colony is present. *Timing/Implementation: Habitat assessment shall be conducted within one year prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	
Impact 4.4-2 Implementation of the proposed Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	S	**RIP-1: A Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, must be obtained for any activity that will impact riparian habitats and/or bed and bank features.** Minimization measures will be developed during consultation with CDFW as part of the SAA agreement process to ensure protections for affected fish and wildlife resources. If applicable, compensatory mitigation may be required for removal of riparian vegetation. *Timing/Implementation: The SAA from CDFW shall be obtained prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	LTS

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Impact 4.4-3: Implementation of the proposed Project would 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.	S	**WTR-1:** To avoid or minimize anticipated short-term adverse effects to Waters of the U.S., the following shall be implemented: • The removal and replacement of the outfall has potential to discharge into Waters of the U.S., a Nation-Wide Permit (NWP), potentially NWP 3, under Section 404 of the federal CWA must be obtained from USACE. The impacts from such actions are expected to be mostly temporary, with minimal, if any, permanent impacts to aquatic resources. • A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions. • Waste Discharge Requirement for dredge and fill in Waters of the State under the Porter-Cologne Water Control Act as issued by RWQCB must be obtained for impacts to waters of the state. *Timing/Implementation: Permit authorizations from the USACE and RWQCB shall be obtained prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead*	LTS
Impact 4.4-4 Implementation of the proposed Project would 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.	S	Implementation of Mitigation Measures **BIO-1**, and **BIRD-1** will be required.	LTS
Impact 4.4-5 Implementation of the proposed Project would conflict with any local policies or Ordinances protecting biological resources, such as a tree preservation policy or Ordinance.	LTS	NA	LTS

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Impact 4.4-6 Implementation of the proposed Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	NI	NA	NI
Impact 4.4-7 Result in a considerable contribution to cumulative impacts on biological resources.	S	Implementation of Mitigation Measures **BIO-1, PLANT-1, FISH-1, NPT-1, GGS-1, BIRD-1, MAM-1, RIP-1**, and **WTR-1** will be required.	LTS
Cultural Resources			
Impact 4.5-1 Implementation of the proposed Project would cause a substantial adverse change in the significance of a historic resource pursuant to CEQA Guidelines section 15064.5.	S	**CUL-1: Archaeological Monitoring** Prior to and during ground-disturbing construction, SBFCA will take the following actions in the event of inadvertent discovery of cultural resources. • All ground-disturbing work will be monitored by a qualified professional archaeologist. The monitors' tasks will include observing the active excavation of materials, as well as periodically checking excavated substrate and ensuring the respectful and culturally-appropriate treatment of finds. The monitor will be provided sufficient workspace and an unobstructed view of excavations. SBFCA will authorize the archaeological monitor to pause construction within an area up to 100 feet radius, through the construction manager, periodically as needed for a closer examination of exposed sediments and/or artifacts and the monitor shall implement CUL-2, if necessary. The monitor will record their daily observations on a standard field form. • The requirements for a monitor should be inclusive of all day and night construction activity that has the potential to result in ground disturbance. Ground-disturbing activity is defined herein as any activities that have the potential to disturb soil beyond that which was reasonably visible to archaeologists during the pre-Project pedestrian survey. This includes initial vegetation removal; grading; trenching; if such activity will bring soil to the surface, excavation for below-ground utility installation or foundation work; and any	LTS

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		other below-ground activities. Monitoring is not necessary for backfilling of previously excavated areas, levee reconstruction, or for any aboveground Project activity that does not include ground disturbance. Monitoring shall be documented daily with photographs and logs and the results compiled in a report submitted by the qualified archaeological monitor at the conclusion of monitoring activities. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **CUL-2: Post-Review Discoveries** The monitoring archaeologist shall be responsible for taking into account any Tribal recommendations when making the following decisions. • If the monitoring archaeologist determines that the find is not a cultural resource (such as water-worn cobbles or accumulations of natural materials), no additional action is necessary. Should Tribal representatives desire to take possession of those materials, they may do so as long as the possession is documented by the archaeological monitor and as long as removal has been approved in writing by the property owner; however, taking possession does not obligate SBFCA or the USACE to provide financial support for storing, processing, or reburying materials that are not cultural resources. Until a determination is made by the monitoring archaeologist about whether or not the find is subject to further consideration under CEQA and Section 106, Tribal representatives shall not remove or take possession of materials or objects observed. • If the find is determined by the monitoring archaeologist to be redeposited material that lacks primary context, is discovered only in the excavated soils, spoil piles, or stockpiles, or is otherwise not in its original context or place of deposition and does not contain human remains, this discovery is not potentially eligible for the NRHP or CRHR. The archaeological monitor will assign a temporary field number, take a photograph, record its location with a Global Positioning System receiver, and describe the constituents in field notes. If the redeposited find is associated with European or non-Native American culture, the find may be left in place or discarded in order to not interfere with Project activities. If the find is associated with Native American culture, following consultation with the lead agencies,	

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		should Tribal representatives desire to take possession of those materials or act in any manner consistent with the Tribal cultural resources treatment plan, they may do so as long as the possession is documented by the archaeological monitor and as long as permission has been granted in writing by the property owner. However, taking possession does not obligate SBFCA or the USACE to provide financial support for storing, processing, or reburying materials that are not eligible for the NRHP or CRHR. If the find was made in spoil piles and stockpiles, the material may be reused by the Project and returned to the levee and will not be subject to screening; however, tribal representatives may take possession of any items found in spoils as long as doing so does not interfere with the Project activities. • If a Tribal representative disagrees with the determination by the monitoring archaeologist that a discovery is either not a cultural resource or represents a redeposit, no material collection may occur by any party, and the Tribal Historic Preservation Officer (THPO) of the dissenting tribe shall notify the USACE and SBFCA within 48 hours of discovery. All timelines specified in 36 CFR 800.13(b) shall be applied in the event of an archaeological discovery. The USACE will review information submitted by the THPO and communicate its decision to the THPO and SHPO, in accordance with 36 CFR 800.13(b). If the contractor denies the request to stop work at that location during the appeal process (see above), and if the USACE determines that the find does represent an historic property, the USACE and SBFCA will take into consideration the post-discovery impacts to the resource when determining the scope of the effort required to resolve any adverse effect. • If the find is determined by the monitoring archaeologist to be in original context (in original place of deposition) and does not contain human remains, and that it constitutes a resource that could not have been discovered prior to construction, the USACE and SBFCA shall consult on appropriate treatment, in consultation with Tribal representatives, pursuant to 36 CFR Section 800.13(b) and CEQA, respectively. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	

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Impact 4.5-2 Implementation of the proposed Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.	S	Implementation of Mitigation Measures **CUL-1** and **CUL-2** will be required.	LTS
Impact 4.5-3 Implementation of the proposed Project would disturb any human remains, including those interred outsides of formal cemeteries.	S	**TCR-6: Human Remains** (See TCR section below)	LTS
Impact 4.5-5 Result in a considerable contribution to cumulative impacts on cultural resources.	S	Implementation of Mitigation Measures **CUL-1, CUL-2,** and **TCR-6** will be required.	LTS
Energy			
Impact 4.6-1 Implementation of the proposed Project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. Impact Determination: *less than significant*	LTS	NA	LTS
Impact 4.6-2 Implementation of the proposed Project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	NI	NA	NI
Impact 4.6-3 Result in a considerable contribution to cumulative impacts on energy consumption.	LTS	NA	LTS

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Geology and Soils			
Impact 4.7-1 Implementation of the proposed Project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides.	LTS	NA	LTS
Impact 4.7-2 Implementation of the proposed Project would result in substantial soil erosion or the loss of topsoil.	LTS	NA	LTS
Impact 4.7-3 Implementation of the proposed Project would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse.	LTS	NA	LTS
Impact 4.7-4 Implementation of the proposed Project would be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property.	NI	NA	NI
Impact 4.7-5 Implementation of the proposed Project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	NI	NA	NI

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Impact 4.7-6 Implementation of the proposed Project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	S	**GEO-1: Unanticipated Discovery of Paleontological Resources** If paleontological or other geologically sensitive resources are identified during any phase of Project development, the construction manager shall cease operation at the site of the discovery and immediately notify SBFCA. SBFCA shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the SBFCA shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, Project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project site while mitigation for paleontological resources is carried out. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	LTS
Impact 4.7-7 Result in a considerable contribution to cumulative impacts on geology and soils.	LTS	NA	LTS
Greenhouse Gas Emissions			
Impact 4.8-1 Implementation of the proposed Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	NA	LTS
Impact 4.8-2 Implementation of the proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	NI	NA	NI

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Impact 4.8-3 Result in a considerable contribution to cumulative impacts associated with greenhouse gas emissions.	LTS	NA	LTS
Hazards and Hazardous Materials			
Impact 4.9-1 Implementation of the proposed Project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	S	**HAZ-1: Avoid Feather River** Vehicles shall be moved away from the Feather River prior to refueling and lubrication, as well as for conducting repairs, if feasible. Staging and storage areas for equipment, materials, fuels, and lubricants and solvents shall be located well away from the top of bank and riparian areas. Stationary equipment such as motors, pumps, generators, compressors, and welders located within or adjacent to Waters of the State shall be positioned over drip-pans. Debris, refuse, oil, gasoline or diesel fuel, or other petroleum products, or any other substances that could be hazardous to aquatic life resulting from Project activities shall be prevented from contaminating the soil and/or entering Waters of the State. Absorbent materials designated for spill containment shall be used for all activities performed in or within 50 feet of a watercourse that involve use of hazardous materials to be used for spill response and cleanup in the event of an accidental spill. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	LTS
Impact 4.9-2 Implementation of the proposed Project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	S	Mitigation Measure **HAZ-1** will be required.	LTS
Impact 4.9-3 Implementation of the proposed Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.	NI	NA	NI

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Impact 4.9-4 Implementation of the proposed Project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	NI	NA	NI
Impact 4.9-5 For a project located within an airport Land Use Plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, implementation of the Project would result in a safety hazard or excessive noise for people residing or working in or outside the Planning Area.	NI	NA	NI
Impact 4.9-4 Result in a considerable contribution to cumulative impacts associated with hazards and hazardous materials.	LTS	NA	LTS
Hydrology and Water Quality			
Impact 4.10-1 Implementation of the proposed Project would violate water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.	LTS	*NA*	LTS
Impact 4.10-2 Implementation of the proposed Project would substantially alter the existing drainage pattern of the Project area or vicinity, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.	LTS	NA	LTS

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Impact 4.10-3 Implementation of the proposed Project would risk release of pollutants in flood hazard, tsunami, or seiche zones, due to project inundation.	NI	NA	NI
Impact 4.10-4 Result in a considerable contribution to cumulative impacts on hydrology and water quality.	NI	NA	NI
Land Use and Planning			
Impact 4.11-1 Implementation of the proposed Project would physically divide an established community.	NI	NA	NI
Impact 4.11-2 Implementation of the proposed Project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	NI	NA	NI
Impact 4.11-4 Result in a considerable contribution to cumulative impacts on land use and planning.	NI	NA	NI
Mineral Resources			
Impact 4.12-1 Implementation of the proposed Project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	NI	NA	NI
Impact 4.12-2 Implementation of the proposed Project would result in the loss of availability of a	NI	NA	NI

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locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.			
Noise			
Impact 4.13-1 Implementation of the proposed Project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in in the local general plan or noise ordinance, or applicable standards of other agencies.	S	**NOI-1: Haul Truck Hours** The Project applicant and/or its contractor shall limit all Project construction haul trucks, including delivery trucks, to the daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays. All Project haul truck traffic on Sundays and holidays shall generally be prohibited unless permission has been applied for and granted by the County. *Timing/Implementation: During construction.* Monitoring/Enforcement: SBFCA and Project construction lead.	LTS
Impact 4.13-2 Implementation of the proposed Project would generate excessive groundborne vibration or groundborne noise levels.	LTS	NA	LTS
Impact 4.13-3 Implementation of the proposed Project would for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, expose people residing or working in the project area to excessive noise levels.	LTS	NA	LTS
Impact 4.13-4 Result in a considerable contribution to cumulative noise and vibration impacts.	S	Implementation of Mitigation Measure **NOI-1** would be required.	LTS

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Population and Housing			
Impact 4.14-1 Implementation of the proposed Project would induce substantial unplanned population growth either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).	LTS	NA	LTS
Impact 4.14-2 Implementation of the proposed Project would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	NI	NA	NI
Impact 4.14-3 Result in a considerable contribution to cumulative impacts on population and housing.	NI	NA	NI
Public Services			
Impact 4.15-1 Implementation of the Proposed Project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or substantial impacts to public service ratios.	LTS	NA	LTS
Impact 4.15-2 Result in a considerable contribution to cumulative impacts on fire protection and emergency medical services, police protection, schools, or libraries.	LTS	NA	LTS

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Recreation			
Impact 4.16-1 Implementation of the proposed Project would 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.	NI	NA	NI
Impact 4.16-2 Implementation of the proposed Project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	NI	NA	NI
Impact 4.16-3 Result in a considerable contribution to cumulative impacts on recreation.	NI	NA	NI
Transportation			
Impact 4.17-1 Implementation of the proposed Project would conflict with an applicable program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.	LTS	NA	LTS
Impact 4.17-2 Implementation of the proposed Project would result in a significant increase in vehicle miles traveled (VMT).	LTS	NA	LTS

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Impact 4.17-3 Implementation of the proposed Project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LTS	NA	LTS
Impact 4.17-4 Implementation of the proposed Project would result in inadequate emergency access.	S	**TRANS-1: Emergency Evacuations** All construction activities and truck traffic on area roadways shall cease during an event requiring emergency evacuations in Sutter or Yuba counties. *Timing/Implementation: This measure shall be printed on plans and implemented at all times during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.*	LTS
Impact 4.17-5 Result in a considerable contribution to cumulative impacts on transportation.	LTS	NA	LTS
Tribal Cultural Resources			
Impact 4.18-1 Implementation of the proposed Project would cause a substantial adverse change in the significance of a Tribal Cultural Resource.	S	**TCR-1: Geoarchaeological Profiling** After a Section 408 permit is obtained from the USACE, the tribe and project archaeologist shall expose and document the soil profiles within or adjacent to the levee prism. These profiles shall be exposed by equipment under the direction of a qualified geoarchaeologist in three to ten locations along the levee using auger tests or trenching, all of which would be monitored by tribal monitors. The location of these profiles shall be selected by the Tribe from areas within the Project Area that are approved for ground disturbance. The results of these tests shall inform the levels and locations of slow degrade and focused monitoring (TCR-4 and 6). If the geoarchaeological profiling does not reveal any evidence of cultural deposits, the slow degrade may not be necessary. The exposed soil may be retained on-site and may be reburied, at tribal request. *Timing/Implementation: Prior to construction.* *Monitoring/Enforcement: SBFCA.*	LTS

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		TCR-2: Develop a Burial Treatment Agreement In the event of the identification of Native American human remains and UAIC has been designated Most Likely Descendant (MLD) by the NAHC, SBFCA will develop a Burial Treatment Agreement (BTA) in consultation with the UAIC. The BTA will govern the disposition and treatment of all human remains, objects, and soil disturbed or removed from the Project Area. The BTA shall include provisions for reburial as close as possible to the original location from which they were obtained. Scientific handling, or testing will only be conducted if the tribe consents to such handling or testing and the USACE and SHPO do not object to such treatment. *Timing/Implementation: This measure shall be developed prior to construction.* *Monitoring/Enforcement: SBFCA.* **TCR-3: Cultural Sensitivity Training** All personnel involved in Project construction, including field consultants and construction workers, are required to undergo cultural resources and TCRs sensitivity and awareness training program through development and implementation of a Worker Environmental Awareness Program (WEAP). The WEAP will be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, as well as culturally affiliated Native American tribes. SBFCA shall invite a Native American representative from interested culturally affiliated Native American tribes to participate. The WEAP shall be conducted before any Project-related construction activities begin at the Project location. The WEAP will include relevant information regarding sensitive cultural resources and TCRs, including applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations. The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and TCRs that could be located at the Project Site and will outline what to do and who to contact if any potential cultural resources or TCRs are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented prior to construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-4: Tribal Monitoring**	

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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		All ground disturbing activity or activity that has the potential to disturb TCRs shall be monitored by a qualified tribal monitor representing a consulting tribe. This includes any fence installation, staging work, clearing and grubbing, and levee degrade. The monitor must be given a minimum of 7 days' notice of the opportunity to be present during these activities and may coordinate closely with the archaeological monitor, to observe work activities, and assist in ensuring that sensitive TCRs are not adversely affected. The monitor shall be given a reasonable opportunity to inspect soil and other material as work proceeds to assist in determining if resources significant to the tribes are present. If a potential tribal resource is identified by the monitor, they may pause or redirect work temporarily in order to closely inspect the potential discovery. If the tribe cannot recommend a monitor or if the tribal monitor does not report at the scheduled time, all work may continue as long as the specified notice of 7 days was provided. Recovery of cultural items, reburial preparation, and reburial shall also be conducted by Tribal Monitors. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-5: Discoveries** Any potential TCRs observed in any location will be subject to the decision process in CUL-2 and subsequent consultation between the monitoring tribe and the lead agencies to evaluate and, if necessary, treat the discovery of the satisfaction of the lead agencies. If the discovery includes human remains, then the procedures in TCR-7 shall apply. If the discovery is determined to not be a tribal cultural resources by UAIC but is determined by the consulting archaeologist or SBFCA to be a non-tribal cultural or archaeological resource, them the consulting archaeologist shall follow the procedures therein and as generally described in CUL-2 without further involvement by the tribal monitors or tribe(s). SBFCA shall consult with USACE on appropriate treatment. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-6: Slow Degrade** Based on the results of geoarchaeological profiling in TCR-1 and other relevant information, UAIC shall select various locations along the Project totaling not more than 1,500 linear feet along	

Table ES-1. Summary of Impacts and Mitigation Measures			
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		the levee to undergo a "slow degrade" of the upper third of the levee prior to construction of the cutoff wall. In the areas of slow degrade, the excavator shall use a bucket no wider than 6 feet with a flat blade (no teeth) under the observation of a tribal monitor to remove soil in 4 to 6-inch lifts (depths) to allow for examination by monitors. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction excavation activities in the Project Area.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-7: Human Remains** In the event that suspected Native American human remains in any state of decomposition or skeletal completeness are found during Project activities, SBFCA shall immediately halt ground disturbing activity at that location and within a 100-foot radius and contact the County Coroner. The Coroner shall ensure that notification is provided to the NAHC as required by California Health & Safety Code § 7050.5 and PRC § 5097.98(a). Health and Safety Code Section 7050.5 establishes the authority of the County Coroner regarding the discovery of human remains and the role of the NAHC if the coroner determines that the remains are that of a Native American. PRC § 5097.98 provides the notification process used by the NAHC for the discovery of Native American human remains, descendants, and also provides guidance for the appropriate and dignified disposition of human remains and associated grave goods. If UAIC is identified as the Most Likely Descendent by the NAHC, then the procedures in the Burial Treatment Agreement (Mitigation Measure TCR-2) between the UAIC and SBFCA shall be followed. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-8: Recovery, Treatment Storage and Reburial of Native American Cultural Items and Soils** SBFCA shall provide a locking storage cabinet within a work trailer for storage of cultural items. If there is a large volume of cultural items and upon Tribal request, SBFCA shall provide a secure, climate controlled, trailer. The tribe and tribal monitors shall control access to the secure storage area. SBFCA shall provide on-site locations for the secure storage of cultural or burial soils. These locations shall be subject to Tribal approval. SBFCA shall take action to protect soil piles from erosion, looting, or vehicular traffic, upon Tribal request.	

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
NI = No Impact, LTS = Less than Significant, S = Significant, SU = Significant and Unavoidable, LLC = Less than Cumulatively Considerable, CC = Cumulatively Considerable, NA = Not applicable			
		Tribal Monitors shall recover cultural items from the Project Area, record the recovered cultural items, and the recovered cultural items in secure location on-site. Burial or cultural soils in large quantities shall be stockpiled in a designated area. Monitors from the UAIC will conduct the burial recovery, repatriation, and reburial of any human remains, burial goods, and soils from the Project site for which UAIC is the designated MLD. These monitors will be in addition to those observing construction activities. SBFCA will coordinate with the tribe to designate a repatriation area to accommodate reburial of human remains, burial offerings, cultural items and cultural or burial soils from the Project Site. Repatriation and reburial shall occur prior to the completion of the Project. *Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.* *Monitoring/Enforcement: SBFCA and Project construction lead.* **TCR-9: Documentation of Finds** All TCRs encountered during construction shall be documented in a report prepared in coordination with the UAIC as well as by completing a Department of Parks Recreation Form 523 and submitting it to the Northeast Information Center (NEIC) of the California Historical Resources Information System (CHRIS) in Chico, California. UAIC shall have the opportunity to review and revise these documents. UAIC shall be invited to prepare a chapter or confidential appendix for the report and may invoice for the costs of preparing such report under a consulting agreement with SBFCA. *Timing/Implementation: This measure shall be implemented within 6 months of the completion of construction and reburial.* *Monitoring/Enforcement: SBFCA.* **TCR-10 Mitigation** Tribes shall recommend for lead agency approval appropriate and commensurate mitigation based on adverse effects or impacts to Tribal Cultural Resources, including cumulative effects. SBFCA shall be responsible for coordinating the funding for recommended mitigation no later than 1 year following the completion of the project.	

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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Impact 4.18-2 Result in a considerable contribution to cumulative impacts on TCRs.	S	Implementation of Mitigation Measures **TCR-1 through TCR-8** will be required.	LTS
Utilities and Service Systems			
Impact 4.19-1 Implementation of the proposed Project would require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects.	NI	NA	NI
Impact 4.19-2 Implementation of the proposed Project would not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.	LTS	NA	LTS
Impact 4.19-3 Implementation of the proposed Project would result in a determination by the wastewater treatment provider which serves or may serve the Project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	NI	NA	NI
Impact 4.19-4 Implementation of the proposed Project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	LTS	NA	LTS

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
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Impact 4.19-5 Implementation of the proposed Project would fail to comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.	LTS	NA	LTS
Impact 4.19-6 Implementation of the proposed Project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	LTS	NA	LTS
Impact 4.19-7 Implementation of the proposed Project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LTS	NA	LTS
Impact 4.19-8 Result in a considerable contribution to cumulative impacts on water and wastewater services.	LTS	NA	LTS
Impact 4.19-9 Result in a considerable contribution to cumulative impacts on solid waste generation.	LTS	NA	LTS
Impact 4.19-10 Result in a considerable contribution to cumulative impacts on groundwater supply.	LTS	NA	LTS

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
NI = No Impact, LTS = Less than Significant, S = Significant, SU = Significant and Unavoidable, LLC = Less than Cumulatively Considerable, CC = Cumulatively Considerable, NA = Not applicable			
Wildfire			
Impact 4.20-1 Implementation of the proposed Project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	LTS	NA	LTS
Impact 4.20-2 Implementation of the proposed Project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	LTS	NA	LTS
Impact 4.20-3 Implementation of the proposed Project would expose project occupants to pollutant concentrations from a wildfire or exacerbate wildfire risks and the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.	LTS	NA	LTS
Impact 4.20-4 Implementation of the proposed Project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	NI	NA	NI
Impact 4.20-5 Implementation of the proposed Project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	LTS	NA	LTS

Table ES-1. Summary of Impacts and Mitigation Measures			
Impact	**Level of Significance Without Mitigation**	**Mitigation Measure**	**Resulting Level of Significance**
NI = No Impact, LTS = Less than Significant, S = Significant, SU = Significant and Unavoidable, LLC = Less than Cumulatively Considerable, CC = Cumulatively Considerable, NA = Not applicable			
Impact 4.20-6 Result in a considerable contribution to cumulative impacts on wildfire management.	LTS	NA	LTS

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SECTION 2 INTRODUCTION

2.1 Project Requiring Environmental Analysis

This Draft Environmental Impact Report (EIR) analyzes the potential environmental effects of the Tudor Flood Risk Reduction Project (Proposed Project, TFRRP, or Project). The Sutter Butte Flood Control Agency (SBFCA) (Lead Agency) proposes to reduce seepage under a 1.65-mile section of the Feather River West Levee (FRWL) to the west of State Route 99 (SR 99) near the community of Tudor in unincorporated Sutter County, California, by degrading the top third of the levee and installing a new cutoff wall and making other improvements.

2.1.1 Background

In partnership with the State of California (through the California Department of Water Resources [DWR] and Central Valley Flood Protection Board [CVFPB]), SBFCA embarked on a comprehensive evaluation of the condition of levees in Sutter and Butte counties in 2007. The evaluation was necessary to identify the magnitude and severity of deficiencies in the levee system and determine measures to address the deficiencies. The results of the comprehensive evaluation revealed that substantial construction is necessary to meet current flood protection standards.

SBFCA has completed various levee improvement projects along the FRWL with the goal of meeting State Urban Levee Design Criteria (ULDC) and Federal Emergency Management Agency (FEMA) requirements. Analysis, design, and construction projects were previously completed, over multiple phases, for the portion of the FRWL from SR 99 (approximate station 97+00) to Thermalito Afterbay (station 2368+26).

SBFCA is now implementing the TFRRP to improve the remainder of the FRWL from the FRWL confluence with the Sutter Bypass East Levee (station 10+00) to just east of SR 99 (approximate station 97+00) (Figure 3-1). The *Project Area* for the Proposed Project is defined as a corridor along the levee segment that is approximately 1.65 miles long and 200 feet wide, for a total of approximately 43.7 acres. All work planned for TFRRP would be conducted within the Project Area. The Planning Area or Study Area (the two terms are interchangeable) includes the Project Area plus areas surrounding the Project Area that would be protected or affected by implementation of the Proposed Project, which varies depending on the potential for impact. The Study Area for biological and cultural resources, for example, includes all the Project Area plus a surrounding buffer that could be affected by construction of the Project; for air quality; the Study Area is the entire Northern Sacramento Valley Air Basin (NSVAB), which comprises all of Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta counties. *Planning Area* also is used to define the areas that would be adversely affected by a breach of the levee during a flood event.

2.2 Purpose and Need, and Project Objectives

2.2.1 Purpose

SBFCA's goal for all its levee repair projects is to achieve a minimum of 200-year flood protection for the more urbanized areas along the Feather River and 100-year flood protection for the remaining more rural

agricultural parts of the area. A 200-year flood is a flood that has a 0.5 percent chance of occurring in any given year, also referred to as a 0.5 percent Annual Exceedance Probability (AEP). A 100-year flood has a 1 percent AEP.

The primary purpose of the Proposed Project is to reduce flood risk for the planning area by addressing known levee deficiencies between the Sutter Bypass East Levee and SR 99. While the Proposed Project would not by itself reduce all flood risks affecting the Planning Area, it would address an immediate risk based on the following:

- The proximity of the Feather River to population centers, including the communities of Tudor, Abbot and South Yuba City, as well as key infrastructure.
- The location of known levee deficiencies and the clarity and feasibility of available measures to address them.

2.2.2 Need

The Proposed Project is one of many needed levee repair projects in the Sutter Basin identified by SBFCA in the Sutter Basin Feasibility Study (SBFCA 2013). The study assessed the risk of flooding throughout the Basin, described a range of alternatives formulated to reduce flood risk, and identified a Tentatively Selected Plan (TSP) for implementation. The TSP identified levee improvements along approximately 41 miles of the Feather River, and the Proposed Project would make improvements to the last remaining segment of the FRWL that has not yet been upgraded.

To further demonstrate the need for action, details about flood risk in SBFCA's planning area and the consequences of levee failure are described in Chapter 6, Alternatives.

2.2.3 Project Objectives

The following objectives provide additional detail in support of the Project purpose above.

- Protect existing populations and minimize exposure to flooding for agricultural commodities, infrastructure use, and other property.
- Reduce flood risk from Feather River toward a target of 200-year protection for urban areas of Sutter County to the north of the planning area, in compliance with SB 5 mandates, and 100-year protection for rural areas south of Yuba City.
- Address known deficiencies and observed performance issues.
- Construct a project as soon as possible to reduce flood risk as quickly as possible.
- Construct a project that is economically, environmentally, politically, and socially acceptable.
- Facilitate compatibility with the CVFPP and Sutter Basin Feasibility Study such that proposed activities would be *no regrets* and not inconsistent with any future plans.
- Facilitate compatibility with recreation and restoration goals in the planning area.

2.3 Intended Uses of this EIR

This EIR was prepared in accordance with the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Sections 21000-21177) and the Guidelines for the Implementation of CEQA (California Administrative Code Sections 15000 et seq.) SBFCA, as CEQA Lead Agency, has the approval authority and responsibility for considering the environmental effects of the Project.

CEQA requires that the potential environmental impacts of a project be identified and that mitigation measures be recommended that may reduce significant impacts. CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action. This EIR may also be used by other public agencies that must take discretionary actions related to the Project.

This EIR is intended to provide information to SBFCA, other public agencies, and the general public regarding the potential significant direct, indirect, and cumulative environmental impacts associated with the Project. The EIR process also requires investigation and development of feasible mitigation measures to reduce significant adverse environmental effects of the Project to levels below significance. CEQA requires a Lead Agency neither approve nor implement a project unless significant environmental impacts have been reduced (CEQA Guidelines Section15091), or, if a Lead Agency approves the project even though significant impacts identified in the EIR cannot be fully mitigated, the Lead Agency must state in writing the reasons for its action by adopting Findings and a Statement of Overriding Considerations.

The EIR for the Proposed Project is a Project EIR. A Project EIR examines the environmental effects of a specific project. According to the State CEQA Guidelines, a Project EIR should focus primarily on the changes in the environment that would result from planning, constructing, and operating the project (CEQA Guidelines Section 15161).

This EIR provides the environmental information and analysis and primary CEQA documentation necessary for SBFCA to adequately consider the effects of the proposed construction and operation of the Project.

SBFCA, as lead agency, has the approval authority and responsibility for considering the environmental effects of the Project.

The following additional approvals and regulatory permits listed in Table 1-1 are anticipated to be required for implementation of the Project:

Table 1-1. Required Regulatory Permits and Approvals

Approval or Permit	Organization
Encroachment Permit	CVFPB
Combined Section 404 Permit	USACE
Section 401 Water Quality Certification	Central Valley Regional Water Quality Control Board (RWQCB)
1600 Streambed Alteration Agreement	California Department of Fish and Wildlife (CDFW)
Section 7 Consultation/Biological Opinion	U.S. Fish and Wildlife Service (USFWS, issued to USACE)
California Endangered Species Act (ESA) Incidental Take Permit	CDFW

Table 1-1. Required Regulatory Permits and Approvals	
Approval or Permit	**Organization**
National Pollution Discharge Elimination System (NPDES) Permit for Storm Water Discharges Associated with Construction Activities	Central Valley RWQCB

The agencies listed in Table 1-1 would act as Responsible or Trustee Agencies under CEQA to issue a license, permit or other approval for the Project.

2.4 Public Participation

This Draft EIR is being distributed for review and comment to public agencies, and interested groups and individuals, including those that have requested to be on the Project distribution list (Appendix B1). The Draft EIR is also available for review at http://sutterbutteflood.org/resources/notices.

A period of 45 days has been established for public review of the Draft EIR. Agencies, organizations, and individuals are invited to comment on the information presented in the Draft EIR during this period.

Specifically, comments are requested on the scope and adequacy of the environmental analysis presented herein. All comments on the Draft EIR should be sent by email or mail to the following SBFCA contact:

Michael Bessette, PE, Executive Director
P.O. Box M
Yuba, City CA 95992
(530) 755-9859
m.bessette@sutterbutteflood.org

2.5 Organization of This EIR/EIS

The EIR is organized as follows:

- **The Cover Sheet** identifies the lead agency, contact information, contact persons, the title of the proposed project and its location, a brief description of the project, a brief abstract, and comment submission information.
- **The Executive Summary** presents an overview of the project and alternatives and associated environmental impacts/consequences; a listing of significant environmental impacts/consequences and mitigation measures; and impact conclusions regarding known areas of controversy and issues to be resolved.
- **Chapter 1, "Introduction,"** explains the CEQA processes; lists the lead, cooperating, responsible, and trustee agencies that may have discretionary authority or other jurisdiction related to the project; provides background on the project; specifies the underlying purpose and need, and project objectives to which the lead agencies are responding in considering the alternatives; outlines the organization of the document; and provides information on public participation.

- **Chapter 2, Executive Summary**, provides a summary of the EIR.
- **Chapter 3, Project Description,** provides a description of the Project, including construction details.
- **Chapter 4, Impact Analysis,** This includes a description of the regulatory and environmental setting, the analysis of environmental impacts, and a discussion of mitigation measures to reduce or eliminate any significant environmental impacts, including cumulative impacts. It is divided into 16 sections by topic. Each chapter describes the affected environment (i.e., regulatory setting and environmental setting), presents the assumptions used in the environmental analysis and defines the types of environmental effects. This chapter also identifies the cumulative effects of implementing the Proposed Project, against a backdrop of past, present, and reasonably foreseeable future projects.
- **Chapter 5, Other Required Sections,** discusses significant environmental effects that cannot be avoided; irreversible and irretrievable commitment of resources; and growth-inducing impacts.
- **Chapter 6, Alternatives Analysis,** provides an analysis of project alternatives, including the No Project Alternative, and alternatives considered but rejected.
- **Chapter 7, References Cited,** provides a bibliography of sources cited in the Draft EIR.
- **Chapter 8, List of EIR/EIS Preparers,** identifies individuals who were involved in preparing this Draft EIR/EIS.

2.6 Environmental Review Process

2.6.1 Notice of Preparation

In accordance with the CEQA Guidelines, SBFCA, as Lead Agency, prepared a Notice of Preparation (NOP) for an EIR on the Project. A copy of the NOP is provided in Appendix A. The NOP was distributed by SBFCA to responsible agencies, trustee agencies, and interested persons for a 30-day review and comment period from January 6, 2023, to February 6, 2023. Letters/comments received from agencies and the public during the scoping period are provided in Appendix B2. The scoping comments received described procedural steps for obtaining agency authorizations and conducting consultations for the Project.

As indicated in the NOP, this EIR analyzes in detail the environmental impacts of the Project on the following environmental resource and topic areas:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources

- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The following topics are also addressed in this EIR:

- Cumulative impacts
- Significant and unavoidable impacts
- Significant irreversible changes in the environment
- Growth inducement
- Alternatives to the Project

2.6.2 Response to Comments/Final EIR Certification

Following the 45-day public review period, SBFCA will prepare responses to all comments and will compile these comments and responses into a Final EIR. SBFCA's Board will consider the information in the Draft and Final EIRs during project review and when making a decision to approve or deny the Project. The Final EIR will need to be certified as complete by the Board prior to making a decision to approve or deny the Project.

2.6.3 Mitigation Monitoring and Reporting Program

A Mitigation Monitoring and Reporting Program (MMRP) that identifies required mitigation measures, implementation responsibility, and timing will be prepared and incorporated with the Final EIR.

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SECTION 3 PROJECT DESCRIPTION

This EIR analyzes the potential environmental effects of the Proposed Project. SBFCA (Lead Agency) proposes to reduce flood risk in the Sutter Basin through implementation of the Proposed Project, which includes a portion of Sutter County in the Sacramento Valley of California.

The Proposed Project would improve the remainder of the FRWL from the FRWL confluence with the Sutter Bypass East Levee (station 10+00) to just east of SR 99 (approximate station 97+00) (Figure 3-1). The *Project Area* for the Proposed Project is defined as a corridor along the levee segment that is approximately 1.65 miles long and 200 feet wide, for a total of approximately 43.7 acres. All work planned for the Proposed Project would be conducted within the Project Area.

The *Planning Area* or *Study Area* (the two terms are interchangeable) includes the Project Area plus areas surrounding the Project Area that would be protected or affected by implementation of the Proposed Project, which varies depending on the potential for impact. The Study Area for biological and cultural resources, for example, includes all the Project Area plus a buffer of additional property around the Planning Area where those resources could be affected by construction of the Project; for air quality, the Planning Area is the entire NSVAB, which comprises all of Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta counties. As it relates to flood control, the term *Planning Area* is also used to define the areas that are protected by the Central levee system during a flood event.

3.1 Background

SBFCA was formed as a joint powers authority in 2007 through a joint exercise of powers agreement by the counties of Sutter and Butte; the cities of Yuba City, Gridley, Live Oak, and Biggs; and Levee Districts 1 and 9 (LD 1, LD 9, respectively). In partnership with the State of California (through the California DWR and CVFPB), SBFCA embarked on a comprehensive evaluation of the condition of the levees protecting the area in 2007, the results of which are also being used by the USACE. The evaluation was necessary to identify the magnitude and severity of deficiencies and determine measures to address the deficiencies. The results of the comprehensive evaluation revealed that substantial construction is necessary to meet current flood protection standards.

SBFCA has completed various levee improvement projects along the FRWL with the goal of meeting State ULDC and FEMA requirements. Analysis, design, and construction projects were previously completed, over multiple phases, for the portion of the FRWL from SR 99 (approximate station 97+00) to Thermalito Afterbay (station 2368+26). ULDC certification and FEMA accreditation packages are also being prepared for this portion of the FRWL. SBFCA is now implementing the TFRRP to improve the remainder of the FRWL from the FRWL confluence with the Sutter Bypass East Levee (station 10+00) to SR 99 (approximate station 97+00).

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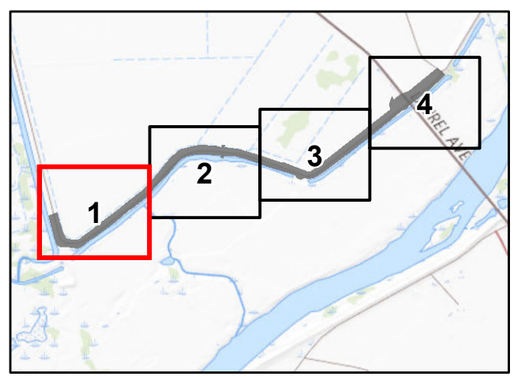
Map Features

- Project Station Numbers
- Study Area - 43.7 ac.

Photo Source: ESRI World Imagery; USGS Topo Map



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Map Date: 3/30/2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 200

Figure 3-1. Project Area

2015-036.11 SBFCA Tudor Flood Risk Reduction Project

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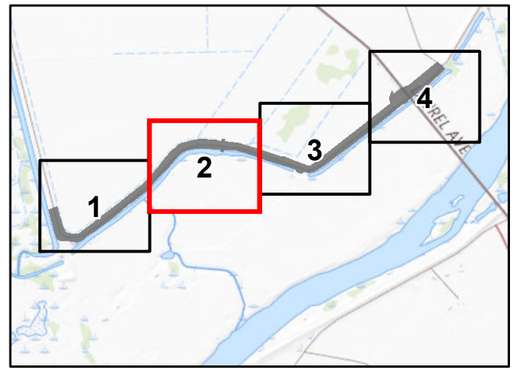
Map Features

- Project Station Numbers
- Study Area - 43.7 ac.

Photo Source: ESRI World Imagery; USGS Topo Map



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Map Date: 3/30/2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 200

Figure 3-1. Project Area

2015-036.11 SBFCA Tudor Flood Risk Reduction Project

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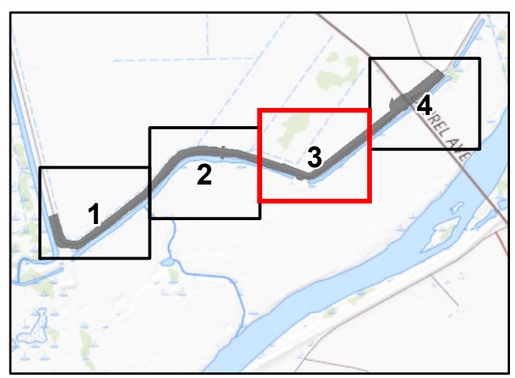
Map Features

- Project Station Numbers
- Study Area - 43.7 ac.

Photo Source: ESRI World Imagery; USGS Topo Map



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Map Date: 3/30/2023

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Scale in Feet
0 200

Figure 3-1. Project Area

2015-036.11 SBFCA Tudor Flood Risk Reduction Project

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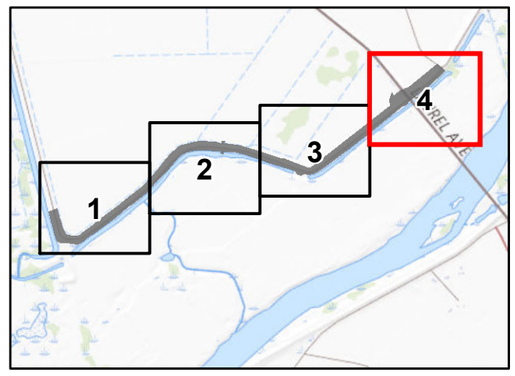
Map Features

- Project Station Numbers
- Study Area - 43.7 ac.

Photo Source: ESRI World Imagery; USGS Topo Map



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Map Date: 3/30/2023

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Scale in Feet
0 200

Figure 3-1. Project Area

2015-036.11 SBFCA Tudor Flood Risk Reduction Project

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3.1.1 Flood Management History

Prior to European settlement in the mid-19th century, the floodplain of the Sacramento River in the 150 miles between the City of Redding and the Sacramento–San Joaquin River Delta (Delta) varied from 2 to 30 miles wide and annually covered more than 1 million acres. Low, discontinuous levees were built by individual landowners from the 1840s to the 1890s. Those levees concentrated flood flows and contributed to problems that were worsened by upstream hydraulic mining in the Sierra Nevada foothills in the late 1800s.

The Sacramento River Flood Control Project (SRFCP) was authorized by Congress in 1917 as the first federal flood control project outside the Mississippi River Valley and was the major project for flood control on the Sacramento River and its tributaries. The non-federal sponsor was the Reclamation Board of the State of California (reauthorized in 2007 as the CVFPB). With the authorization of the SRFCP, USACE and the State of California began managing the project as a regional system, constructing improvements to approximately 1,100 miles of levees and creating bypasses and floodways. Additional information is provided in Section 4.10, Hydrology and Water Quality.

Although the flood control structures have been extensively improved and upgraded since construction, the underlying foundation of most of the levees and channels pre-dates any state or USACE involvement and still retains the original materials that include dredged riverbed sands, soil, and organic matter. At the time of the SRFCP authorization in 1917, the areas being protected by the levees were primarily agricultural with minimal improved infrastructure such as railroads and highways. Today, the area remains largely agricultural with population centers including Yuba City, Biggs, Gridley, Live Oak, Tudor, and Sutter.

The federal government maintains oversight but has no ownership of or direct responsibilities for performing maintenance of the federal levee system, except for a few select features that continue to be owned and operated by USACE. Considering these exceptions, the great majority of levees, channels, and related flood control structures in the region are owned, operated, and maintained by the State of California and local levee and reclamation districts as governed by USACE Operations and Maintenance (O&M) manuals. Most of the levee and reclamation districts that existed prior to the SRFCP authorization in 1917 and have been carrying out maintenance responsibilities. Today, many of the levee districts are substantially underfunded and unable to maintain the system to meet current federal standards. The levees in the planning area are maintained by LD 9; DWR's Maintenance Areas (MA) 3, 7, and 16; and LD 1. MA 3 is responsible for the lowermost reaches of the FRWL Project Area, followed by LD 1, LD 9, MA 16, and MA 7 from south to north. MA 3 is responsible for maintenance of the segment of the FRWL that would be improved by construction of the TFRRP.

In addition to the SRFCP levee system, two major flood management reservoirs are located within the Feather River watershed. Oroville Dam and reservoir (Lake Oroville) were constructed on the Feather River in 1967 as an element of the California State Water Project. The reservoir has 3,358,000 acre-feet of storage with 750,000 Acre-Feet (AF) of dedicated flood management space. New Bullards Bar Dam and reservoir were constructed on the Yuba River in 1970 by the Yuba County Water Agency (YCWA). The reservoir has 966,000 AF of storage with 170,000 AF of dedicated flood management space.

A notable milestone in improving the local levee system was construction of a 3,000-foot setback levee at Star Bend on the FRWL in 2009. Located about 10 miles south of Yuba City and north of the Sutter Bypass confluence, this project was within the FRWL Project Area and the FRWL adjoined the new setback levee upstream and downstream. LD 1 is the local maintaining agency and was the project proponent and owner, with major funding from the State of California through Propositions 1E and 84, as well as LD 1, Calpine Corporation, Sutter County, and the City of Yuba City. The new levee was built to current standards and included a slurry cutoff wall for under-seepage protection. The old levee was degraded and the new expanded floodplain is an ecosystem restoration site, with surplus area available intended to provide for habitat mitigation for the FRWL project.

Major flood events occurred along the Feather River in 1955, 1958, 1964, 1986, 1997, and 1998. Of these, the more significant events that caused levee failures and flooding of the Sutter Basin and surrounding areas were in 1955, 1986, and 1997. The most significant flood event along the Feather River is reported to have occurred in December 1955. Several levee embankment failures caused major flooding of nearly all of Yuba City as well as flooding in Nicolaus. Approximately 156 square miles were flooded during this event. In February 1986, heavy snowpack and warm rains elevated water levels and caused a levee embankment failure on the adjacent segment of the Yuba River near Linda, flooding nearly 30 square miles including Linda and Olivehurst, causing a fatality and an estimated $20 million in damages (1986 dollars). Over the new-year transition from 1996 to 1997, heavy snow pack and warm rains again elevated water levels. All citizens in Yuba City, Marysville, Linda, and Olivehurst were ordered to evacuate. Ultimately, in January 1997, a levee embankment failure occurred south of Olivehurst, flooding nearly 50 square miles including Olivehurst and Arboga, causing four fatalities and an estimated $41 million in damages (1997 dollars) (HDR et al. 2011).

Several studies have been conducted by USACE, DWR, or SBFCA to evaluate the condition of the levees protecting the Planning Area relative to criteria for stability, seepage, erosion, geometry, and levee height. These studies have indicated that the levee system is deficient and that the consequences of levee failure from a major flood event would be significant, as described under the No Project Alternative in Chapter 6. Specifically, as a result of knowledge gained from its regional comprehensive study (the Sacramento–San Joaquin River Basins Comprehensive Study, also known as the Comp Study) initiated after the 1997 flood, USACE revised its levee criteria regarding through-seepage and under-seepage, problems known to exist within the SBFCA levee system (USACE and the Reclamation Board for the State of California 2002).

Evaluation of the levee has determined that it does not meet FEMA requirements (100-year Design Water Surface Elevation [DWSE]). Additionally, issues have been identified during the USACE and State MA3 levee inspections and the levee is not in compliance with applicable design criteria.

3.2 Project Location and Setting

3.2.1 Environmental Setting

The regional setting of the TFRRP is the SRFCP, beginning as far north as Redding, California, and extending south to the Delta. The regional setting is important relative to other flood risk reduction projects that have been completed or are planned. For the analysis of effects (i.e., direct, indirect, or cumulative), the regional context of the SRFCP is taken into consideration.

Scoping down in regional setting, the Sutter Basin is part of the SRFCP, located in north-central California in Sutter and Butte counties. The elongated, irregularly shaped basin covers about 326 square miles and is about 44 miles long north to south and up to 14 miles wide east to west. It is roughly bounded by the Feather River to the east; and Cherokee Canal, the Sutter Buttes, and Sutter Bypass to the west, listed from north to south. Floodwaters potentially threatening the basin originate from the Feather River watershed or the upper Sacramento River watershed, above Colusa Weir. These waterways have drainage areas of 5,921 and 12,090 square miles, respectively. In addition to Yuba City, communities in the basin include Biggs, Gridley, Live Oak, Tudor, and Sutter.

As mentioned above. the Project Area for the TFRRP, a subset of the Sutter Basin described above, is focused between the Sutter Bypass East Levee and a point just east of SR 99 on the north bank of the Feather River across from Nicolaus, California and is approximately 1.65 miles (8,700 linear feet) in length. The levee landside is bound by an irrigation canal and orchards owned and operated by Odysseus Farms. The irrigation canal is located between approximate stations 11+00 and 58+00; an irrigation pipe crossing (penetration through the levee) is located near station 52+25, a Pacific Gas & Electric Company (PG&E) transmission tower is located at the landside of the levee near station 70+00, and SR 99 intersects the levee near station 98+00. The levee waterside is bound by the open space owned and maintained by the CDFW. Levee improvements are currently anticipated to tie into the west side of SR 99. This portion of the FRWL is operated and maintained by MA3.

For the purposes of this document, the Project Area is defined as the area in which potential actions (i.e., alternatives) would occur. The affected area, also called the Planning or Study Area, is defined as the location of resources that would be directly, indirectly, or cumulatively affected by the Project, and varies depending on the resource.

3.2.2 Surrounding Land Uses

The Proposed Project Site is within unincorporated Sutter County. Surrounding land uses for the Project include agriculture (e.g., rice and orchards) to the north, SR 99 and the FRWL to the east, the Feather River and open space owned and maintained by CDFW to the south, and the Sutter Bypass and additional agriculture uses to the west. Agricultural uses are predominant in all directions past the immediate Project Area.

3.3 Project Objectives

This Project's objective is to improve this segment of levee to meet FEMA requirements (100-year DWSE), address issues identified during USACE and MA3 levee inspections, and to bring the levee into compliance with applicable design criteria.

3.4 Project Characteristics

Levee remedial measures for the Project include construction of a cutoff wall, a berm tie-in to the SR 99 embankment, pipe penetration improvements, and surficial geometry corrections. Improvement measures were developed based on the 100-year DWSE provided in Design Water Surface Profiles for the Feather River West Levee Project, Addendum #2, dated December 2013 and prepared by Peterson Brustad, Inc. Table 3-1 details the Levee Remedial Measures.

Table 3-1. Levee Remedial Measures

Station			Remedial Measure
Beginning	Ending	Length	
Beginning at 10+00 (FRWL) then north along SBEL		Up to 200 feet	SBEL Soil-Bentonite cutoff wall to El +10-feet. Depth = 38-feet
10+00	50+00	4,000	Soil-Bentonite cutoff wall to El +10-feet. Depth = 38-feet
50+00	97+00	3,700	Soil-Bentonite cutoff wall to El (-)15-feet. Depth = 64-feet
97+00, parallel to SR 99		100	Soil-Bentonite cutoff wall to El (-)15-feet. Depth = 64-feet
East of SR 99 to Sacramento Ave		Up to 500 feet	Soil Bentonite Cutoff wall or berm fill
52+25		-	Remove and replace existing levee penetration (pressure and gravity pipes)

Notes: Cutoff wall depths are measured from the levee working platform, which is approximately 6-feet below the levee crown.

3.4.1 Cutoff Walls

Seepage cutoff walls are vertical walls approximately 3 feet wide consisting of low hydraulic conductivity materials placed through the levee embankment and foundation to cutoff potential through and under seepage. To be effective for under seepage, cutoff walls usually tie into an impervious sublayer. Walls generally require no additional permanent levee footprint and are relatively inexpensive to some depths. However, the levee must be temporarily taken out of service and degraded to prevent hydraulic fracturing and to provide a working surface with sufficient width to accommodate cutoff wall excavation and placement.

Existing aggregate surfacing and topsoil layers on the levee segment would be stripped prior to starting cutoff wall placement operations. Stripped materials would be stockpiled for reuse where feasible. The levee crown would then be degraded by approximately one third of the overall levee height. Levee degrade material would be side cast along the land and/or water sides of the levee to establish the working surface. Cutoff walls would be placed through the center of the levee in a 3-foot-wide trench of

38 to 64 feet deep as measured from the levee working platform (measured 6 feet below the levee crown). Using the open-trench construction method, workers would fill the trench with a soil-bentonite slurry as the trench is excavated to keep the trench sidewalls from caving in during excavation. Material excavated from the trench would be mixed with bentonite slurry in appropriate proportions adjacent to the trench and then pushed back into the excavated trench. This process creates a wall through the center of the levee with reduced permeability. Design details of a typical cutoff wall are provided as Figure 3-2.

After installation of the cutoff wall and the appropriate cutoff wall settlement period (typically 21 days), the levee embankment would be reconstructed to its original lines and grades. Surficial geometry issues would be addressed as part of levee reconstruction. The reconstructed embankment would include a 6- to 8-foot-wide clay core using Levee Embankment Fill Soil Type 1, which would be imported from one or more local borrow sources. The levee embankment outside of the clay core would be reconstructed utilizing project excavations. Generally, the levee crown would be 20 feet in width, the landside slope would be two horizontal to one vertical (2H:1V), and the waterside slope would be 3H:1V.

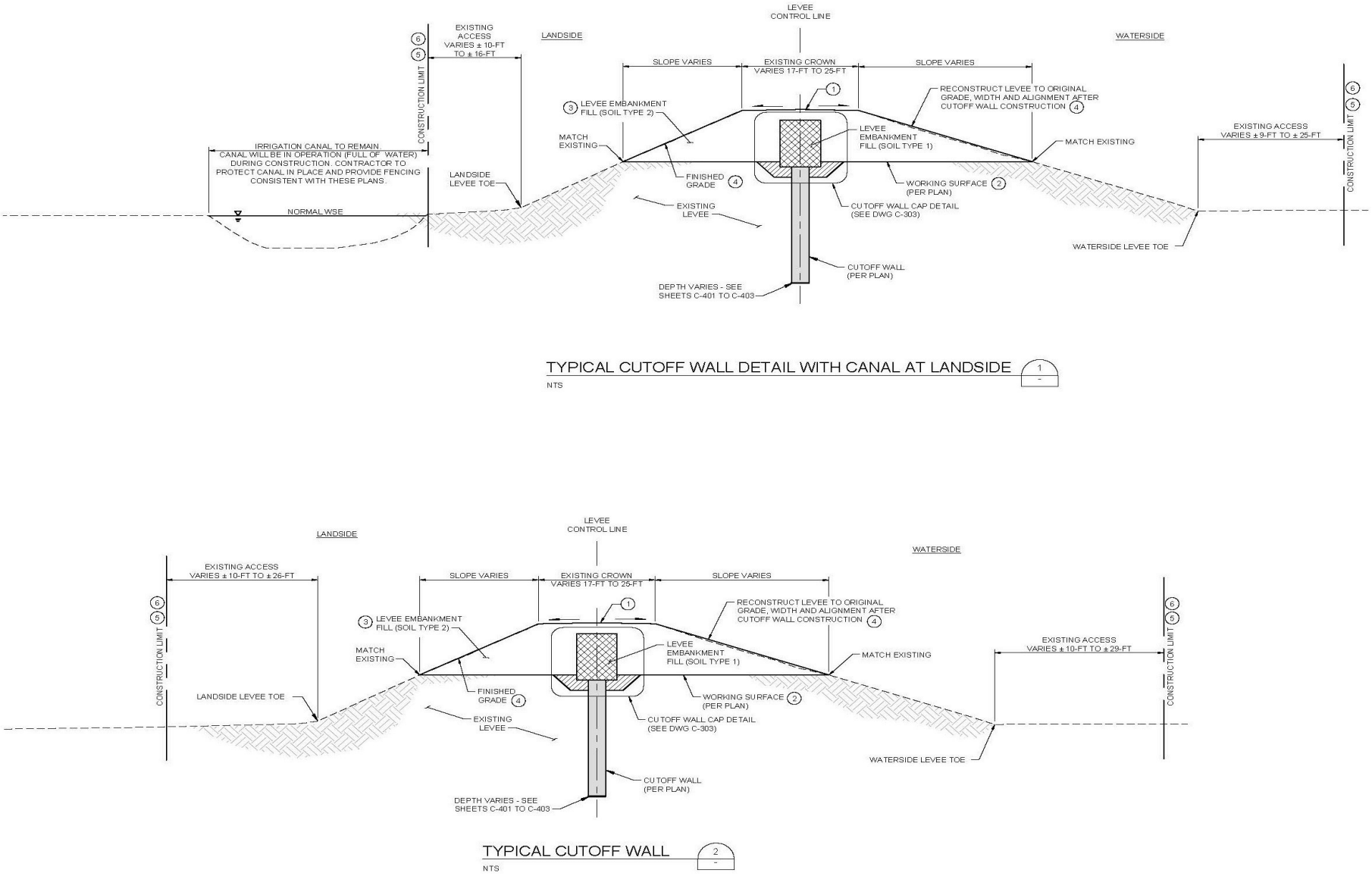
Stripped topsoil may be placed on levee slopes, areas adjacent to levee slopes if possible, or hauled offsite. Aggregate base would be placed along the levee crown and on levee access ramps. Disturbed areas would be hydroseeded after levee construction is complete.

3.4.2 Levee Improvements at SR 99

Additionally, remedial measure may extend east of SR 99 and may include either a cutoff wall or a berm along the landside of the levee.

A cutoff wall along the west side of SR 99 would extend from the levee centerline, at station 97+00, northwest along the SR 99 embankment for 100 linear feet. Placement of the cutoff wall will require the construction of an earthen embankment that ties into the levee and the SR 99 embankments. The embankment will initially be constructed to the same elevation as the levee working platform. The embankment will be constructed to match existing levee crown elevations once the cutoff wall is in place and allowed to settle. The completed embankment would be approximately 75 feet in width (measured from the SR 99 toe of embankment to the cutoff wall embankment toe). A berm at the intersection of the FRWL and SR 99 would be placed along the landside levee toe and tie into the SR 99 embankment. The berm would be 5 feet tall at the levee toe and 3 feet tall at its end. Remedial measures along the east side of SR 99, cutoff wall or berm, would be as described above.

Areas to receive fill would be stripped to remove the topsoil layer. Where feasible, stripped materials would be stockpiled for reuse. Disturbed areas would be hydroseeded after levee construction is complete.



Source: HDR

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Figure 3-2. Typical Cutoff Wall

3.4.3 Levee Penetration

Levee remediation measures for the Proposed Project include removal and replacement of an existing 18-inch pressure pipe crossing and two 18-inch gravity pipes (levee penetration) near station 52+24. The pressure pipe and gravity pipes will be removed within the limits of the levee embankment and right-of-way. Removal of the pipes will require excavation of the levee slopes and adjacent areas. Generally, excavation for pipes removal and placement would be 5 feet wide at the bottom of the excavation, with 2H:1V side slopes. A new pressure pipe, with a positive closure device, would be reconstructed after cutoff wall placement and settlement period. The new pressure pipe would be constructed above the DWSE. Additionally, the two gravity pipes will be replaced with one 36 or 48-inch single gravity pipe.

3.4.4 Borrow Material Sources and Needs

Fill material for the levee and clay core would be obtained from either one or more offsite borrow sources or from excess material obtained from Project excavations. The construction contractor will be required to obtain offsite borrow materials, which may be imported to the Project site from local sources or existing permitted commercial sources. Sources of borrowed earthen materials are anticipated to be in the vicinity of Butte and Sutter counties. Other materials, such as aggregate base, bentonite for cutoff walls, pipe, concrete products, and materials needed to support construction, would be obtained from offsite commercial vendors and sources.

Offsite sources for materials are anticipated to be within 60 minutes from the Project Area.

Table 3-2. Construction Materials Quantities

Description	Quantities[1]
Clearing and Grubbing (haul and waste)	24 AC
Stripping	19,500 CY
Levee Embankment Excavation (Degrade and Cutoff Trench)	111,000 CY
SB Cutoff Wall	460,000 SF
Levee Embankment Fill (Soil Type 1) – Clay Core	45,000 CY
Levee Embankment Fill (Soil Type 2) – Levee Shell	70,000 CY
Import (Soil Type 1)[2]	54,000 CY
Excess and Unsuitable Material – Export	42,000 CY
Class 2 Aggregate Surfacing	6,700 Tons

Notes:
[1]AC = acres; CY = cubic yard; SF = square feet
[2]Assumes 20% shrink

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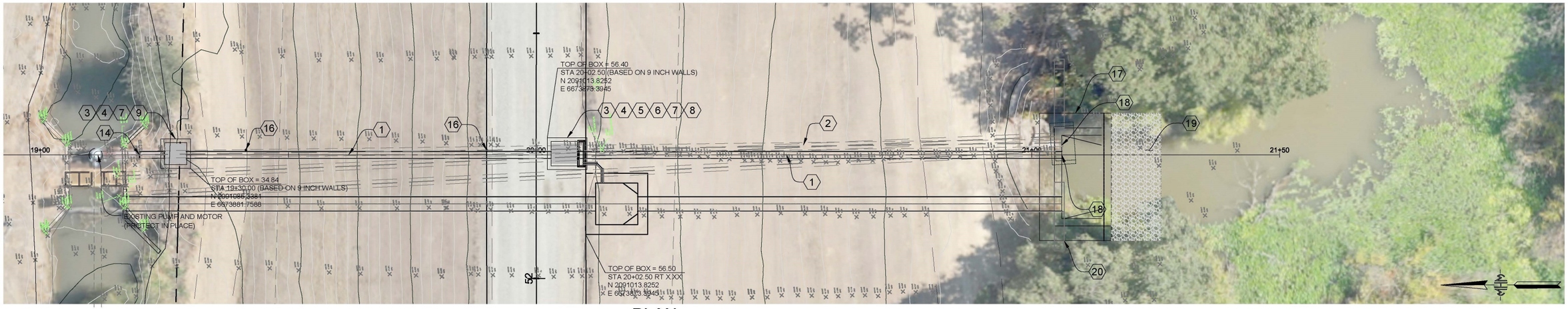


PLAN
1" = 10'

0 5' 10' 20' 40'

GENERAL NOTES:

A. THIS PIPELINE IS OWNED AND OPERATED BY ODYSSEUS FARMS PTN. THE LEVEE IS OPERATED AND MAINTAINED BY STATE MAINTENANCE AREA 3.

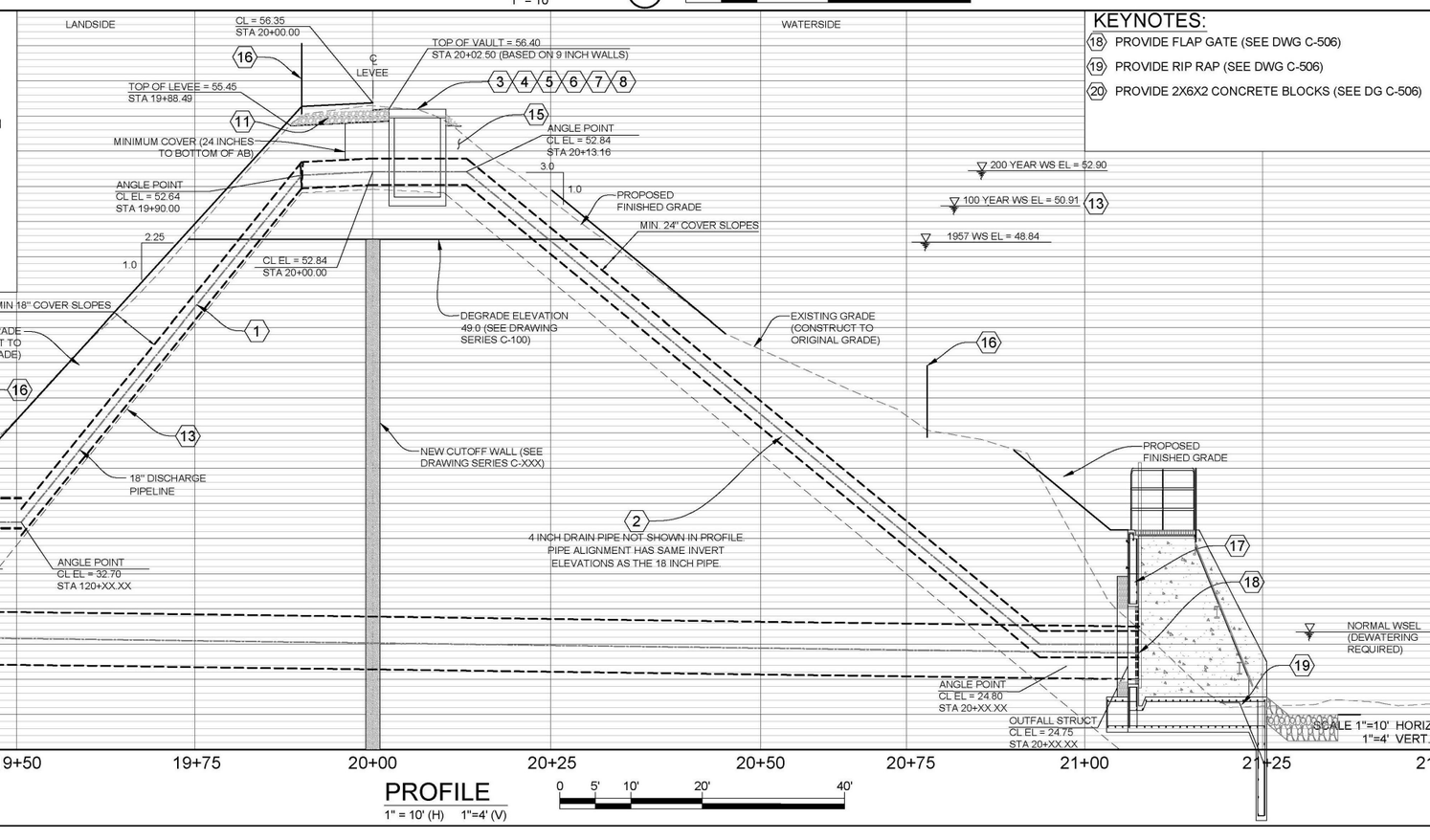
B. WORK SHALL BE COORDINATED WITH MA 3.

C. ALL PIPELINE INSTALLATION SHALL CONFORM WITH CALIFORNIA CODE OF REGULATIONS TITLE 23, WATERS, DIVISION, CENTRAL VALLEY FLOOD PROTECTION BOARD, ARTICLE 8 STANDARDS.

D. NOTIFY ENGINEER IF ANY ELEVATIONS SHOWN APPEAR TO BE IMPROPERLY LABELED OR DO NOT MATCH FIELD CONDITIONS.

CONSTRUCTION SEQUENCE:

SEE SPECIFICATIONS AND SPECIAL PROVISIONS FOR CONSTRUCTION SEQUENCE AND DETAILS.



PROFILE
1" = 10' (H) 1"=4' (V)

0 5' 10' 20' 40'

KEYNOTES:

(18) PROVIDE FLAP GATE (SEE DWG C-506)
(19) PROVIDE RIP RAP (SEE DWG C-506)
(20) PROVIDE 2X6X2 CONCRETE BLOCKS (SEE DG C-506)

KEYNOTES:

(1) PROVIDE 18 INCH WELDED STEEL PIPE MEETING LEVEE CRITERIA. (SEE DWG C-501)
(2) PROVIDE 20 INCH WELDED STEEL PIPE MEETING LEVEE CRITERIA. (SEE DWG C-501)
(2) PROVIDE 4 INCH DRAIN PIPE MEETING LEVEE CRITERIA. (SEE DWG C-501)
(3) PROVIDE 20 INCH BUTTERFLY VALVE
(4) PROVIDE 18 INCH RESTRAINED DISMANTLING COUPLER
(4) PROVIDE 20 INCH RESTRAINED DISMANTLING COUPLER
(5) PROVIDE COMBINATION AIR RELEASE VACUUM VALVE (HARRIS MODEL OR EQUAL)
(6) PRESSURE VACUUM GAUGE (-30IN.HG - 30PSI)
(7) FLANGED CONNECTION PER PROJECT SPECIFICATIONS.
(8) PROVIDE 6.5' X 5.0' VALVE UTILITY VAULT (LOCKABLE) (DEPTH TO BE DETERMINED IN FIELD AND ON SHOP DRAWINGS) (SEE DWG C-511)
(9) PROVIDE 4.5' X 4.5' VALVE UTILITY VAULT (LOCKABLE) (DEPTH TO BE DETERMINED IN FIELD AND ON SHOP DRAWINGS) (SEE DWG C-511)
(10) PROVIDE TYPE 1 LEVEE EMBANKMENT MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS.
(11) CONSTRUCT AGGREGATE BASE LEVEE PATROL ROAD WITH 8 INCHES DWR CLASS 2 AGGREGATE BASE. (R= 10 AND TI= 4.0)
(12) DESIGN WATER SURFACE ELEVATIONS PROVIDED BY PBI INC., JULY 2012 AND USACE FLOOD AND CHANNEL PROFILES DATED MARCH 15, 1957.
(13) CENTRAL VALLEY FLOOD PROTECTION BOARD (CVFPB) THEORETICAL LEVEE PRISM IS FOR DESIGN ONLY AND SHALL NOT BE USED FOR CONSTRUCTION OF LEVEE. COMPLIANCE WITH CVFPB TITLE 23.
(14) CONNECT TO 18 INCH STEEL PIPE. (SEE DWG C-510)
(15) PROVIDE LEVEE EMBANKMENT TO MEET MINIMUM COVER. (SEE DWG C-100 SERIES)
(16) PROVIDE FACILITY MARKERS (SEE DWG C-514)
(17) PROVIDE OUTFALL STRUCTURE (SEE DWG C-506)

90% SUBMITTAL

DRAFT

Source: MHM Engineers

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Figure 3-3. Typical Pipe Removal and Replacement

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3.5 Construction Details

3.5.1 Construction Schedule

SBFCA is planning to complete construction in one construction season, beginning in April 2025 and ending in December 2025. Typical construction activities would occur up to 12 to 14 hours per day (based on daylight hours and the construction phase), six days per week, Monday through Saturday. Daily hours of operation would occur between 6 a.m. and 8 p.m. Sundays may be utilized for equipment maintenance. Crew sizes would vary depending on the construction phase and are estimated to be between 25 to 50 people. Work outside of the hours specified above for around-the-clock construction activities would be limited to cutoff wall installation, but only if approved by SBFCA and if justified to complete the Project on schedule.

3.5.2 Staging Areas

Construction staging areas would be established within the Project Area along the land and water sides of the levee as needed. The construction contractor would use these areas for access, hauling, spoiling of material, storage, fueling, and other construction-related activities. Prior to and during construction of remedial measures, staging areas would be established to allow for efficient use and distribution of materials and equipment. Staging areas would be identified by the contractor during construction and would be located within the construction limits identified as the Project Area.

The landside areas at the intersection for the FRWL/Sutter Bypass East Levee (SBEL) and FRWL/SR 99 would be utilized for additional staging.

3.5.3 Truck Haul Routes and Construction Personnel Access

Materials would be delivered to the Project Area throughout the construction timeline (Figure 3-4). Import of construction materials would be commercially sourced and determined by the contractor. The information shared in this section is repeated in Section 4.17.1. Truck trips are approximated as follows:

- Approximately 15 to 25 truck trips would be needed for site mobilization and clearing and grubbing in Phase 1.
- Approximately 10 to 20 truck trips would be needed to import bentonite to the site, for cutoff wall construction, during Phases 1, 2, and/or 3.
- Approximately 54,000 Cubic Yards (cy) of material is needed for the clay core. Assuming 12 cy per truck, 4,500 truck trips would be needed to deliver this material to the site during Phases 3 and/or 4.
- Approximately 6,700 tons of aggregate base is needed for crown resurfacing. Assuming 12 cy per truck, 250 truck trips would be needed to deliver this material to the site during Phase 5.
- Approximately 15 to 20 truck trip for site demobilization would occur in Phase 7.

- Approximately 25 to 50 daily construction personnel trips would occur throughout all Phases.

3.5.3.1 State Route 99

SR 99 extends in a north-south direction through Sutter County and is the primary corridor connecting the County to the region. SR 99 passes above the eastern boundary of the Project Area via the Feather River Bridge. SR 99 intersects Sacramento Avenue north of the Project Area.

3.5.3.2 Sacramento Avenue

Sacramento Avenue is a paved local road north of the Project Area that provides access to SR 99, the levee access roads, and surrounding agricultural uses. The portion of Sacramento Avenue west of SR 99 will be used by construction vehicles and haul trucks to deliver materials and machinery to the Project Area. The portion of Sacramento Avenue east of SR 99 was recently resurfaced by the County, and will be used by construction fleet vehicles only (i.e., no construction equipment or haul trucks).

3.5.3.3 Levee Access Roads

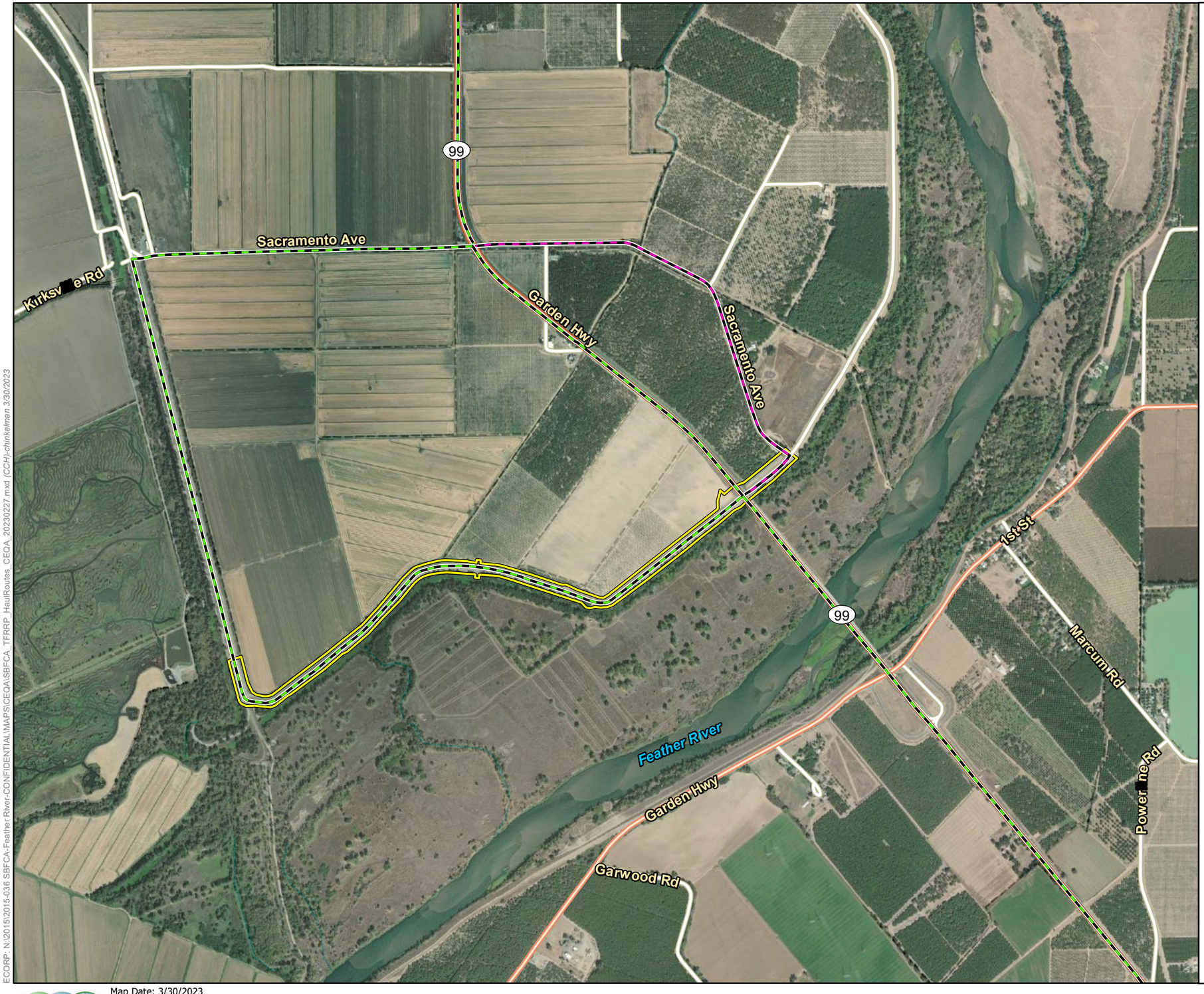
Three unpaved levee access roads run parallel to each other and connect to Sacramento Avenue on either side of the Project Area. The levee crown road is the middle road, mirrored by land-side and water side maintenance roads. The levee access roads within the Project Area will be used for truck delivery, staging, and construction activities.

3.5.3.4 Unnamed Private Roads

SBFCA and/or the construction contractor may also coordinate with the private landowners between the Project Area and west side of Sacramento Avenue to utilize the unpaved, privately owned agricultural roads for haul truck use.

3.5.4 Disposal of Excess Materials

Prior to the start of construction, the levee and work areas would be cleared and grubbed to remove debris, rubble, trash, and other deleterious items. Waste collected from the clearing and grubbing operations would be taken to commercial waste or recycling facilities as appropriate. Some construction waste materials would be generated and require disposal.



Map Features

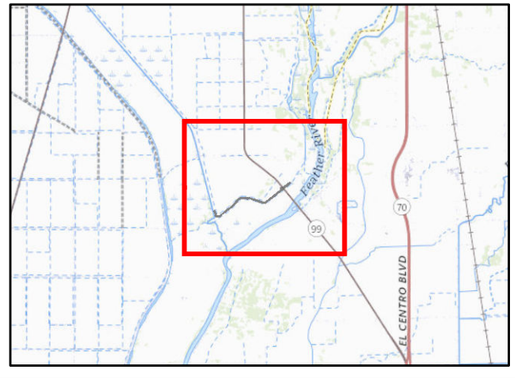
Study Area - 43.7 ac.

Routes

Truck Haul Route

Fleet Vehicle Access Route

Photo Source: ESRI World Imagery; USGS Topo Map



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Map Date: 3/30/2023

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Scale in Feet
0 1,500

Figure 3-4. Construction Access Routes

2015-036.11 SBFCA Tudor Flood Risk Reduction Project

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3.5.5 Construction Equipment

Table 3-3 lists the anticipated phases of construction, estimates the type of equipment needed for each phase, and provides an approximate count for each piece of equipment. However, the construction contractor may utilize more or less equipment based on the construction schedule, the contractor's capabilities, and the availability of equipment. Also, some equipment may be utilized concurrently with the other equipment listed below depending on the construction phase.

Table 3-3. Construction Phases, Equipment, and Anticipated Work Durations

Construction Phase and Duration	Anticipated Number and Type of Equipment	Anticipated Duration of Use (%)
Phase 1 (20 Days) Clearing, Grubbing and Stripping	(2) Scrapers	50
	(2) Water Trucks	100
	(2) Front-End Loaders	50
	(10) Haul Trucks	75
Phase 2 (30 Days) Levee degrade for cutoff wall construction (Lags behind Phase 1 by approximately 1 week or more.)	(4) Excavators	50
	(4) Scrapers	50
	(4) Vibratory Rollers	50
	(2) Water Trucks	100
	(10) Haul Trucks	25
Phase 3 (50 Days) Cutoff Wall Construction (Lags behind Phase 2 by approximately 1 week or more).	(2) Hydraulic Excavators (2 headings)	100
	(2) Front-End Loaders	50
	(1) Extended Boom Pallet Loader	25
	(2) 300 kW Generators	50
	(2) Slurry Pumps	100
	(8) Pickup Trucks	50
	(15) Haul Trucks	70
	(2) Water Trucks	100
Phase 4 (25 Days) Levee Reconstruction (Lags behind Phase 3 by approximately 21 days or more).	(2) Scrapers	50
	(4) Motor Graders	100
	(4) Tractors with Discing Equipment	75
	(4) Vibratory Rollers	75
	(15) Haul Trucks	75
	(2) Water Trucks	100
Phase 5 (20 Days) Levee Resurfacing	(2) Motor Graders	50
	(2) Vibratory Rollers	100

Table 3-3. Construction Phases, Equipment, and Anticipated Work Durations		
Construction Phase and Duration	**Anticipated Number and Type of Equipment**	**Anticipated Duration of Use (%)**
	(2) Haul Trucks	100
	(1) Water Truck	50
Phase 6 (5 Days) Hydroseeding (Concurrent with Phase 5)	(2) Hydroseeding Trucks	50
	(6) Pickup Trucks	50
Phase 7 (25 Days) Demobilization & Site Cleanup	(1) Extended Boom Pallet Loader	50
	(6) Pickup Trucks	50
	(2) Haul Trucks	75

3.6 Regulatory Requirements, Permits, and Approvals

This EIR provides the environmental information and analysis and primary CEQA documentation necessary for SBFCA to adequately consider the effects of the proposed construction and operation of the Project. SBFCA, as lead agency, has the approval authority and responsibility for considering the environmental effects of the Proposed Project.

The following additional approvals and regulatory permits listed in Table 3-2 are anticipated to be required for implementation of the Project:

Table 3-4. Required Regulatory Permits and Approvals	
Approval or Permit	**Organization**
Encroachment Permit	CVFPB
408 Permission	USACE
Clean Water Act Section 404 Permit	USACE
Clean Water Act Section 401 Water Quality Certification	Central Valley RWQCB
Porter-Cologne Water Quality Act Waste Discharge Requirement	Central Valley RWQCB
California Fish and Game Code section 1600 Streambed Alteration Agreement (SAA)	CDFW
Section 7 Consultation/Biological Opinion (BO)	USFWS (issued to USACE)
California Endangered Species Act (ESA) Incidental Take Permit	CDFW
NPDES Permit for Storm Water Discharges Associated with Construction Activities	Central Valley RWQCB

SECTION 4.0 ENVIRONMENTAL ANALYSIS

4.0.1 Introduction

Pursuant to CEQA, this EIR evaluates the environmental impacts associated with the Project and identifies mitigation measures to reduce significant impacts to less than significant levels, if feasible. The mitigation measures identified in the following sections are subject to change as the needed permits are obtained from federal agencies. All final mitigation measures will be included in the Mitigation Monitoring and Reporting Plan that will be prepared and approved by SBFCA prior to commencing construction of the project.

To correct excessive through-seepage and under-seepage of a 1.65-mile (8,700 linear feet) segment of the Feather River West Levee bounded by the Sutter Bypass East Levee and SR 99, just opposite the Feather River from Nicolaus, California, the SBFCA is proposing to implement the Proposed Project to correct the deficiencies in the levee segment. The purpose of the Project is to upgrade the levee segment to meet FEMA requirements (100-year DWSE) and comply with applicable design criteria.

4.0.2 Analysis Assumptions Generally Used To Evaluate The Impacts Of The Project

4.0.2.1 Baseline Environmental Conditions Assumed in the Draft EIR

CEQA Guidelines Sections 15125(a) and (e) provide that the existing environmental setting (the environmental conditions in the project vicinity at the time the environmental analysis is begun) should constitute the baseline physical conditions by which it is determined whether an impact is significant. Pursuant to this guideline, all impact assessments in this EIR are based upon comparison of the projected future *With Project* conditions with the existing environmental setting rather than with the future *Without Project* condition.

4.0.2.2 Definition of Cumulative Setting

The cumulative impacts analysis was performed based upon a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of SBFCA (Section 15130[b][1][a] of the CEQA Guidelines). The other known related construction projects in the area include the Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project Site, which will move forward when the project receives funding; and the SBEL Critical Repairs Project, located several miles north of the TFRRP site along the Sutter Bypass, which consists of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. It

is not anticipated that construction activity associated with these projects would occur during the timeline of the Proposed Project.

There are no other known past, present, and probable future projects producing related or cumulative impacts in the area.

4.0.2.3 Consideration of Cumulative Impacts

Cumulative impacts are analyzed for each issue area within their respective chapters (Sections 4.1 through 4.20).

4.0.2.4 Consideration of Alternatives

An analysis of impacts associated with each alternative to the Project is included in Chapter 6. Where impacts could be quantified (i.e., criteria pollutant emissions, greenhouse gas emissions, and noise levels), they are quantified in individual sections of chapter 4 (Sections 4.3, 4.8, and 4.13) and discussed in Chapter 6.

4.1 AESTHETICS

This section of the EIR describes the existing conditions in the Project area, the regulatory framework necessary to evaluate potential impacts on aesthetics from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. In terms of examining potential impacts under CEQA, aesthetics is generally a study of changes to scenic or visual resources caused by construction of a project. Analyzing a project area's visual resources involves objective identification of the visual features of the landscape, assessment of the character and quality of those resources relative to overall regional visual character, and determination of the sensitivity of views and visual resources in the landscape. With an emphasis on rural land, the impacts on scenic resources, public views, the visual character of the area, and lighting and glare are discussed below.

4.1.1 Environmental Setting

State and professional standards and methods of visual assessment have been used to determine potential effects on aesthetic values of the Project Area (Section 4.1.3, Environmental Impacts and Mitigation Measures). The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (FHWA 1988). Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (BLM 1980).

The TFRRP site is approximately 1.65 miles in length, located in rural Sutter County. The Project Area is bound by an irrigation canal and orchards on the land side. On the water side, the Project Area is bound by riparian vegetation within the Nelson Slough Unit Feather River Wildlife Area, which is administered by the CDFW. The Project lies north of the Feather River and adjacent to the Feather River Bridge. The nearest residences can be found approximately 0.6 mile southeast of the Project Site, in the census-designated community of Nicolaus.

4.1.1.1 Scenic Resources

Scenic resources are an important component to the quality of life and identity of any geographic area. When people experience a place, their primary sensory interaction with that place is visual in nature. The scenic resources within the greater Project vicinity includes the Sutter Buttes, the Feather River, and the valley's orchards and agricultural landscape, all of which contribute to the unique character of Sutter County.

Scenic Roadways

The State Scenic Highway Program was established to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to the highways. The program establishes the state's responsibility for the protection and enhancement of California's natural scenic beauty through regulations pertaining to scenic roadways and their function. There are no officially recognized scenic roadways in proximity to the Project Area (California Department of Transportation [Caltrans] 2020a).

Scenic Vistas

Sutter County is characterized by relatively flat terrain with generally expansive viewsheds and valley elevations ranging from 35 to 80 feet above measured sea level (Sutter County 2008). Sutter Buttes is the prominent topographic feature within the County, a remnant volcano with a peak elevation approximately 2,000 feet above the surrounding valley floor. Juxtaposed to the vast open farmland, the Sutter Buttes create a dramatic landmark visible throughout the County (Sutter County 2008).

The Project Area is visible from public viewing locations along SR 99 and other public roads in southern Sutter County. The nearest views of the Sutter Buttes can be found 4.5 miles north of the Project Area on SR 99.

Visual Character

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (FHWA 1988; USFS 1995). The appearance of the landscape is described in terms of the dominance of each of these components.

Open Space

The southern border of the levee is bound by riparian vegetation and open space owned and maintained by the CDFW, contributing to the rural character of the Project Area.

Light and Glare

Area light sources are essentially limited to car headlights traveling on SR 99, which vertically intersects the eastern edge of the Project Site. Therefore, the magnitude of sensation from this light source will vary depending on the size of the vehicles passing over the highway and the time of day, dictating the predicted traffic density.

In addition to being at a higher elevation than the nearest residential community, the southern border of the Project Area is bordered by riparian vegetation, blocking the Project Area from total exposure to light pollution that may occur during project execution.

Viewer Exposure and Sensitivity

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Commuters and nonrecreational travelers typically have fleeting views and tend to focus on traffic, not on surrounding scenery; therefore, they generally are considered to have low visual sensitivity. The visual sensitivity of this levee is low since most viewers are people driving to and from work or regional travelers on SR 99. Users of the Nelson Slough Unit Feather River Wildlife Area adjacent to the Project Area include

hunters and recreation users, who generally would have a higher sensitivity to changes to visual resources, but are relatively few in number compared to motorists on SR 99.

4.1.2 Regulatory Setting

This section discusses regulatory information that applies to aesthetic resources. There are no applicable federal or state policies related to visual resources to the implementation of the Proposed Project. Notably, there are no roadways in or near the Project Area that are designated in federal or state plans as scenic highways worthy of protection for maintaining and enhancing scenic viewsheds. Accordingly, there would be no effects on a state scenic highway; this is not analyzed further.

4.1.2.1 Local

Sutter County

The following goals and policies of the Sutter County General Plan (Sutter County 2011) address rural aesthetic properties pertinent to Sutter County:

LU1.16: *Views from Rural Roadways and Highways. Prohibit new projects and activities that would obscure, detract from, or negatively impact the quality of views from the County's rural roadways and highways. Limit off-site advertising along County roadways and highways.*

LU 3.8: *Landmarks and Resources. Preserve and protect local landmarks and significant natural resources within rural communities.*

ER 7.1: *Scenic Resources. Protect views of Sutter County's unique scenic resources including the Sutter Buttes, wildlife and habitat areas, the Sacramento, Feather, and Bear Rivers, and other significant resources.*

ER 7.2: *Scenic Roadways. Enhance the visual character along the County's key transportation corridors, in particular Highways 99 and 20, through application of consistent design and landscape standards.*

ER 7.5: *Lighting. Support practices that reduce light pollution and preserve views of the night sky including the design and sighting of light fixtures to minimize glare and light on adjacent properties.*

4.1.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts on aesthetics that could result from the Proposed Project. The section also recommends mitigation measures as needed to reduce significant impacts.

4.1.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items I (a) through (d), implementation of the Proposed Project would have a significant impact related to aesthetics if it would:

(a) Have a substantial adverse effect on a scenic vista;

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

(c) Substantially degrade the existing visual character or quality of public views of the site or its surroundings (public views are those that are experienced from publicly accessible vantage points); or

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

4.1.3.2 Project Impacts and Mitigation Measures

Impact 4.1-1: Implementation of the Proposed Project would have a substantial adverse effect on a scenic vista. Impact Determination: *no impact*.

Threshold:	*Have a substantial adverse effect on a scenic vista.*

The Project would involve use of heavy equipment near the Feather River as well as near the adjacent banks, which would temporarily disrupt views of the natural scenery associated with the river and adjacent open space. Additionally, equipment is not expected to block public views of other scenic resources in the area such as the Sutter Buttes. Therefore, there would be no impacts on scenic vistas.

Mitigation Measures

None required.

Impact 4.1-2: Implementation of the Proposed Project would substantially damage scenic resources. Impact Determination: *no impact*.

Threshold:	*Substantially damage scenic resources, including, but not limited to, the open space between the site and the Feather River.*

The Project would temporarily disrupt the existing visual conditions of the open space between the Project Site and the Feather River for commuters on SR 99. However, the Project Area would return to its pre-construction state after the levee is repaired. Therefore, the open space scenic resources would not be adversely affected, and no mitigation is required.

Mitigation Measures

None required.

Impact 4.1-3: Implementation of the Proposed Project would substantially degrade the existing visual character or quality of public views of the site or its surroundings. Impact Determination: *no impact*.

Threshold:	*Substantially degrade the existing visual character or quality of public views of the site or its surroundings (public views are those that are experienced from publicly accessible vantage points).*

The Project would involve use of heavy equipment near the Feather River as well as along the existing levee, which would temporarily disrupt the rural visual character of the area. However, the equipment would be removed after Project completion, and the levee would be rebuilt to approximately the same appearance as existing conditions. There would be no impacts on the visual character of the Project Area.

Mitigation Measures

None required.

Impact 4.1-4: Implementation of the Proposed Project would create a new source of substantial light or glare which would adversely affect day or nighttime views of the area. Impact Determination: *less than significant with mitigation incorporated*.

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

The Project would involve use of heavy equipment near the Feather River for Project-related activities (i.e., staging and storing of equipment, parking for construction workers, and dewatering and stockpiling of spoils). Due to seasonal restrictions for in-water work, and to complete the Project within the minimal number of seasons possible, work may be performed at night, as well as on Saturdays and potentially Sundays. Night lighting may be necessary near the Feather River. Impacts would be temporary; however, night lighting has the potential to result in a short-term nuisance for residents in the community of Nicolaus.

Mitigation Measure AES-1 would require, to the maximum extent feasible, that only the minimal amount of lighting necessary to perform Project activities would be used, that light fixtures shall be shielded, and that directing light into adjacent areas shall be avoided. In addition, AES-2 shall require implementation of a community outreach program, where residents located within 1 mile of the Project shall be notified of nighttime and/or weekend work and the contact information for a community outreach coordinator shall be provided for receiving construction-related complaints and for assisting in addressing them. With implementation of these two measures, significant short-term impacts on lighting in the area would be reduced to less than significant levels.

Mitigation Measures

AES-1: Lighting

To the maximum extent feasible, Project lighting shall be directed and shielded to focus illumination on the desired areas only and avoid directing light into adjacent areas.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

AES-2: Implement a Community Outreach Program

SBFCA will provide advance public notification to residents located within a 1-mile radius to the Project regarding planned construction activities, including activities that must be performed at night or on weekends. Mail and, where feasible, emails to nearby residents shall be sent notifying them of unavoidable nighttime or weekend construction activities each year prior to construction.

Timing/Implementation: *This measure shall be implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

4.1.4 Cumulative Impacts

There are no other known past, present, and reasonably foreseeable future projects producing related or cumulative impacts in the area.

4.1.4.1 Cumulative Impacts and Mitigation Measures

Impact 4.1-5: Result in a considerable contribution to cumulative impacts on scenic vistas. Impact Determination: *less than significant*.

Threshold:	*Have a substantial adverse effect on a scenic vista in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas*

The Project would have a less than significant impact on aesthetic resources and would not contribute to a cumulative impact on aesthetic resources in the region.

Mitigation Measures

None required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

This section of the EIR describes the existing conditions in the Project area, the regulatory framework necessary to evaluate potential impacts on agriculture and forestry resources from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts associated with conversion of farmland, conflicts with existing agricultural uses, and conversion of forestry resources are discussed below.

4.2.1 Environmental Setting

There are no forestry resources in or near the Project Area.

Sutter County is dominated by extensive agriculture (Sutter County 2011). However, there are no State-mapped designated farmlands by the California Department of Conservation (DOC) in the areas potentially directly impacted by the Project (i.e., Project Area) including Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (DOC 2022a). The Project Site is designated as Grazing Land (DOC 2022a; Sutter County 2011).

The Project Site is designated Open Space in the Sutter County General Plan. The land north of the Project Site is designated AG-80. No other agricultural uses occur on or adjacent to the Project Site. There are no lands within the Project Site that are held under Williamson Act contracts (Sutter County 2011).

4.2.2 Regulatory Framework

Relevant federal, state, and local laws and regulations pertaining to agriculture and forestry resources are discussed below.

4.2.2.1 Federal

Farmland Protection Policy Act (7 United States Code [USC] Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. Projects are subject to FPPA requirements if they irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or rely on assistance from a federal agency.

4.2.2.2 State

California Department of Conservation, Division of Land Resource Protection

The California Department of Conservation (DOC) applies the Natural Resources Conservation Service (NRCS, 2020a) soil classifications to designate agricultural lands as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Agricultural lands with these designations are referred to as *Important Farmland*.

Williamson Act

The California Land Conservation Act, better known as the Williamson Act, is a non-mandated state policy providing for protection of agricultural and open space lands that meet local size and land use criteria. Land under a Williamson Act contract is restricted to agricultural uses for a term of no less than 10 years.

Farmland Mapping and Monitoring Program

The Important Farmland Inventory System initiated in 1975 by the U.S. Department of Agriculture (USDA) NRCS classifies land based on 10 soil and climatic characteristics. The DOC started the Farmland Mapping and Monitoring Program (FMMP), a similar system of mapping and monitoring for California in 1980.

4.2.2.3 Local

Sutter County

The following goals and policies of the Sutter County General Plan (Sutter County 2011) are applicable to the Project:

LU 2.1: *Long-Term Conservation. Promote the long-term conservation of agricultural and open space lands in accordance with the goals and policies of the Agricultural Resources and Environmental Resources elements.*

AG 1.1: *Agricultural Land Preservation. Preserve and maintain agriculturally designated lands for agricultural use and direct urban/suburban and other nonagricultural related development to the cities, unincorporated rural communities, and other clearly defined and comprehensively planned development areas.*

4.2.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts on agricultural and forestry resources that could result from Project implementation and recommends mitigation measures as needed to reduce significant impacts.

4.2.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items II (a) through (e), implementation of the Project would have a significant impact related to agricultural and forestry resources if it would:

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

(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract;

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

(d) Result in loss of forest land or conversion of forest land to non-forest use; or

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

4.2.3.2 Methods of Analysis

Information related to Important Farmlands was obtained from the DOC FMMP Important Farmland Finder (DOC 2022a).

In addition, data from the Sutter County 2030 General Plan (Sutter County 2011) were used to complete this section.

4.2.3.3 Project Impacts and Mitigation Measures

Impact 4.2-1: Implementation of the Proposed Project would result in conversion of farmland to non-agricultural use. Impact Determination: *no impact*.

Threshold:	*Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to a non-agricultural use.*

There is no state-designated Farmland within the Project Site, which is designated as Grazing Land by the FMMP and the Sutter County 2030 General Plan. Agricultural uses on Prime Farmland exist directly north of the Project Site, but these upland areas would not be adversely affected by Project activities. Therefore, there would be no conversion of farmland to a non-agricultural use. There would be no impact.

Mitigation Measures

None required.

Impact 4.2-2: Implementation of the Proposed Project would conflict with existing zoning for agricultural use, or a Williamson Act contract. Impact Determination: *no impact*.

Threshold:	*Conflict with existing zoning for agricultural use, or a Williamson Act contract.*

There are no Williamson Act contracts in effect on parcels within the Project Site (Sutter County 2011). There would be no impact.

Mitigation Measures

None required.

Impact 4.2-3: Implementation of the Proposed Project would impact forestry resources. Impact Determination: *no impact*.

Threshold:	*Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]) or result in loss of forest land or conversion of forest land to non-forest use.*

There are no forestry resources in or adjacent to the Project Area. Therefore, the Project would have no impact on forestry resources.

Mitigation Measures

None required.

4.2.4 Cumulative Impacts

Impact 4.2-4: Result in a considerable contribution to cumulative impacts on agriculture and forestry resources. Impact Determination: *no impact*.

Threshold:	*Have a substantial adverse effect on agriculture and forestry resources in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas*

Because the Project would have no impact on agricultural resources or forestry resources, the Project would have no contribution to cumulative impacts on agriculture and forestry resources in the region.

Mitigation Measures

None required.

4.3 AIR QUALITY

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on air quality from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts associated with criteria pollutants, toxic air contaminants (TAC), and odor are discussed below.

4.3.1 Environmental Setting

4.3.1.1 Air Basin Characteristics

The Project Area for the TFRRP, a subset of the Sutter Basin, is focused between the Sutter Bypass East Levee and SR 99 just opposite the Feather River from Nicolaus, California. The levee landside is bound by an irrigation canal and orchards that are owned and operated by Odysseus Farms. This area is encompassed within the NSVAB. The NSVAB also comprises all of Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta counties.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in the NSVAB. The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. Hot, dry summers and mild, rainy winters characterize the Mediterranean climate of the Sacramento Valley. Because the valley is a bowl-like shape, this can trap pollutants and a temperature inversion layer can create unhealthy pollution concentrations.

Both the U.S. Environmental Protection Agency (USEPA) and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards establish safe levels of contaminants that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called criteria pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are Ozone (O_3), Carbon Monoxide (CO), Particulate Matter (PM), Oxides of Nitrogen (NO_x), Sulfur Dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas.

The Feather River Air Quality Management District (FRAQMD is the air quality regulating authority in Sutter County. The agency's primary responsibility is ensuring that the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are attained and maintained in the Sutter and Yuba counties, within the NSVAB. The unique mountain-encompassed geography with its potential for trapped pollutants underscores the importance of the FRAQMD regulating air pollution. Sutter County is classified as an attainment area for all federal standards, as discussed in more detail below. However, Sutter County is designated as a nonattainment area for the state standards of O_3 and PM_{10} (particulate matter less than 10 microns in diameter. The FRAQMD is responsible for adopting or creating a comprehensive plan to reduce the emissions of these criteria pollutants. They also enforce rules

and regulations, inspect and issue permits for stationary sources of air pollutants, respond to citizen complaints, monitor ambient air quality and meteorological conditions, award grants to reduce motor vehicle emissions, and conduct public education campaigns. The FRAQMD coordinates work from government agencies, businesses, and private citizens to achieve and maintain healthy air quality.

The climate is characterized by hot, dry summers and cool, rainy winters. Characteristics of NSVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

4.3.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Coarse Particulate Matter (PM_{10}), and Fine Particulate Matter ($PM_{2.5}$), and O_3 are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as CO, Nitrogen Dioxide (NO_2), and SO_2 are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 4.3-1.

Table 4.3-1 Criteria Air Pollutants Summary of Common Sources and Effects

Pollutant	Major Manufactured Sources	Human Health Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O_3)	Formed by a chemical reaction between Reactive Organic Gases (ROGs) and nitrous oxides (NOx) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints, and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.

Table 4.3-1 Criteria Air Pollutants Summary of Common Sources and Effects		
Pollutant	**Major Manufactured Sources**	**Human Health Effects**
Particulate Matter (PM10 & PM2.5)	Produced by power plants, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Sulfur Dioxide (SO2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: California Air Pollution Control Officers Association (CAPCOA) 2013

Carbon Monoxide (CO)

CO, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most sever meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances (i.e., up to 600 feet or 185 meters) of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the NSVAB are in compliance with the state and federal 1- and 8-hour standards.

Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations

between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

Ozone

Ozone (O_3) is a secondary pollutant, meaning it is not directly emitted. It is formed when Volatile Organic Compounds (VOCs) or ROG and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

Particulate Matter

Particulate matter includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and smaller than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x, sulfur oxides (SO_x) and VOCs. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the USEPA, some people are much more sensitive to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

4.3.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, TACs are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Additionally, diesel engines emit a complex mixture of air pollutants composed of gaseous and solid material. The solid emissions in diesel exhaust are known as Diesel Particulate Matter (DPM). In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children (whose lungs are still developing) and the elderly (who may have other serious health problems). Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. Diesel engines also contribute to California's $PM_{2.5}$ air quality problems. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Diesel Exhaust

CARB identifies DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (e.g., heavy-duty, light-duty), engine operating conditions (i.e., idle, accelerate, decelerate), fuel formulations (e.g., high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

4.3.1.4 Ambient Air Quality

Ambient air quality at the Project Site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. The Yuba City – Almond Street air quality monitoring station is the closest monitoring station to the site, located at 773 Almond Street in Yuba City, approximately 16 miles north of the Project Site. The Yuba City – Almond Street monitoring station monitors ambient concentrations of O_3, $PM_{2.5}$ and PM_{10}.

Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered *generally* representative of ambient concentrations in the Project Area.

Table 4.3-2 summarizes the published data concerning O_3, $PM_{2.5}$ and PM_{10} between 2019 and 2021 from the Yuba City – Almond Street monitoring station. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

Table 4.3-2. Summary of Ambient Air Quality Data

Pollutant Standards	2019	2020	2021
O_3			
Max 1-hour concentration (ppm)	0.077	0.093	0.088
Max 8-hour concentration (ppm) (state/federal)	0.070/0.069	0.083/0.082	0.077/0.077
Number of days above 1-hour standard (state/federal)	0/0	0/0	0/0
Number of days above 8-hour standard (state/federal)	0/0	2/1	5/2
PM_{10}			
Max 24-hour concentration (µg/m3) (state/federal)	81.9/80.5	269.2/269.1	109/6/110.1
Number of days above 24-hour standard (state/federal)	27.0/0	40.3/4.0	*/0
$PM_{2.5}$			
Max 24-hour concentration (µg/m3) (state/federal)	39.3/39.3	252.9/252.9	89.9/89.9
Number of days above federal 24-hour standard	2.0	31.2	11.1

Source: CARB 2022a
$\mu g/m^3$ = Micrograms Per Cubic Meter; ppm = Parts Per Million
* = Insufficient data available from CARB to determine the value

The USEPA and CARB designate air basins or portions of air basins and counties as being in *attainment* or *nonattainment* for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The Clean Air Act (CAA) mandates that the NAAQS (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAAQS are not to be exceeded during a 3-year period. The attainment status for the NSVAB is included in Table 4.3-3.

Table 4.3-3. Federal & State Ambient Air Quality Attainment Status for the Project Region (Sutter County Portion of the NVAB)

Pollutant	State	Federal
Ozone (O_3)	Nonattainment	Unclassified/Attainment
Coarse Particulate Matter (PM_{10})	Nonattainment	Unclassified/Attainment
Fine Particulate Matter ($PM_{2.5}$)	Attainment	Unclassified/Attainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO_2)	Attainment	Unclassified/Attainment

Source: CARB 2022b

Air quality monitoring data determines whether an area meets the state and federal standards. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment or nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the state standards for O_3 and PM_{10} (CARB 2022b).

4.3.1.5 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is a single-family home located approximately 1,580 feet north of the easternmost edge of the Project Site. This single-family residence fronts Sacramento Avenue approximately 1,300 feet east of SR 99 at the nearest point.

4.3.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to air quality are discussed below.

4.3.2.1 Federal

Clean Air Act

The CAA of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those *sensitive receptors* most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. An area is designated unclassified because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 4.3-3 lists the federal attainment status of the NSVAB for the criteria pollutants.

4.3.2.2 State

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal CAA and its subsequent amendments requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA (USEPA 2018).

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register.

The FRAQMD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the Yuba County and Sutter County portion of the NSVAB. In an attempt to achieve NAAQS and CAAQS and maintain air quality, the air district has participated in the preparation of several air quality attainment plans and reports, which together constitute the SIP for the NSVAB. Specifically, all of the air districts in the NSVAB including the FRAQMD, prepared an air quality attainment plan for O_3 in 1994. Updated every 3 years since adoption, the current *Northern Sacramento Valley Planning Area 2021 Triennial Air Quality Attainment Plan* (2021 AQAP) includes forecast ROG and NO_x emissions (ozone precursors) for the entire NSVAB. The 2021 AQAP provides local guidance for air basins to achieve attainment of the California ambient air quality O_3 standard.

Tanner Air Toxics Act & Air Toxics "Hot Spots" Information and Assessment Act

CARB's statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807 the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California's program to reduce exposure to air toxics and sets forth a formal procedure for CARB to

designate substances as TACs. Once a TAC is identified, CARB adopts an Airborne Toxics Control Measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate Toxics Best Available Control Technology (T-BACT) to minimize emissions.

CARB also administers the state's mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the "Hot Spots" Act was amended by SB 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Mobile Source Strategy

In 2016 CARB released the update to the Mobile Source Strategy. This demonstrates how the state will meet air quality standards, achieve GHG emission reduction targets, decrease health risks from transportation emissions, and reduce petroleum consumption over the next 15 years. This includes engine technology that is effectively 90 percent cleaner than today's current standards, with clean, renewable fuels comprising half the fuels burned.

The strategy also relies on the increased use of renewable fuels to ensure that air pollutant reductions are achieved while meeting the ongoing demand for liquid and gaseous fuels in applications where combustion technologies remain, including in heavy-duty trucks and equipment and light-duty hybrid vehicles. The estimated benefits of the Mobile Source Strategy in reducing emissions from mobile sources includes a 50-percent reduction in the consumption of petroleum-based fuels statewide.

Truck and Bus Regulation Reducing Emissions from Existing Diesel Vehicles

In 2008, CARB approved the Truck and Bus Regulation to significantly reduce PM and NO_X emissions from existing diesel vehicles operating in California. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks had to be retrofitted with PM filters beginning January 1, 2012, and older trucks had to be replaced by January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010-model-year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. Small fleets with three or fewer diesel trucks can delay compliance for heavier trucks by reporting and there are a number of extensions for low-mileage construction trucks, early PM filter retrofits, adding cleaner vehicles, and other situations. Privately and publicly owned school buses have different requirements.

Heavy-Duty Vehicle Idling Emission Reduction Program

The purpose of CARB's *ATCM is to Limit Diesel-Fueled Commercial Motor Vehicle Idling* is to reduce public exposure to DPM and criteria pollutants by limiting the idling of diesel-fueled commercial vehicles.[1] The driver of any vehicle subject to this ATCM is prohibited from idling the vehicle's primary diesel engine for greater than 5 minutes at any location and is prohibited from idling a diesel-fueled auxiliary power system for more than 5 minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (i.e., homes and schools).

CARB Final Regulation Order, *Requirements to Reduce Idling Emissions from New and In-Use Trucks*, which began in 2008, requires that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to *neutral* or *park*, and the parking brake is engaged.

4.3.2.3 Regional

Feather River Air Quality Management District

The FRAQMD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The FRAQMD, along with other air districts in the NSVAB, has committed to jointly prepare and implement the *NSVAB Air Quality Attainment Plan* for the purpose of achieving and maintaining healthful air quality throughout the air basin. In addition, the FRAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. For instance, FRAQMD Regulation IV, *Stationary Emission Sources Permit System and Registration*, requires that most projects using equipment capable of releasing emissions to the atmosphere obtain permit(s) from FRAQMD prior to equipment operation. Specifically, portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine over 50 horsepower are required to have a FRAQMD permit or a CARB portable equipment registration.

FRAQMD Rule 3.16, *Fugitive Dust*, states that developers or contractors are required to control dust emissions from earth moving or any other construction-related activities to prevent airborne dust from leaving a Project Site. Developers and/or contractors must take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Rule 3.16 is enforced through the requirement of preparation of a Fugitive Dust Control Plan, which identifies the dust suppression measures to be employed. Reasonable precautions shall include, but are not limited to the following:

[1]The ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling is codified in Title 13 of the California Code of Regulations (CCR), Chapter 10, Section 2485.

- Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, construction of roadways, or the clearing of land.
- Application of asphalt, oil, water, or suitable chemical on dirt roads, material stockpiles, and other surfaces which can give rise to airborne dusts.
- Other FRAQMD-approved means.

Other responsibilities of the FRAQMD include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality.

4.3.2.4 Local

Sutter County

The following goals and policies of the 2030 Sutter County General Plan (Sutter County 2011) are applicable to the Project:

ER 9.1 *Ambient Air Quality Standards. Work with the California Air Resources Board and the Feather River Air Quality Management District (FRAQMD) to meet state and federal ambient air quality standards.*

ER 9.2 *FRAQMD: Support FRAQMD in its establishment of appropriate standards to address the air quality impacts of new development.*

ER 9.5 *FRAQMD Review: Submit development proposals to FRAQMD for review and comment in accordance with CEQA prior to consideration by the County's decision-making body.*

ER 9.6 *New Development: Review and ensure new development projects incorporate feasible measures that reduce construction and operational emissions.*

4.3.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts on air quality that could result from the Project and recommends mitigation measures as needed to reduce significant impacts

4.3.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items III (a) through (d), implementation of the Project would have a significant impact related to air quality if it would:

(a) conflict with or obstruct implementation of applicable air quality plan;

(b) result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard;

(c) expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs); or

(d) result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

FRAQMD Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (FRAQMD) may be relied upon to make the above determinations. According to the FRAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The FRAQMD has established thresholds of significance for air quality for construction type activities. Specifically, the FRAQMD distinguishes between two types of projects, Type 1 and Type 2 projects. Type 1 projects are land use projects with an operational phase. Type 2 projects have no operational land use component, as with the Proposed Project. A Type 2 project is considered to be less than significant if the *average project life emissions* do not exceed 25 pounds per day of NO_x or ROG, and the daily emissions of 80 lbs/day of PM_{10}.

Table 4.3-4 presents the FRAQMD significance thresholds for Type 2 projects.

Table 4.3-4. FRAQMD Thresholds of Significance for Type 2 Projects

Emission	Type 2 Project Significance Thresholds
NO_x	25 lbs/day, not to exceed 4.5 tons/year
ROG	25 lbs/day, not to exceed 4.5 tons/year
PM_{10}	80 pounds/day
$PM_{2.5}$	N/A

Note: NO_x and ROG construction emissions may be averaged over the life of a project but may not exceed 4.5 tons per year.

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

4.3.3.2 Methods of Analysis

Air quality impacts of the Proposed Project were assessed in accordance with methodologies recommended by the FRAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the Road Construction Emissions Model (RCEM), version 9.0.1. The RCEM is a spreadsheet-based model that is able to estimate exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips as well as fugitive dust from the construction of a new roadway, road widening, roadway overpass, levee or pipeline projects.

Project air pollutant emissions were calculated using a combination of model defaults for Sutter County and Project details contained in Section 3.0, *Project Description*, of this EIR, including the Construction Equipment List contained in Table 3-3 of Section 3.0. The anticipated timeline of the Project can also be found in Table 3-3 of the Project Description. Additionally, construction materials quantities expected to be generated from the Project can be found in Table 3-2 of the Project Description.

4.3.3.3 Project Impacts and Mitigation Measures

Impact 4.3-1: Implementation of the proposed Project would conflict with or obstruct implementation of applicable air quality plan. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Conflict with or obstruct implementation of applicable air quality plan.*

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an Air Quality Attainment Plan (AQAP) to be prepared for areas designated as nonattainment with regard to the federal and/or state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously stated, the Project Site is located within the Sutter County portion of the NSVAB, which is under the jurisdiction of the FRAQMD and is classified as nonattainment for the state O_3 and PM_{10} standards. The FRAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the NSVAB is in nonattainment. The FRAQMD attains and maintains air quality conditions in Sutter County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. Their current strategies are included in the 2021 AQAP, which contains mechanisms to achieve O_3 standards. These pollutant control strategies are based on the latest scientific and technical information and planning assumptions, updated emission inventory methodologies for various source categories, and the latest population growth projections and associated Vehicle Miles Traveled (VMT) projections for the region. FRAQMD's latest population growth forecasts were defined in consultation with local governments and with reference to local general plans. A project conforms with the FRAQMD attainment plans if it complies with all applicable district rules and regulations, complies with all control measures from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

FRAQMD growth projections for the unincorporated areas of Sutter County are based on the County of Sutter General Plan (2011). As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the project is located would be consistent with FRAQMD air quality planning. If a Proposed Project, however, increases the population density greater than that assumed in the general plan, the project may conflict with FRAQMD air quality planning efforts and could result in a significant impact on air quality. The Project is proposing upgrades

to an existing levee system. It would not increase the number of homes or jobs and would not contribute to emissions once the construction of the upgrades is complete. Additionally, to comply with all applicable FRAQMD rules and regulations, the Proposed Project would also have to adhere to the daily and annual thresholds for individual pollutants. As demonstrated below, the Proposed Project construction phase would not surpass any of the FRAQMD's significance thresholds with imposition of Mitigation Measure AIR-1. With implementation of Mitigation Measure AIR-1, described in detail below, the Project would not conflict with the 2021 AQAP.

Mitigation Measures

AIR-1: CARB Tier 4 Certified Equipment

- The Project applicant and/or its contractor shall require that all Project off-road equipment used during construction activities be CARB Tier 4 Certified, as set forth in Section 2423 of Title 13 of the CCR, and Part 89 of Title 40 of the Code of Federal Regulations (CFR).
- The Project applicant and/or its contractor shall require that all Project haul trucks entering and leaving the Project Site are Model Year 2010 or newer.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

Impact 4.3-2 Implementation of the Proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard. Impact Determination: *less than significant with mitigation*.

Threshold:	*Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard.*

Implementation of the Proposed Project would generate short-term emissions of criteria air pollutants. The significance criteria established by the FRAQMD for Type 2 projects is relied upon to make the determination whether the Project would result in a cumulatively considerable impact.

The criteria pollutants of primary concern within the Project Area include O_3-precursor pollutants (i.e., ROG and NO_X) and PM_{10}. Emissions generated during Project implementation would be short term and of temporary duration, lasting only as long as levee construction and material hauling activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceed the thresholds of significance.

Emissions generated from off-road equipment, ground disturbance, and worker commute trips are calculated using the FRAQMD-approved RCEM, which estimates exhaust emissions from heavy-duty

construction equipment, haul trucks, and worker commute trips as well as fugitive dust from the construction of a new roadway, road widening, roadway overpass, levee, or pipeline projects.

Predicted maximum daily generated emissions for the Proposed Project are summarized in Table 4.3-5. Emissions are short-term and of temporary duration, lasting only as long as Project implementation occurs, but would be considered a potentially significant air quality impact if the volume of criteria air pollutants generated by Project implementation exceeds the FRAQMD's significance thresholds.

Table 4.3-5. Daily Project Construction/Implementation Emissions (pounds per day) - Unmitigated

Phases	Pollutant (pounds per day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Phase 1 (Clearing, Grubbing, and Stripping)	2.30	43.30	13.61	3.57
Phase 2 (Levee Degrade for Cutoff Wall Construction)	5.72	61.27	19.08	5.54
Phase 3 (Cutoff Wall Construction)	9.25	64.90	9.09	2.69
Phase 4 (Levee Reconstruction)	5.99	65.45	8.41	3.36
Phase 5 (Levee Resurfacing)	1.34	31.26	13.08	3.18
Phase 6 (Hydroseeding)	4.30	26.98	3.17	1.38
Phase 7 (Demobilization and Site Cleanup)	4.51	28.45	3.28	1.45
FRAQMD Potentially Significant Impact Threshold	*25*	*25*	*80*	*NA*
Exceed FRAQMD Threshold?	**No**	**Yes**	**No**	**No**

Source: RCEM version 9.0.1. Refer to Appendix C for Model Data Outputs.

As show in Table 4.3-5, pollutant emissions would exceed the FRAQMD's NO_x significance thresholds during construction. The source of Project NO_x emissions would be predominately associated with the heavy-duty off-road equipment necessary for Project implementation (e.g., tractors, dozers) as well as the Project haul trucks necessary for the import and export of soil and aggregate materials to and from the Project Site. Therefore, Mitigation Measure AQ-1 is required in order to reduce NO_x emissions to levels below the significance threshold. Mitigation Measure AQ-1 would require the use of construction equipment with Tier 4 Certified engines during construction activities, and the use of material haul trucks of model year 2010 and newer.

The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the USEPA, CARB, and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis-Con, and Yanmar). The USEPA signed the final rule reflecting the provisions of the Statement of Principles on August 27, 1998. The 1998 regulation introduced Tier 1 standards for equipment under 50 horsepower and increasingly more stringent Tier 2, Tier 3, and Tier 4 standards for all equipment with phase-in schedules from 2000 to 2015. As a result, all off-road, diesel-fueled construction equipment manufactured from 2006 to 2015 has been manufactured to Tier 3 standards. The Tier 3 standards can reduce NO_x

emissions by as much as 64 percent and PM emissions by as much as 39 percent. The USEPA signed the final rule introducing Tier 4 emission standards, which were phased-in between 2008 and 2015 on May 11, 2004. The Tier 4 standards require that NO_x emissions be further reduced by about 90 percent. All off-road, diesel-fueled construction equipment manufactured in 2015 or later have been manufactured to Tier 4 standards.

Haul trucks manufactured since 2010 are substantially more efficient than older haul trucks. By January 1, 2023, nearly all trucks and buses traveling on California roadways are required to have 2010-model-year engines or equivalent.

Table 4.3-6 shows Project construction emissions with the imposition of Mitigation Measure AIR-1.

Table 4.3-6. Daily Project Construction/Implementation Emissions (pounds per day) - Mitigated

Phases	Pollutant (pounds per day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Phase 1 (Clearing, Grubbing, and Stripping)	1.58	24.44	12.96	2.97
Phase 2 (Levee Degrade for Cutoff Wall Construction)	4.14	22.44	17.53	4.12
Phase 3 (Cutoff Wall Construction)	7.70	24.83	7.70	2.41
Phase 4 (Levee Reconstruction)	4.27	24.05	6.90	1.96
Phase 5 (Levee Resurfacing)	0.84	18.75	12.68	2.82
Phase 6 (Hydroseeding)	3.55	6.82	2.53	0.80
Phase 7 (Demobilization and Site Cleanup)	3.77	7.16	2.62	0.84
FRAQMD Potentially Significant Impact Threshold	*25*	*25*	*80*	*NA*
Exceed FRAQMD Threshold?	**No**	**No**	**No**	**No**

Source: RCEM version 9.0.1. Refer to Appendix C for Model Data Outputs.

As shown in Table 4.3-6, with imposition of Mitigation Measure AIR-1, NO_x emissions would no longer exceed the FRAQMD significance threshold of 25 pounds of NO_x per day, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard, and no health effects from Project criteria pollutants would occur. This impact is less than significant.

Operational emissions impacts are long-term air emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes levee improvements to the existing Feather River West Levee with the goal of meeting State ULDC and FEMA requirements. Once upgrades are complete, the Project would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions.

Mitigation Measures

Implementation of Mitigation Measure AIR-1 would be required.

Impact 4.3-3: Implementation of the Proposed Project would expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs). Impact Determination: *less than significant*.

Threshold:	*Expose sensitive receptors to substantial pollutant concentrations (i.e., carbon monoxide hot spots or TACs).*

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is a single-family home located approximately 1,580 feet north of the eastern-most edge of the Project Site. This single-family residence fronts Sacramento Avenue approximately 1,300 feet east of SR 99 at the nearest.

Construction-related activities would result in temporary, short-term Project-generated emissions of DPM, ROG, NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); paving; and other miscellaneous activities. However, DPM is the primary TAC of concern. The potential cancer risk from the inhalation of DPM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. DPM disperses rapidly. According to CARB, DPM concentrations decrease by 70 percent at 500 feet from the source (2005). Receptors must be in close proximity to emission sources (over a substantial span of time) in order to be exposed to concentrations of concern. The nearest sensitive receptor to the Project Site is a single-family home located 1,580 feet north of the eastern-most boundary of the Project Site. This distance is greater than the CARB-recommended buffer of 500 feet between a source of DPM and sensitive receptors. Additionally, the linear Project Site is 1.65 miles in length and therefore the majority of construction activities would occur at distances greater than 1,580 feet. Emissions of DPM would be generated from different locations on the Project Site, rather than a single location. Thus, due to the size of the Project Site and the fact that DPM disperses rapidly, the Project would not expose people to substantial levels of DPM concentrations.

In addition to the potential negative health effects associated with DPM, it has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling. Concentrations of CO are a direct function of the number of vehicles and length of idling at a position. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours, not construction-

type projects. Further, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards, including those associated with off-road equipment and haul trucks, have become increasingly stringent in the last 20 years. In 1993, much of the state was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles and equipment, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration across the entire state is now designated as attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 ppm or the 8-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the SCAQMD's *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a *Modeling and Attainment Demonstration* prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). To establish a more accurate record of baseline CO concentrations, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest 1-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest 8-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway.

Similar considerations are also employed by other air districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

According to the RCEM, which is used to predict the number of on-road Project construction-related trips, Project construction/implementation would instigate a maximum of 314 traffic trips per day over the 20 days of Phase 1 (304 haul truck trips and 10 worker commute trips). Thus, the Proposed Project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day) and there is no likelihood of the Project traffic exceeding CO values.

For the reasons discussed above, impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.3-4: Implementation of the Proposed Project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impact Determination: *no impact*.

Threshold:	*Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (e.g., farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified as being associated with odors. During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions. Immediately following completion of the Project all Project activity would cease. Therefore, no impact would occur.

Mitigation Measures

None required.

4.3.4 Cumulative Impacts

4.3.4.1 Cumulative Setting

The cumulative setting for air quality includes the NSVAB. The NSVAB is designated as a nonattainment area for state standards of O_3 and PM_{10} (CARB 2022b). Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the NSVAB and associated growth and development anticipated in the air basin. As previously described, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

4.3.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.3-5: Implementation of the Proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard. Impact Determination: *less than significant impact with mitigation incorporated.*

Threshold:	*Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable Federal or State ambient air quality standard.*

As previously described, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed any significance thresholds would not be considered cumulatively considerable. As identified in the analysis above, the Project would not exceed significance thresholds or otherwise result in any project-level impact with the imposition of Mitigation Measure AIR-1. Thus, the Project is considered less than cumulatively considerable in terms of air quality-related impacts.

Mitigation Measures

Implementation of Mitigation Measure AIR-1 would be required.

4.4 BIOLOGICAL RESOURCES

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on biological resources from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts from the Project on vegetation communities, special status plant, fish and wildlife species, sensitive habitats, and protected oak trees are discussed below.

The information contained in this section is based on a Biological Resources Assessment (BRA) and Aquatic Resources Delineation (ARD) contained within the BRA, and other biological resources information prepared by ECORP Consulting, Inc. provided in Appendix D. The Study Area analyzed in the BRA and ARD is consistent with the Project Area described in the EIR.

4.4.1 Environmental Setting

4.4.1.1 Site Characteristics and Land Use

The Project Area for the biological resources impact analysis includes the levee, levee slopes, and access roads on either side; a narrow riparian corridor and small portions of a canal; portions of agricultural ditches; and small section of orchard. Directly adjacent to the Project Area are active rice fields and orchards to the north, Nelson Slough and CDFW wildlife area to the south, Sutter Bypass/Butte Slough to the northwest, and the remaining FRWL to the northeast.

4.4.1.2 Biological Setting

Special Status Species

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the CDFW;
- are included on the CDFW watch list;
- are birds identified as Birds of Conservation Concern (BCC) by the USFWS;
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2);
- plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);

- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Literature Review and Information Search

The following resources were reviewed to determine the special status species that have been documented within or in the vicinity of the Project Area. Results of the species searches are included as Attachment A in the BRA in Appendix D.

- The CDFW California Natural Diversity Database (CNDDB) data for the "Nicolaus, California" 7.5-minute quadrangles as well as the eight surrounding U.S. Geological Survey (USGS) quadrangles;
- The USFWS Information, Planning, and Consultation System Resource Report List for the Study Area;
- The CNPS electronic Inventory of Rare and Endangered Plants of California was queried for the "Nicolaus, California" 7.5-minute quadrangles and the eight surrounding quadrangles; and
- The NMFS West Coast Region Species, Critical Habitat, and Essential Habitat for the "Nicolaus, California" 7.5-minute quadrangle (ECORP 2023a, Appendix D).

Field Surveys Conducted

ECORP biologists Rachel Bennett, Stephanie Castle, Emily Mecke, and Jennifer West conducted the site reconnaissance visit on August 10, 2022. The Project Area was systematically surveyed on foot using an ESO Arrow Global Positioning System unit with submeter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Project Area with the potential to support special-status species and sensitive habitats. Biological communities occurring onsite were characterized during the field survey and the following biological resource information was collected:

- Potential aquatic resources;
- Vegetation communities;
- Plant and animal species directly observed;
- Burrows and any other special habitat features; and
- Representative photographs.

Based on species occurrence information from the literature review and observations in the field, a list of special status plant and animal species that have the potential to occur within the Project Area was generated. Each of these species' potential to occur within the Project Area was assessed based on the following criteria:

- **Present**. Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur**. Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur**. Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- **Absent**. No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

Aquatic Resources Delineation Site Survey

An ARD of the Project Area was conducted concurrently during the August 10, 2022 site visit. The ARD was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. The results are included in the ARD contained in Appendix D.

Soils

According to the Web Soil Survey, four soil units, or types, have been mapped within the Project Area (Figure 4.7-1 in Section 4.7, Geology and Soils):

- 121 – Columbia fine sandy loam, frequently flooded, 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; and
- 175 – Yuvas loam, 0- to 2-percent slopes.

All of these soil units contain hydric components (ECORP 2023a, Appendix D).

Vegetation Communities

Land cover types or vegetation communities found within the Project Area include Fremont Cottonwood forest and woodland, Valley Oak Riparian Forest, ruderal annual grassland, developed/disturbed, and orchard. Descriptions of the land cover types and vegetation communities present within the Project Area are provided below.

Populus fremontii-Fraxinus velutina-Salix gooddingii Forest & Woodland. This alliance, also known as the Fremont Cottonwood Forest and Woodland, makes up the majority of the riparian corridor found along the southern edge of the Project Area. This riparian area is relatively narrow and consists of mature trees with varying densities of understory cover. Fremont's cottonwood (*Populus fremontii*) is codominant in the tree canopy with box elder (*Acer negundo*), and willow (*Salix* sp.) and has a variable herbaceous understory.

Quercus lobata Riparian Forest & Woodland Alliance. This alliance, also known as the Valley Oak Riparian Forest and Woodland, constitutes a small riparian area found along the southern and western edge of the Project Area. Valley oak (*Quercus lobata*) is codominant in the tree canopy with box elder, and willow. The understory is composed of California wild grape (*Vitis californica*), Himalayan blackberry (*Rubus armeniacus*), California rose (*Rosa californica*), common fig (*Ficus carica*), and poison oak (*Toxicodendron diversilobum*).

Ruderal Annual Grassland. The ruderal annual grassland portion of the Project Area includes the levee slopes. The levee slopes were recently burned as part of levee maintenance at the time of the August 2022 survey. When not burned, the slopes are typically dominated by annual grasses such as wild oat (*Avena* sp.) and Italian ryegrass (*Festuca perennis*).

Developed/Disturbed. The developed/disturbed portion of the Project Area includes the levee crown and access roads on either side. The levee crown is compacted gravel, and the access roads are highly compacted dirt.

Orchard. Orchards are typically open single species tree-dominated habitats with low, bushy trees and an open understory. There is active orchard located along the northeastern edge of the Project Area.

Wildlife

The Project Area supports a variety of common wildlife species. A detailed list of wildlife species observed in the vicinity of the Project Area during the site visit is included as Attachment C of the BRA contained in Appendix D.

Aquatic Resources

A total of 0.182 acre of aquatic resources have been mapped within the Project Area (Table 4.4-1). A discussion of the aquatic resources is presented below, and the ARD maps for the Project Area are presented on Figure 5 of the ARD in the BRA in Appendix D.

Table 4.4-1. Aquatic Resources in the Study Area

Type	Acreage[1]
Wetlands	
None	0.000
Other Waters/Non-Wetland Waters	
Canal	0.076
Agricultural Ditch	0.106
Total:	**0.182**

[1]Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

Wetlands. There are no wetlands within the Project Area.

Canal (Nelson Slough). Canals are linear features that exhibit a bed and bank, Ordinary High-Water Mark (OHWM), and with flow that is managed. The canal (Nelson Slough) mapped within the Project Area was heavily vegetated. Hydrophytic vegetation was present along the banks of the canal and in areas of sediment accumulation that provide a substrate suitable for plant establishment and growth. Dominant plant species observed below the OHWM of the canal include willows with an understory of horsetail (*Equisetum arvense*), California rose, wild grape, and poison oak. Water primrose (*Ludwigia peploides*) was observed in the canal.

Agricultural Ditch. Agricultural ditches are linear features constructed to channel excess ground or surface runoff or convey irrigation water. One agricultural ditch occurs along the landside toe levee for the eastern portion of the Project Area. Portions of the ditch are heavily vegetated. Dominant plant species observed within vegetated portions of the ditches included cattails (*Typha* sp.) and hard-stem bulrush (*Schoenoplectus acutus* var. *occidentalis*).

Evaluation of Special Status Species Identified in the Literature Search

A list of all of the special status plant and wildlife species identified in the literature search for the Project as potentially occurring within the Project Area is provided in Table 4.4-2. This table includes the listing status for each species, a brief habitat description, and a determination on the potential to occur in or near the Project Area.

Several species and sensitive habitat types that came up in the database and literature searches have been formally delisted, are tracked by the CNDDB but possess no special status or are identified as sensitive habitats but not located within the Project Area. These species and habitat types were not included in Table 4.4-2 and are not discussed further.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area

Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other			
Plants						
Ferris' milk-vetch (*Astragalus tener var. ferrisiae*)	-	-	1B.1	Vernally mesic meadows and seeps and in sub-alkaline flats within valley and foothill grasslands (5'–245').	April–May	Absent. The Project Area does not include suitable habitat for this species.
Valley brodiaea (*Brodiaea rosea* ssp. *vallicola*)	-	-	4.2	Occurs in old alluvial terraces and silt, sandy, or gravelly soils in vernal pools and swales within valley and foothill grassland (35'–1,100').	April–May	Absent. The Project Area does not include suitable habitat for this species.
Recurved larkspur (*Delphinium recurvatum*)	-	-	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands (10'–2,590').	March–June	Absent. The Project Area does not include suitable habitat for this species.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Dwarf downingia (*Downingia pusilla*)	-	-	2B.2	Mesic areas in valley and foothill grassland, and vernal pools. Species has also been found in disturbed areas such as tire ruts and scraped depressions (5'–1,460').	March–May	Absent. The Project Area does not include suitable habitat for this species.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	-	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (35'–7,790').	April–August	Low Potential to Occur. The canal (Nelson Slough) may provide marginally suitable habitat.
Woolly rose-mallow (*Hibiscus lasiocarpos var. occidentalis*)	-	-	1B.2	Marshes and freshwater swamps. Often in riprap on sides of levees (0'–395').	June–September	Potential to Occur. The canal (Nelson Slough) may provide suitable habitat and the agricultural ditch may provide marginally suitable habitat.
Veiny monardella (*Monardella venosa*)	-	-	1B.1	Heavy clay soils in cismontane woodland and valley and foothill grasslands (195'–1,345').	May–July	Absent. The Project Area does not include heavy clay soils.
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	FE	CE	1B.1	Clay, often acidic soils in cismontane woodland, valley and foothill grasslands (50'–490').	March–April	Absent. The Project Area is outside of the known geographical range for this species.
Sanford's arrowhead (*Sagittaria sanfordii*)	-	-	1B.2	Shallow marshes and freshwater swamps (0'–2,135').	May–October	Potential to Occur. The ditch and canal (Nelson Slough) may provide suitable habitat.
Suisun Marsh aster (*Symphyotrichum lentum*)	-	-	1B.2	Brackish and freshwater marshes and swamps (0'–10').	May–November	Low Potential to Occur. The canal (Nelson Slough) may provide marginally suitable habitat.
Invertebrates						
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November-April	Absent. The Project Area does not include suitable habitat for this species.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Vernal pools/wetlands.	November-April	Absent. The Project Area does not include suitable habitat for this species.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Absent. No suitable habitat (elderberry shrubs [*Sambucus* sp.]) within Project Area.
Conservancy fairy shrimp (*Branchinecta lynchi*)	FE	-	-	Vernal pools/wetlands.	November-April	Absent. The Project Area does not include suitable habitat for this species.
Monarch butterfly (*Danaus plexippus*)	FC	-	-	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any Season	Absent. The Project Area does not include suitable habitat for this species.
Fish						
Green sturgeon – southern DPS (*Acipenser medirostris* pop. 1)	FT	-	-	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates.	N/A	Absent. The Project Area does not include suitable habitat for this species..
White sturgeon (*Acipenser transmontanus*)	-	-	SSC	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates. Estuaries of large rivers; moves far up inland to spawn.	N/A	Absent. The Project Area does not include suitable habitat for this species.
Riffle sculpin (*Cottus gulosus*)	-	-	SSC	Permanent, cool, headwater streams where riffles and rocky substrates predominate.	N/A	Absent. The Project Area does not include suitable habitat for this species.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Sacramento hitch (*Lavinia exilicauda exilicauda*)	-	-	SSC	Warm, lowland, waters including clear streams, turbid sloughs, lakes and reservoirs. In streams they are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles. Sacramento hitch prefer shallow (<1 m deep) stream habitats with smaller gravel to mud substrates.	N/A	Low Potential to Occur. Marginal habitat found within Nelson Slough (canal) within the Project Area.
Hardhead (*Mylopharodon conocephalus*)	-	-	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River	N/A	Absent. The Project Area does not include suitable habitat for this species.
Sacramento splittail (*Pogonichthys macrolepidotus*)	-	-	SSC	San Francisco Bay estuary and Central Valley lakes and rivers. Spawns in upstream floodplains and backwater sloughs.	N/A	Low Potential to Occur. Marginal habitat found within Nelson Slough (canal) within the Project Area.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent. The Project Area is outside species range.
Longfin smelt (*Spirinchus thaleichthys*)	FC	CT	-	Freshwater and coastal estuaries.	N/A	Absent. The Project Area is outside species range.
Eulachon (*Thaleichthys pacificus*)	FT	-	-	Undammed rivers, streams, creeks, including the Klamath River, Mad River, Redwood Creek, and Smith River.	N/A	Absent. The Project Area does not include suitable habitat for this species.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop. 11)	FT	-	-	Fast-flowing, well-oxygenated rivers and streams below dams in the Sacramento and San Joaquin River systems.	N/A	Absent. The Project Area does not include suitable habitat for this species.
Chinook salmon – Central Valley spring-run Evolutionarily Significant Unit (ESU) *(Oncorhynchus tshawytscha* pop. 11)	FT	CT	-	Undammed rivers, streams, creeks in the Sacramento and San Joaquin River systems	N/A	Absent. The Project Area does not include suitable habitat for this species.
Chinook salmon – Central Valley fall / late fall-run ESU (*Oncorhynchus tshawytscha* pop. 13)	-	-	SSC	Undammed rivers, streams, creeks in the Sacramento and San Joaquin River systems	N/A	Absent. The Project Area does not include suitable habitat for this species.
Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha* pop. 7)	FE	CE	-	Undammed rivers, streams, creeks in the Sacramento and San Joaquin River systems	N/A	Absent. The Project Area does not include suitable habitat for this species.
Amphibian						
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent. The Project Area does not include suitable habitat for this species.
Reptiles						
Northwestern pond turtle (*Emys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Potential to Occur. Suitable habitat present within the canal (Nelson Slough) within the Project Area.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Potential to Occur. Suitable upland and aquatic habitat present within and adjacent to the Project Area.
Birds						
Aleutian cackling goose *(Branta hutchinsii leucopareia)*	Delisted	-	CDFW WL	Pasture, marsh (Sacramento/San Joaquin Valley and Delta)	October-March	Absent. No suitable wintering habitat in Project Area.
Western grebe *Aechmophorus occidentalis*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation.	June-August (breeding)	Absent. No suitable aquatic habitat in Project Area.
Yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT	CE	-	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside County), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15-August 15	Potential to Occur. There is no suitable nesting habitat in the Project Area limits. However, potentially suitable nesting habitat is located immediately adjacent and within 500-feet of the Project Area.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
California black rail (*Laterallus jamaicensis coturniculus*)	-	CT	BCC	Salt marsh, shallow freshwater marsh, wet meadows, and flooded grassy vegetation. In California, primarily found in coastal and Bay-Delta communities, but also in Sierran foothills (Butte, Yuba, Nevada, Placer, El Dorado counties)	March-September (breeding)	Absent. The Project Area does not include suitable habitat for this species.
Mountain plover (*Charadrius montanus*)	-	-	BCC, SSC	Breeds in the Great Plains/Midwestern U.S.; winters in California, Arizona, Texas, and Mexico; wintering habitat in California includes tilled fields, heavily grazed open grassland, burned fields, and alfalfa fields.	September-March (wintering)	Absent. The Project Area does not include suitable habitat for this species.
Marbled godwit (*Limosa fedoa*)	-	-	BCC	Nests in Montana, North and South Dakota, Minnesota, into Canada. Winter range along Pacific Coast from British Columbia south to Central America, with small numbers wintering in interior California. Wintering habitat includes coastal mudflats, meadows, estuaries, sandy beaches, sandflats, and salt ponds.	August-April (migrant/wintering in California)	Absent. The Project Area does not include suitable habitat for this species.
Short-billed dowitcher (*Limnodromus griseus*)	-	-	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/ migrant period: late-August-May	Absent. The Project Area does not include suitable habitat for this species.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Willet (*Tringa semipalmata*)	-	-	BCC	Breeds locally in interior of western North America. In California, breeding range includes the Klamath Basin and Modoc Plateau and portions of Mono and possibly Inyo counties. Breeding habitat includes prairies, Breeds in wetlands and grasslands on semiarid plains; in uplands near brackish or saline wetlands; prefers temporary, seasonal, and alkali wetlands over semipermanent and permanent wetlands.	Breeding: April-August	Absent. The Project Area does not include suitable habitat for this species.
Black tern (*Chlidonias niger*)	-	-	BCC, SSC	Breeding range includes northeastern California, Central Valley, Great Plains of U.S. and Canada; winters in Central and South America; nesting habitat includes shallow freshwater marsh with emergent vegetation, prairie sloughs, lake margins, river islands, and cultivated rice fields.	May-August	Absent. The Project Area does not include suitable habitat for this species.
Double-crested cormorant (*Nannopterum auritum*)	-	-	CDFW WL	Nests near ponds, lakes, artificial impoundments, slow-moving rivers, lagoons, estuaries, and open coastlines and typically forages in shallow water. Non-nesters are found in many coastal and inland waters.	April-August	Potential to Occur. Trees in the adjacent riparian areas represent potential nesting habitat

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Least bittern (*Ixobrychus exilis*)	-	-	SSC	Freshwater and brackish marshes with dense, tall aquatic and semiaquatic vegetation intersperse with clumps of woody vegetation and open water, and rarely salt marshes and mangrove swamps.	April-July	Absent. The Project Area does not include suitable habitat for this species.
White-faced ibis (*Plegadis chihi*)	-	-	CDFW WL	Colonial nester; Nests in shallow marshes with islands of emergent vegetation, flooded shoals and mangrove swamps.	May-August	Absent. The Project Area does not include suitable habitat for this species.
White-tailed kite (*Elanus leucurus*)	-	-	CFP	Nesting occurs within trees in low elevation grassland, agricultural, wetland, oak woodland, riparian, savannah, and urban habitats.	March-August	Potential to Occur. Trees onsite and in the adjacent riparian areas represent potential nesting habitat
Golden eagle (*Aquila chrysaetos*)	-	-	CFP; CDFW WL	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during winter.	Nest (February-August); winter CV (October-February)	Low Potential to Occur. There is no nesting habitat in the Project Area, but the adjacent riparian areas represents marginally suitable nesting habitat.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Northern harrier (*Circus hudsonius*)	-	-	BCC, SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/ brackish marshes, tundra, grasslands, prairies, croplands, desert, shrub-steppe, and (rarely) riparian woodland communities.	April-September	Absent. The Project Area does not include suitable habitat for this species.
Bald eagle *(Haliaeetus leucocephalus*)	Delisted	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Potential to Occur. There is no nesting habitat in the Project Area, but the adjacent riparian areas represents suitable nesting habitat.
Swainson's hawk (*Buteo swainsoni*)	-	CT	-	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to Occur. Trees onsite and in the adjacent riparian areas represent potential nesting habitat.
Burrowing owl (*Athene cunicularia*)	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Low Potential to Occur. There is potential for burrows to be within the ruderal grassland within the Project Area

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Long-eared owl (*Asio otus*)	-	-	BCC, SSC	Nests in open forests, riparian woodland, conifer forests, dense vegetation adjacent to grasslands, shrublands or other open communities	March-August (breeding); November-March (wintering in Central Valley)	Absent. There is no suitable nesting habitat in the Project Area
Nuttall's woodpecker (*Dryobates nuttallii*)	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands	April-July	Potential to Occur. Trees onsite and in the adjacent riparian areas represent potential nesting habitat.
Olive-sided flycatcher (*Contopus cooperi*)	-	-	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semiopen forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America.	May-August	Absent. There is no suitable nesting habitat in the Project Area.
Willow flycatcher (*Empidonax traillii*)	-	CE	-	In California, breeding range includes Cascade-Sierra Nevada region (*brewsteri* ssp.); extimus subspecies found in southern California; nesting habitat includes moist, shrubby riparian willow thickets, often with standing or running water. Winters in Central and South America.	May-September	Absent. There is no suitable nesting habitat in the Project Area.
Loggerhead shrike (*Lanius ludovicianus*)	-	-	SSC	Found throughout California in open country with short vegetation, pastures, old orchards, grasslands, agricultural areas, open woodlands. Not found in heavily forested habitats.	March-July	Potential to Occur. Trees and shrubs onsite represent potential nesting habitat.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Yellow-billed magpie (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban park-like settings.	April-June	Potential to occur. Trees onsite and in the adjacent riparian areas represent potential nesting habitat.
Oak titmouse (*Baeolophus inornatus*)	-	-	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (e.g., gray, Jeffrey, Coulter, pinyon pines, and Joshua tree)	March-July	Present. Species was observed within Project Area. Suitable nesting habitat is present within the adjacent riparian areas.
Bank swallow (*Riparia riparia*)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent. There is no suitable nesting habitat in the Project Area.
Wrentit (*Chamaea fasciata*)	-	-	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent. There is no suitable nesting habitat in the Project Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	-	CE	-	Resident coastally from Point Conception south into Baja California; coastal salt marsh	year-round resident; nests March-August	Absent. There is no suitable nesting habitat in the Project Area.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Yellow-breasted chat (*Icteria virens*)	-	-	SSC	In California, breeds in Klamath Mountains, inner Northern Coast Range south to San Francisco Bay, locally distributed from Santa Clara County south to San Diego County Sacramento and San Joaquin valleys, along west slope of Sierra Nevada from the Feather River to Kern River, Mono and Inyo counties. In the west, nesting habitat includes dense riparian and shrubby woodland.	May-August	Absent. There is no suitable nesting habitat in the Project Area.
Bullock's oriole (*Icterus bullockii*)	-	-	BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Potential to Occur. Trees and shrubs onsite represent potential nesting habitat.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (e.g., mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck, and fava bean fields.	March-August	Potential to Occur. Dense cattail thickets along the agricultural ditch adjacent to and within the Project Area represent suitable nesting habitat.
Common yellowthroat (*Geothlypis trichas*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. There is no suitable nesting habitat in the Project Area.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	**Status**			**Habitat Description**	**Observation Period**	**Potential to Occur Onsite**
	FESA	**CESA**	**Other**			
Yellow warbler (*Setophaga petechia*)	-	-	SSC	Breeding range includes most of California, except Central Valley (isolated breeding locales on Valley floor, Stanislaus, Colusa, and Butte counties), Sierra Nevada range above tree line, and southeastern deserts. Nesting habitat includes riparian vegetation near streams and meadows. Winters in Mexico south to South America.	May-August	Absent. There is no suitable nesting habitat in the Project Area.
Mammals						
Pallid bat (*Antrozous pallidus*)	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings	April-September	Potential to Occur. There is suitable roosting and foraging habitat within the Project Area.
Western red bat (*Lasiurus blossevillii*)	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores)	April-September	Potential to Occur. There is suitable roosting and foraging habitat within the Project Area.

Table 4.4-2. Evaluation of Special-Status Plant and Wildlife Species for the Project Area						
Common Name (*Scientific Name*)	Status			Habitat Description	Observation Period	Potential to Occur Onsite
	FESA	CESA	Other			

Source: ECORP 2023a, Appendix D

Status Codes

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
FC	Candidate for FESA listing as Threatened or Endangered
BCC	USFWS Bird of Conservation Concern).
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
CFP	California Fish and Game Code Fully Protected Species (Sections 3511-birds, 4700-mammals, and 5050-reptiles/amphibians).
SSC	CDFW Species of Special Concern
CDFW WL	CDFW Watch List
1B	CRPR/Rare or Endangered in California and elsewhere.
2B	Plants rare, threatened, or endangered in California but more common elsewhere.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (more than 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

Potentially Occurring Special Status Species

Plants. A total of 10 special status plant species were identified as having the potential to occur within Project Areas based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, six species were determined to not have potential to occur within the Project Area due to the absence of suitable habitat or the Project Area was outside the know range for the species. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining four species that have the potential to occur within the Project Area are presented in the BRA contained in Appendix D and are listed below:

- Boggs Lake-Hedge Hyssop
- Woolly Rose-Mallow
- Sanford's Arrowhead
- Suisun Marsh Aster

Fish. Thirteen special status fish species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Two of these species were determined to have some potential to occur in the Project Area. These species are described in more detail in the BRA contained in Appendix D and include:

- Sacramento hitch

- Sacramento splittail

Invertebrates. A total of five special status invertebrate species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, all five species were determined to be absent due to lack of suitable habitat.

Amphibians. One special status amphibian species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, all five species were determined to be absent due to lack of suitable habitat.

Reptiles. Two special status reptile species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, both species were identified to have potential to occur in the Project Area. This species is described in more detail in the BRA contained in Appendix D and include:

- Northwester pond turtle
- Giant garter snake

Birds. A total of 33 special status bird species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, 20 species were determined to be absent due to lack of suitable habitat or because the Project Area is outside the range for the species. No further discussion of these species is provided in this analysis. Brief descriptions of the remaining 13 special-status bird species that were determined to have the potential to occur within the Project Areas are described in more detail in the BRA contained in Appendix D and include:

- Yellow-billed cuckoo
- Double-crested cormorant
- White-tailed kite
- Golden eagle
- Bald eagle
- Swainson's hawk
- Burrowing owl
- Nuttall's woodpecker
- Loggerhead shrike
- Yellow-billed magpie
- Oak titmouse
- Bullock's oriole

- Tricolored blackbird

Mammals. Two special status mammal species were identified as having the potential to occur within the Project Area based on the literature review (Table 4.4-2). Upon further analysis and after the reconnaissance site visit, both species were determined to have potential to occur in the Project Area as described below:

- Pallid bat
- Western Red Bat

Other Species

While not considered to be special status species, the vegetation communities onsite support potential nesting habitat for birds protected under the Migratory Bird Treaty Act (MBTA). These include a wide variety of native, non-game birds and common species.

Sensitive Natural Communities

As described above, the riparian habitat in the Project Area is a relatively narrow riparian corridor of mature trees with varying densities of understory cover. Four sensitive natural communities were identified as having potential to occur within the Project Area based on the literature review. These included Coastal and Valley Freshwater Marsh, Great Valley Mixed Riparian Forest, Great Valley Cottonwood Riparian Forest, and Northern Hardpan Vernal Pool. The Populus fremontii – Fraxinus velutina – Salix gooddingii alliance, which is the converted *A Manual of California Vegetation* alliance type for both Great Valley Mixed Riparian Forest and Great Valley Cottonwood Riparian Forest, is found within the Project Area. Therefore, the riparian areas found along the Project Area may qualify as a sensitive natural community (ECORP 2023a, Appendix D)

4.4.2 Wildlife Corridors and Movement and Nursery Sites

The Project Area may provide minimal migratory opportunities for wildlife but due to the proximity to SR 99, the regular levee maintenance, and farming activities that take place in and around the Project Area wildlife is likely utilizing adjacent areas more frequently. There are several areas adjacent to the Project Area that would provide higher quality opportunities for wildlife movement including the Feather River Wildlife Area (Nelson Slough Unit) and the Sutter Bypass east and west levee wildlife areas. These areas support a wide variety of wildlife and are utilized for seasonal hunting, fishing, and wildlife viewing.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System (BIOS) database or as occurrence records in the CNDDB and is supplemented with the results of the field reconnaissance. No nursery sites have been documented within the Project Area and none were observed during the site reconnaissance (ECORP 2023a, Appendix D).

Critical Habitat and Essential Fish Habitat

The Feather River, to the south of the Project Area, is Critical Habitat for Central Valley Spring-Run Chinook Salmon, Central Valley Steelhead, and the southern Distinct Population Segment (DPS) Green

Sturgeon. The Feather River is considered EFH for Chinook Salmon. However, there is no designated critical habitat or EFH within the Project Area (ECORP 2023a, Appendix D).

4.4.3 Regulatory Setting

This section identifies environmental review and consultation requirements, as well as permits and approvals that must be obtained from local, state, and federal agencies before implementation of the project.

4.4.3.1 Federal

Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a BO, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

Section 7 Consultation

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a Biological Assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Section 10 of the ESA

An incidental take permit under Section 10 of the ESA is necessary when no discretionary action is being taken by a federal agency, but a project may result in the take of listed species. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit

under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (i.e., areas on which are found the primary physical and biological features). Primary physical and biological features are features essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; or
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

Magnuson-Stevens Fishery Conservation and Management Act

The 1996 Magnuson-Stevens Fishery Conservation and Management Act, as amended (16 USC 1801), requires federal agencies to consult with NMFS whenever a proposed action has a potential to adversely affect EFH. Although states are not required to consult with NMFS, NMFS is required to develop EFH conservation recommendations for any state agency activities with the potential to affect EFH. EFH is defined as "…those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" and includes the necessary habitat for managed fish to complete their life cycles and contribute to a sustainable fishery and healthy ecosystem. Although the concept of EFH is similar to the ESA definition of Critical Habitat, measures recommended by NMFS or a regional fisheries management council to protect EFH are advisory, rather than prescriptive (ECORP 2023a, Appendix D).

Migratory Bird Treaty Act

The MBTA implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (e.g., rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into *Waters of the U.S.* without a permit from the USACE. *Discharges of fill material* is defined as the addition of fill material into Waters of the U.S., including, but not limited to, the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines" (33 CFR Section 328.2(f)). In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands (more than 0.5 acre of impact) may require an individual permit. Projects that only minimally affect wetlands (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the RWQCB.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable Waters of the U.S. Structures or work outside the limits defined for navigable Waters of the U.S. require a Section 10

permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable Water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent or semipermanent obstacle or obstruction. The alteration of a USACE federally authorized civil works project requires a permit pursuant to Section 14 of the Act, as amended and codified in 33 USC 408. Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, which serves as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

4.4.3.2 State

California Endangered Species Act

The California ESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code Sections 4700 for mammals, 3511 for birds, 5050 for reptiles and amphibians, and 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, the CDFW prohibits any state agency from issuing incidental take permits for fully protected species. The CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act

The NPPA of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role;
- The species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed;
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status;
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state threatened, or endangered species are considered "significant" under CEQA.

California Rare Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California, which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the CNDDB. The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution (ECORP 2023a, Appendix D)

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection. Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4 (ECORP 2023a, Appendix D).

Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Application (SAA) be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits proposed measures to protect affected fish and wildlife

resources to the applicant. The SAA is the final proposal mutually agreed upon by CDFW and the Applicant. Projects that require an SAA often also require a permit from the USACE under Section 404 of the CWA.

Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the NPDES, including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Stormwater Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, which are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

California Environmental Quality Act

In accordance with CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in ESA, the California ESA, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

Sensitive Natural Communities

The CDFW maintains the California Natural Community List, which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation Online* along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA (ECORP 2023a, Appendix D).

Wildlife Movement/Corridors and Nursery Sites

Depending on the policy of the lead agency, impacts to wildlife movement/corridors or nursery sites may be considered significant under CEQA. For the purposes of this analysis, three resources were considered in the assessment of wildlife movement/corridors: The California Essential Habitat Connectivity Project, CDFW's BIOS) database on mule deer migration corridors, and site reconnaissance.

As part of the California Essential Habitat Connectivity Project, the CDFW and Caltrans maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife.

CDFW's BIOS database includes information on CDFW Mule Deer Range, which identifies winter range, migration corridors, critical range, or critical fawning areas for mule deer.

For urban settings such as the Project, riparian vegetated stream corridors can serve as wildlife movement corridors and their occurrence is documented during the field reconnaissance.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries, bat maternity roosts, and mule deer critical fawning areas. This data is available through CDFW's BIOS database or as or as occurrence records in the CNDDB and is supplemented with the results of the field reconnaissance.

4.4.3.3 Local

Sutter County General Plan

The Sutter County General Plan is a comprehensive policy document that defines the type, amount, and location of future growth, as well as areas to be conserved within the County and forms the basis for the County's planning activities and its land use decisions (Sutter County General Plan 2011). The Environmental Resources chapter of the General Plan includes goals and policies for protection of natural resources. The following goals are relevant to biological resources:

Goal ER 1: *Support a comprehensive approach for the conservation, enhancement, and regulation of Sutter County's significant habitat and natural open space resources;*

Goal ER 2: *Conserve, protect, and enhance Sutter County's significant natural wetland and riparian habitats; and*

Goal ER 3: *Conserve, protect, and enhance Sutter County's varied wildlife and vegetation resources.*

4.4.4 Environmental Impacts and Mitigation Measures

This Section describes potential impacts to sensitive biological resources that could result from the Project. The Section also recommends mitigation measures as needed to reduce significant impacts.

4.4.4.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items IV (a) through (f), implementation of the Project would have a significant impact on biological resources if it would:

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

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

(c) 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;

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

(e) Conflict with any local policies or Ordinances protecting biological resources, such as a tree preservation policy or Ordinance; or

(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant and are particularly relevant to SSCs. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

4.4.4.2 Project Impacts and Mitigation Measures

Impact 4.4-1: Implementation of the Proposed Project would 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 Wildlife or U.S. Fish and Wildlife Service. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Would 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 Wildlife or U.S. Fish and Wildlife Service.*

The Project would result in construction-related impacts to potential habitat for special-status species within the Project Area. As such, the Project would potentially have a substantial adverse effect, either directly or through habitat modifications, on special-status species identified by CDFW and USFWS. Impacts by taxon group are summarized below.

Special Status Plants

There are four special status plant species, Boggs Lake hedge-hyssop, woolly rose-mallow, Sanford's arrowhead, and Suisun Marsh aster that have potential to occur within the Project Area. Vegetation removal and/or ground disturbance could result in impacts to special status plants. Implementation of Mitigation Measures BIO-1 and PLANT-1 would avoid or minimize potential effects on special status plants. Therefore, impacts would be reduced to less than significant levels.

Mitigation Measures

BIO-1: The Project will implement erosion control measures and Best Management Practices (BMPs) to reduce the potential for sediment or pollutants at the Project site. Measures shall include:

- Erosion control measures will be placed between aquatic resources, and the outer edge of the staging areas, within an area identified with highly visible markers (e.g., construction fencing, flagging, silt barriers) prior to commencement of construction activities. Such identification and erosion control measures will be properly maintained until construction is completed and the soils have been stabilized.
- Fiber rolls used for erosion control will be certified by the California Department of Food and Agriculture as weed free.
- Seed mixtures applied for erosion control will not contain California Invasive Plant Council designated invasive species (http://cal-ipc.org/) and will be composed of native species appropriate for the site.
- Trash generated onsite will be promptly and properly removed from the site.
- Any fueling in the upland portion of the Project Area will use appropriate secondary containment techniques to prevent spills.
- A qualified biologist will conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel on the potential for special status species to occur on the Project site. The training will provide an overview of habitat and characteristics of the species, the need to avoid certain areas, and the possible penalties for non-compliance.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

PLANT-1: Preconstruction floristic surveys shall be conducted for any areas of vegetation removal in the Project Area with the potential to support habitat for Boggs-lake hedge hyssop, woolly-rose mallow, Sanford's arrowhead, or Suisun marsh aster. The area of ground disturbance and a 25-foot buffer would be surveyed by a qualified biologist during the appropriate blooming period prior to the start of Project activities. If no special status species are found during the preconstruction surveys, no further measures are necessary. If surveys identify any special-status plants, the Project Proponent shall identify them with flagging and avoid them with a 25-foot no-disturbance buffer during Project activities. If this avoidance is not feasible, the Project Proponent shall consult with CDFW to determine whether alternative avoidance measures that are equally protective are possible.

Timing/Implementation: *This measure shall be implemented prior to construction. Any avoided areas will be printed on construction plan sets and avoidance implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

Fish

Two special status fish species, Sacramento splittail and Sacramento hitch, have potential to occur in the Project Area. The construction of the new pressure pipe outfall may require in-water work and has potential to impact these species. Mitigation Measures BIO-1 and FISH-1 would minimize the effects of the Project on listed species and would reduce impacts to less than significant levels.

Mitigation Measures

FISH-1: **To avoid and minimize potential adverse effects to listed and special status fish species, the following shall be implemented:**

- Minimize the removal of riparian and aquatic vegetation.
- Deploy measures, as practicable, to reduce sediment resuspension such as a turbidity curtain.
- In-water Project activities will require de-watering of surrounding area (if water is present), and a fish rescue/relocation effort completed by a qualified fisheries biologist.
- A qualified fisheries biologist should perform a fish exclusion from the in-water construction footprint using seines, if necessary.
- If the Project requires pouring concrete, avoid allowing wet uncured concrete to contact surface water, and conduct water quality monitoring to ensure that the wet concrete is not affecting the pH of the surface water.

Timing/Implementation: *This measure shall be implemented during any in-water construction. Any avoided areas will be printed on construction plan sets and avoidance implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of Mitigation Measure BIO-1 will be required.

Reptiles

There are two special-status reptiles, giant garter snake and western pond turtle, with potential to occur in the Project Area. Both species have potential to be impacted by ground-disturbing activities related to Project implementation. Ground-disturbing activities include clearing and grubbing, levee degrade, levee reconstruction, and levee penetration for installation of new pressure pipe (outfall). The outfall is located on the edge of the canal (Nelson Slough). Most of the ground-disturbing activities will be associated with

giant garter snake upland habitat but removal and replacement of the pressure pipe and addition of Rock Slope Protection (RSP) could impact aquatic habitat, within Nelson Slough and the agricultural ditches, for both species. Impacts to the levee are anticipated to be temporary as the levee will be rebuilt to its original condition but impacts to aquatic habitat at the outfall location may be permanent. Mitigation Measure BIO-1, NPT-1, and GGS-1 would minimize the effects of the Project on special status reptiles. With implementation of these measures, impacts would be reduced to less than significant levels.

Mitigation Measures

NPT-1: Conduct a pre-construction survey for northwestern pond turtle and their nests 48 hours prior to construction activities. Any northwestern pond turtle individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified wildlife biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

Timing/Implementation: *Surveys shall be conducted within 48 hours prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

GGS-1: Prior to the start of ground-disturbing activities in areas considered potential habitat for giant garter snake, a qualified biologist shall conduct a preconstruction survey. This survey shall be conducted within 48 hours prior to the start of ground disturbing activities. If a giant garter snake is found, the biologist shall allow the animal to leave on its own volition.

Coverage from USFWS under Sections 7 or 10 of the ESA will be required for any impacts to giant garter snake and/or their habitat. In addition, take coverage from CDFW under Section 2081 of the California Fish and Game Code will be required for any impacts to giant garter snake and/or its habitat.

Timing/Implementation: *Surveys shall be conducted within 48 hours prior to construction. Coverage under USFWS Section 7, and CDFW Section 2081 shall be obtained prior to the start of construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of Mitigation Measure BIO-1 will be required.

Birds and MBTA-Protected Birds

There are 12 special-status bird species, yellow-billed cuckoo, double-crested cormorant, white-tailed kite, golden eagle, bald eagle, Swainson's hawk, burrowing owl, Nuttall's woodpecker, loggerhead shrike, yellow-billed magpie, oak titmouse, Bullock's oriole, and tricolored blackbird, with potential to occur within or adjacent to the Project Area. Additionally, all birds and their nests are protected by the MBTA and the California Fish and Game Code. Construction activities have potential to impact nesting birds if present within or adjacent to the construction activities. Implementation of Mitigation Measures BIO-1 and BIRD-1 would reduce impacts to a less than significant level.

Mitigation Measures

BIRD-1: To protect nesting birds, no Project activity shall begin from February 1 through August 31 unless the following surveys are completed by a qualified wildlife biologist. Separate surveys and avoidance requirements are listed below for all nesting birds and raptors, including bald eagle, and Swainson's hawk.

- All Nesting Birds (Non-raptors) – If Project construction begins during February 1 through August 31, a qualified biologist will perform a preconstruction nesting bird survey within 7 days prior to construction (or less if recommended by CDFW), within the Project work area and a 100-foot radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Raptors – If Project construction begins during February 1 through August 31, a qualified biologist will perform a preconstruction nesting raptor survey within 7 days prior to construction (or less if recommended by CDFW), within the Project work area and a 500-foot radius. If any active raptor nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.
- Burrowing Owl – A qualified wildlife biologist shall survey for burrowing owl within the Project work area and a 250-foot radius of the Project work area within 7 days prior to starting Project activities. Surveys shall be conducted at appropriate times (dawn or dusk) to maximize detection. If any occupied burrows are observed, these burrows shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW. Consult with CDFW to develop avoidance and minimization measures, which could include preparing and implementing a passive relocation plan.
- Swainson's Hawk – If Project construction begins during March 1 through August 31, a qualified biologist will perform a preconstruction nesting Swainson's hawk survey within 7 days prior to construction (or less if recommended by CDFW), within the

Project work area and a 0.25-mile radius. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

To protect potentially nesting yellow-billed cuckoo, the following is recommended:

- To encourage yellow-billed cuckoos to choose nesting sites away from construction activities, crews will make every effort possible to begin construction activities within 500 feet of suitable habitat before the start of the breeding season (i.e., before May 31).
- If construction activities occur during the yellow-billed cuckoo nesting season (June 1 to September 30) and if it is anticipated that construction-related disturbances within 500 feet of suitable habitat cannot be avoided, protocol surveys for yellow-billed cuckoo will be conducted. Surveys will follow the latest version of *A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo* (Halterman et al. 2016).
- Biologists will coordinate with the USFWS and CDFW prior to conducting surveys. Survey methods and results will be reported to the USFWS and CDFW at the conclusion of the surveys. If cuckoos are detected during surveys, the nest or general location, will be mapped by the biologists and a 500-foot buffer will be established, or other distance as approved by the USFWS and CDFW, no-disturbance buffer between construction activities and the area identified. The no-disturbance buffer will be maintained until it has been determined by a qualified biologist that young have fledged or the nest is no longer active.
- If removal of vegetation identified as suitable habitat is proposed, consultation with USFWS may be required. Through the CWA Section 404 and/or 408 Permit, request the USACE initiate ESA Section 7 Consultation with USFWS, if necessary, on the Project effects to ESA-listed yellow-billed cuckoo.

Timing/Implementation: *Surveys shall be conducted within 7 days prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of mitigation measure BIO-1 will be required.

Special Status Bats

There are two special status bats, pallid bat and western red bat, with potential to occur in the Project Area. Removal of trees found within the Project Area could result in impacts to roosting bats. Implementation of Mitigation Measures BIO-1 and MAM-1 would minimize the potential for impacts to

bats in the Project Area. With implementation of these measures, impacts would be reduced to a less than significant level.

Mitigation Measures

MAM-1: A qualified biologist will conduct a bat habitat assessment for suitable roosting habitat prior to any construction activities. The habitat assessment should be conducted at least one year prior to the initiation of construction activities. If no suitable roosting habitat is identified, no further measures are necessary. If suitable roosting habitat and/or signs of bat use is identified during the assessment, the roosting habitat should be avoided to the extent possible, and the following shall be implemented:

- If suitable roosting habitat and/or signs of bat use is identified in a tree or other habitat structure that must be removed, a qualified biologist shall prepare a Bat Management Plan for CDFW's review. The Plan shall identify methods for determining occupation of the roosting habitat by special-status bats (e.g., acoustic monitoring, evening emergence surveys). If an active bat roost is found, a plan for passive exclusion of bats from the roost will be prepared for CDFW's review. Exclusion shall be scheduled either (1) between approximately March 1 (or when evening temperatures are above 45 degrees Fahrenheit [°F] and rainfall less than 0.5 inch in 24 hours occurs) and April 15, prior to parturition of pups; or (2) between September 1 and October 15 (or prior to evening temperatures dropping below 45°F and onset of rainfall greater than 0.5 inch in 24 hours). The qualified biologist shall monitor the roost prior to exclusion to confirm that it does not support a maternity colony. If a maternity colony is or may be present, the roost shall be avoided until it is no longer active, or until the qualified biologist can confirm that no maternity colony is present.

Timing/Implementation: *Habitat assessment shall be conducted within one year prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of Mitigation Measure BIO-1 will be required.

Impact 4.4-2: **Implementation of the proposed Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Impact Determination*: less than significant with mitigation incorporated*.**

Threshold:	*Would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

The Project Area supports *Quercus lobata* Riparian Forest and Woodland Alliance, and the *Populus fremontii – Fraxinus velutina – Salix gooddingii* Forest and Woodland Alliance, which are both sensitive natural communities. A small portion of these communities overlap with the Project Area. Project construction may require vegetation clearing or tree removal; however, this will be avoided to the fullest extent possible, and implementation of recommendations described in Mitigation Measure RIP-1 would further reduce the potential for additional impacts to riparian habitats. Therefore, the Project is not expected to have a substantial adverse effect on riparian habitat or sensitive natural communities.

Mitigation Measures

RIP-1: A Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, must be obtained for any activity that will impact riparian habitats and/or bed and bank features. Minimization measures will be developed during consultation with CDFW as part of the SAA agreement process to ensure protections for affected fish and wildlife resources. If applicable, compensatory mitigation may be required for removal of riparian vegetation.

Timing/Implementation: *The SAA from CDFW shall be obtained prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of Mitigation Measure BIO-1 will be required.

Impact 4.4-3 **Implementation of the proposed Project would have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, or coastal) through direct removal, filling, hydrological interruption, or other means. Impact Determination: *less than significant with mitigation incorporated*.**

Threshold:	*Would 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.*

The Project would have no direct impact on federally protected wetlands; however, the removal and replacement of the 18-inch pressure pipe crossing will impact the agricultural ditch on the levee land side and canal (Nelson Slough) on the levee water side. Impacts, temporary or permanent, are anticipated to be minimal and the pipe will be replaced with the same size. However, implementation of Mitigation Measures BIO-1, FISH-1, and RIP-2 above as well as WTR-1 below, would ensure that impacts are avoided

and/or minimized. With implementation of these measures, impacts would be reduced to less than significant levels.

Mitigation Measures

WTR-1: To avoid or minimize anticipated short-term adverse effects to Waters of the U.S., the following shall be implemented:

- The removal and replacement of the outfall has potential to discharge into Waters of the U.S., a Nation-Wide Permit (NWP), potentially NWP 3, under Section 404 of the federal CWA must be obtained from USACE. The impacts from such actions are expected to be mostly temporary, with minimal, if any, permanent impacts to aquatic resources.
- A Water Quality Certification or waiver pursuant to Section 401 of the CWA, as issued by RWQCB, must be obtained for Section 404 permit actions.
- A Waste Discharge Requirement for dredge and fill in Waters of the State under the Porter-Cologne Water Control Act as issued by RWQCB must be obtained for impacts to waters of the state.

Timing/Implementation: *Permit authorizations from the USACE and RWQCB shall be obtained prior to construction. This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

In addition, implementation of Mitigation Measures BIO-1, FISH-1, and RIP-2 will be required.

Impact 4.4-4: Implementation of the proposed Project would 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. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would 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.*

The Project Area may provide minimal migratory opportunities for wildlife; but due to the proximity to SR 99, the regular levee maintenance, and farming activities that take place in and around the Project Area, wildlife is likely utilizing adjacent areas more frequently. There are several areas adjacent to the Project Area that would provide higher quality opportunities for wildlife movement including the Feather River Wildlife Area (Nelson Slough Unit) and the Sutter Bypass east and west levee wildlife areas. These areas support a wide variety of wildlife and are utilized for seasonal hunting, fishing, and wildlife viewing.

Establishment of the staging areas and operation of equipment is likely to temporarily disturb and displace most wildlife from the Project Area. Some wildlife, such as birds or nocturnal species, are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume. Therefore, the Project will have a less than significant impact on wildlife movement.

The Project Area does not include known nursery sites and no evidence of a wildlife nursery site was observed during the field reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites. Potential significant impacts to individual nesting birds would be reduced to less than significant levels by implementation of mitigation measures BIO-1 and BIRD-1 described above under Impact 4.4-1.

Mitigation Measures

Implementation of Mitigation Measures BIO-1, and BIRD-1 will be required.

Impact 4.4-5: Implementation of the Proposed Project would conflict with any local policies or Ordinances protecting biological resources, such as a tree preservation policy or Ordinance. Impact Determination: *less than significant*.

Threshold:	*Would conflict with any local policies or Ordinances protecting biological resources, such as a tree preservation policy or Ordinance.*

The Project does not conflict with a local policy or ordinance protecting biological resources, including tree ordinances. The Project Proponent would coordinate with the local jurisdiction to secure the necessary variance, permit, or approval if a conflict is identified. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.4-6: Implementation of the Proposed Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Impact Determination: *no impact*.

Threshold:	*Would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.*

The Project Area does not overlap with an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP. Therefore, there would be no impact.

Mitigation Measures

None required.

4.4.5 Cumulative Impacts

4.4.5.1 Cumulative Setting

The cumulative setting associated with the Proposed Project includes approved, proposed, planned, and other reasonably foreseeable projects and development in the Sutter County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to biological resources.

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.4.5.2 Cumulative Impacts and Mitigation Measures

Impact 4.4-7: Result in a considerable contribution to cumulative impacts on biological resources. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would result in the conversion of habitat and impact biological resources in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Project impacts to biological resources are primarily limited to short-term construction-related impacts. The only permanent impacts are associated with replacement of a pipe/outfall structure. All impacts would be reduced to less than significant with implementation of Mitigation Measures BIO-1, PLANT-1, VELB-1, FISH-1, NPT-1, BIRD-1, MAM-1, MAM-2, RIP-1, RIP-2, and WTR-1. The SBEL project is planned within the vicinity of the Proposed Project and has the potential to impact similar biological resources during construction. It is possible that the Proposed Project and the SBEL project could occur concurrently. However, the SBEL project will likely be required to implement similar mitigation measures as described herein to minimize potential impacts to biological resources.

Overall, the Proposed Project is not expected to contribute to significant cumulative effects on biological resources. Implementation of mitigation measures required for the protection of biological resources for the Proposed Project, BIO-1, PLANT-1, VELB-1, FISH-1, NPT-1, BIRD-1, MAM-1, RIP-1, , and WTR-1, would have a less than considerable contribution to cumulative impacts on biological resources. Impacts would be less than significant.

Mitigation Measures

Implementation of Mitigation Measures BIO-1, PLANT-1, FISH-1, NPT-1, GGS-1, BIRD-1, MAM-1, RIP-1, and WTR-1 will be required.

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4.5 CULTURAL RESOURCES

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on cultural resources from the Project, and potential Project-specific and cumulative impacts that could result from the Project. Cultural resources could include archaeological sites and historic buildings, structures, and objects.

Cultural resources include pre-contact (prehistoric) archaeological sites, historic archaeological sites, and historic structures, and generally consist of artifacts, food waste, structures, and facilities made by people in the past. Pre-contact archaeological sites are places that contain the material remains of activities carried out by the native population of the area (Native Americans) prior to the arrival of Europeans in California. The term pre-contact is increasingly being used in lieu of the term prehistoric. Artifacts found in pre-contact sites include flaked stone tools such as projectile points, knives, scrapers, drills, and the resulting waste flakes from tool production; ground stone tools such as pestles for grinding seeds and nuts; bone tools such as awls, ceramic vessels or fragments; and shell or stone beads. Pre-contact features include hearths or rock rings bedrock mortars and milling slicks, rock shelters, rock art, and burials. Resources defined by California Native American tribes as Tribal Cultural Resources (TCRs) are addressed separately in Section 4.18 of this EIR.

Places that contain the material remains of activities carried out by people after the arrival of Europeans are considered historic archaeological sites. Historic archaeological material usually consists of domestic refuse, for instance bottles, cans, ceramics, and food waste, disposed of either as roadside dumps or near structure foundations. Archaeological investigations of historic-period sites are usually supplemented by historical research using written records.

Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, and other structures and facilities that are more than 50 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, and privies, refuse deposits, and foundations of former outbuildings.

ECORP prepared an Archaeological Inventory Report for the Proposed Project, which included preparation of a cultural resources inventory (ECORP 2023b), to determine if cultural resources were present in the Project Area and to assess the sensitivity of the Project Area for undiscovered or buried cultural resources. The inventory consisted of:

- a records search with the California Historical Resources Information System (CHRIS) at the North Central Information Center (NCIC) and Northeast Information Center (NEIC);
- a search of the Sacred Lands File of a Native American Heritage Commission (NAHC);
- a review of historic maps, photographs, records on file with the CHRIS;
- ethnographic information;
- literature pertaining to the Project Area and surrounding region;

- a review of geological and soils data; and
- a pedestrian survey by qualified professionals.

Due to the sensitive nature of cultural resources, the Archaeological Inventory Report is not included with the EIR appendices. Specifically, Sections 6253, 6254, and 6254.10 of the California Code authorize state agencies to exclude archaeological site information from public disclosure under the Public Records Act. In addition, the California Public Records Act (Government Code Section 6250 et seq.) and California's open meeting laws (The Brown Act, Government Code Section 54950 et seq.) protect the confidentiality of Native American cultural place information. Because the disclosure of cultural resources location information is prohibited by the Archaeological Resources Protection Act of 1979 (16 USC 470hh) and Section 307103 of the National Historic Preservation Act (NHPA), it is also exempted from disclosure under the Freedom of Information Act (Exemption 3, 5 USC 5). Likewise, the CHRIS prohibits public dissemination of records search information. In compliance with these requirements, the results of the Cultural Resources Report were prepared as a confidential document, which is not intended for public distribution. However, all pertinent information necessary to provide substantial evidence for impact determinations is summarized in this section of the EIR. While information describing the various Cultural Resources time periods is included in the discussion, all references to location of archaeological sites and artifacts have been removed for confidentiality and protection of these resources.

4.5.1 Environmental Setting

The Project Area consists of an approximately 2-mile segment of the FRWL, which is located in the Sacramento Valley. This portion of the FRWL is located in a rural setting between the Sutter Buttes and the Sacramento River in Sutter County. Land use is predominantly agricultural in this region. The Project Area is situated at elevations ranging between 25 to 50 feet above mean sea level. Yuba City is located approximately 13 miles to the north, the town of Nicolaus is located less than 1 mile to the southeast, and the Feather River is located between 0.3 and 0.6 mile to the south (ECORP 2023b).

The Project Area is along the Feather River, which is approximately 73 miles long, with the main river flowing from Lake Oroville to the Sacramento River. While levees appear on the 1873 Sutter County map, the levees in their current alignment first appear on the 1910 Nicolaus topographic quadrangle. The borrow channel roughly corresponds to the former alignment of Nelson Slough (ECORP 2023b).

A moderate to high potential exists for buried pre-contact archaeological sites in the Project Area due to the presence of the Feather River, a significant alluvial waterway. These waterways support large-scale habitation, as evidenced by the multiple documented village sites along the Feather River (ECORP 2023b).

4.5.2 Pre-Contact History

It is generally believed that human occupation of California began at least 10,000 years Before Present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Groups from this time period included only small numbers of individuals who did not often stay in one place for extended periods (ECORP 2023b).

Around 8,000 BP, there was a shift in focus from hunting toward a greater reliance on plant resources. Archaeological evidence of this trend consists of a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, which extended until around 5,000 years BP, is sometimes referred to as the Millingstone Horizon. An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period. In sites dating to after about 5,000 BP, archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments. During this period, new peoples from the Great Basin began entering Southern California. These immigrants, who spoke a language of the Uto-Aztecan linguistic stock, seem to have displaced or absorbed the earlier population of Hokan-speaking peoples. The Project Area would encompass the area of the Valley Tradition class of the Middle Archaic Period in California pre-contact History. The Valley Tradition is represented at archaeological sites that show evidence of a diverse food supply and year-round occupation of one area. Sites from the later Middle Archaic Valley Tradition are well represented in the Sacramento Valley and Delta (ECORP 2023b).

4.5.3 Ethnography

Ethnographically, the Project Area is in the territory occupied by the Penutian-speaking Nisenan. Nisenan were observed by early ethnographers to inhabit the drainages of the Yuba, Bear, and American rivers, and also the lower reaches of the Feather River, extending from the east banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east. The territory extended from the area surrounding the current city of Oroville on the north to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west, and in the east, it extended to a general area located within a few miles of Lake Tahoe (ECORP 2023b). The descendants of traditional Nisenan, including the United Auburn Indian Community (UAIC) of Auburn Rancheria, continue to reside in the region. The ethnography of the Project Area is discussed in more detail in the Tribal Cultural Resources section of this EIR (Section 4.18).

4.5.4 Project Area History

The area is located on the western levee for the Feather River in Sutter County. Sutter County is one of the original 27 California counties and was formed in 1850 and named after John Sutter, a Swiss immigrant. Yuba City was selected by Sutter County voters as the county seat in 1856. John Sutter is credited for naming the Yuba River because of the Native American village located near the confluence of the Yuba and Feather rivers. Newspapers article from Marysville Herald in 1850 quote John Sutter stating the following:

> "The tribe I found …, which still remains at the old rancheria at Yuba City, informed me that the name of their tribe was Yubu (pronounced Yuboo). As this tribe lived opposite at the mount of the river from which your county takes its name, I gave that river the name Yuba."

Yuba City was laid out in 1849 and was named after the river. The first county courthouse was erected in Yuba City in 1858. Following a fire in 1871, a new courthouse was built at the northeast corner of C and Second streets, and subsequently reconstructed after another fire in 1899 (ECORP 2023b).

The first major flood to impact Yuba City after its establishment was in 1851. The 1851 flood wiped out the town and many people moved and relocated their businesses across the river to Marysville. The Lawrence streamer's last stop on the Feather River was chosen to be located on the east side of the Feather River at Marysville. This stop at Marysville naturally decided that miners would settle in Marysville simply due to this stop being along the river and its access to the gold mines. The town of Marysville was laid out in 1849 (ECORP 2023b).

Yuba City originated as a small settlement located on high ground adjacent to a natural levee formed by silt deposits. The Gilsizer Slough, located north and west of Yuba City, protects the city from flooding by acting as a natural spillway and a place for excess flood water to flow. The natural spillway was not foolproof as the slough and river would overflow at times. Flooding in the region historically occurs every year, but with the rise in development of towns and cities along rivers in Sutter, Yuba, and Sacramento counties, there became a need for flood control to protect infrastructure and residences. Also in the early 1860s, hydraulic mining increased and flooding became a significant problem for farmers in the Sacramento Valley due to deposits of sediment in the rivers. Yuba City was completely inundated during a major flood in 1852, and the Hock Farm, John Sutter's farm, at the Feather River was the farthest north streamers could reach. Sutter's Hock Farm (California Historical Landmark [CHL] #346) was located on the western side of the Feather River, about 8 miles south of Yuba City, and Sutter hired men to watch his cattle in the 1840s. Sutter build an adobe home on the property in 1841. Sutter's cattle grazed freely on his land between Sutter Buttes to the north and the Feather and Sacramento rivers (ECORP 2023b).

4.5.4.1 History of Flood Control

The following summary is excerpted from ECORP's *Archaeological Inventory Report*. The Sacramento Valley experienced extensive flooding in the early years of California statehood. In response, private landowners located along the state's waterways constructed small levees between 3 and 4 feet high near their farms. This was a pattern repeated by most landowners along rivers in the Sacramento Valley. These levees, however, proved ineffective and failed during the catastrophic floods of this early period. As the floods worsened, landowners attempted to build higher levees, but these too proved ineffective.

California was included in the federal Swamp Land Act of 1850, which allowed the state to reclaim its wetlands through the construction of levees. The program, however, was riddled with corruption and problems that hampered levee construction. A concentrated effort at levee construction began in the early 1860s as hydraulic mining increased and flooding continued to be a significant problem for farmers in the Sacramento Valley. The state legislature tried to coordinate a levee system and control levee construction by creating the Swamp Land Commission. Modeled after districts in Mississippi, the legislation gave California's permitted drainage districts the power to construct levees. It would become the responsibility of State engineers to design the levees for each district. There were 28 districts by the end of the first year. Because the legislation produced only minor, tangible benefits, the legislature enhanced levee district powers in 1864, which spurred more levee construction.

Flooding has naturally occurred in the Project Area and much of Northern California prior to European settlers entering the region. Historic accounts of floods in the early and mid-1800s state that all of Sutter County was more or less inundated for the whole winter season. After a flood in 1853, Yuba City was

completely inundated except for the Native American Rancheria on the bank of the river. The next disastrous flood was in December 1861. The garden at the Hock Farm was covered with 2 to 4 feet of water. (ECORP 2023b)

As hydraulic mining increased in the early 1860s and flooding continued to be a significant problem for farmers in the Sacramento Valley, a concentrated effort at levee construction began. Mining in the Sierra Nevada turned to the more efficient methods of hydraulic mining, the use of environmentally destructive high-pressure water jets that washed entire mountainsides into local streams and rivers. Hydraulic mining was considered a breakthrough technology for miners, but residents and farms downstream dealt with the impacts. Hydraulic mining clogged creeks and rivers with a high amount of debris that settled at the river beds of the Yuba and Feather rivers and began to raise the water levels around 1868. Hydraulic mining was outlawed in 1884, yet independent hydraulic mining continued into the 1920s. Dredging operations began adjacent to rivers in 1900 and dredging could reach gold-bearing gravels that had been buried by past hydraulic tailings.

Levee construction and flood control management began to become organized in 1868 with the passage of the Green Act. The act eliminated the limit on the number of swampland acres allowed under the federal swampland program and transferred the task of creating levee districts to landowners. The Green Act promoted extensive levee building in flood-prone areas of California, including the area surrounding the Project Area.

Levee construction and flood control encountered setbacks during the 1880s and 1890s as the fight between miners and farmers continued. Although hydraulic mining was outlawed in 1884, farmers and miners continued to feud due to the sediment in the rivers from mining activities that was choking the water supply for irrigation. Local reclamation districts continued to build levees intermittently in select locations, including on the west bank of the Sacramento River. These levees were somewhat effective in raising the floodplain, protecting the local lands, and blocking natural outlets, but flood problems were still created for residents farther down the river during the first part of the 20th century. This eventually prompted improvements in the levees so flood water could be redirected elsewhere, resulting in flood control improvement and development downstream by the turn of the 20th century.

Despite the progressive efforts to control water in the Sacramento River watershed, the Sacramento River flooded again in 1903 and 1904, prompting the creation of a statewide lobbying organization in 1904 for increasing state government assistance for landowners and local government agencies building river improvements. The governor created a Board of River Engineers, which was staffed with experienced engineers whose recommendation was to relieve stress on the levees by constructing weirs that would temporarily allow excess water to bypass the river channel until a proper channel depth could be achieved. The California Board of Trade was pushing for the construction of more levees, which ultimately led to the rejection of the engineer's plan by the legislature.

The state agenda focused heavily on levee building until 1911, when Thomas H. Jackson, a California Debris Commission member, designed a comprehensive flood control plan that employed more innovative methods. The federal government accepted this approach, and a special session of the state legislature approved California's support and participation in the new flood control plan. Lobbying efforts

continued to press the federal government and the Flood Control Act was passed in 1917. The Act required the USACE to work with state governments and local levee districts, provided $5.6 million to construct flood control facilities in the Sacramento Valley, and authorized the creation of the SRFCP, which provided for the construction of the Yolo and Sutter bypasses. The SRFCP eventually involved 980 miles of levee construction providing flood protection to about 800,000 acres of agricultural lands, as well as the cities of Yuba City, Marysville, Sacramento, and numerous smaller communities in the region.

4.5.4.2 Early Development in Sutter County: Agriculture

The dominant economic force in the immediate area has historically been ranching and farming. The historic context of ranching and farming described below is directly associated with the ranching and farming activities that have been historically conducted in the area as well as throughout Sutter County. The rich soil from continual flooding in Sutter County has helped the agricultural industry in the region. The first crops in the county were planted in 1845 by Theodor Cordua, who planted a small field of wheat between Marysville and Yuba City.

Cattle were primarily raised during the 1850s using free-range methods on large open ranchos. A rancho, like the Hock Farm, was a settlement or a ranch primarily devoted to raising cattle or sheep. Within the decade of the Gold Rush, when competition for land was fierce, cattle ranching moved from the free-range style of the ranchos to the European style of feedlots and fenced areas. A *no-fence* law was passed in 1872, which made ranchers responsible for damages caused by their livestock if they were unfenced.

Agricultural growth during the early years was slow moving until technological advances and the high demand of breadstuffs during the Gold Rush changed the shape of California's agricultural future. In addition, after the initial rush to the gold fields was over, many miners were left with nothing. These miners quickly took up claims on public land previously held by Mexican titles, and gradually started building their own wheat farms. Eventually, the production of wheat grown in California crowded out the need for imported grain.

Though the earliest years of Sutter County's agriculture consisted primarily of wheat production, it was the transition into planting nuts and fruits instead of wheat and other grains that was the County's most profitable agricultural endeavor. Sutter County is adjacent to the Sierra Nevada foothills and has an abundance of fertile soil riddled with rivers and streams. Orchard crops and vineyards became more economical because of the soils that were more suited for this purpose. The Hock Farm was the first large-scale agricultural settlement in Northern California and produced grain, cattle, orchards, and vineyards. Sutter County also developed the seedless grape. William Thompson, an Englishman, settled in Sutter County with his family in 1863 and developed the seedless grape. The seedless grape was first introduced to California and publicly displayed in Marysville in 1875 by Thompson. The Thompson Seedless Grape Site is identified as CHL #929 (8 miles west of Yuba City). Cuttings from the Thompson crop were sold throughout California. Since the seedless grapes were displayed in 1875, it has been planted in California to produce raisins, bulk wine, and table grapes. Without reliable modes of transportation, fruits could not be widely exported from Yuba City because the fruit would spoil.

By the turn of the 20th century, agricultural production was aided further by the expansion of major competing railroads and the advent of the refrigerated railroad car. Orchard crops, such as fruit, relied on the cooling technology to keep the product fresh and transport the cash crop much greater distances than ever before. As orchard crops from Sutter County were being sold throughout the U.S. and world markets, fruit quickly became the most valuable cash crop in the Sacramento Valley. Wheat prices slowly declined and the vast acreages of wheat fields were subdivided for use with other grain crops such as rice. Sutter County also had a large peach industry in the early 1900s. The Sutter Canning and Packing Company owned land next to the Northern California Railroad in 1883 and helped the export of fruit from Sutter County and employed more than 200 people in Yuba City.

Farming and ranching continued to thrive in Sutter County and the rest of California into the 20th century. Technology continued to advance and new farm plots opened all over. As these new lands and properties opened and the industry grew, so did the need and use of water transportation and maintenance systems throughout the Sacramento Valley.

The FRWL first appears on the 1910 Nicolaus topographic map. Levees were built between 1924 and 1925 that were designed to alleviate flooding by draining water from the Sacramento River via the Tisdale Weir (built in 1932) and into the Sutter Bypass. This allowed for additional farming in the affected areas, not only by draining swampy areas, but also by providing water to other agricultural areas. The USACE expanded the levees between 1943 and 1950.

4.5.5 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to cultural resources are discussed below.

4.5.5.1 Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that the federal government list significant historic resources on the National Register of Historic Places (NRHP), which is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service (NPS) and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP. Section 106 of the NHPA also states that the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Officer (SHPO) must be afforded an opportunity to comment on such undertakings, through a process outlined in the ACHP regulations at 36 CFR Part 800. For federal undertakings, regulations (36 CFR 800) implementing Section 106 of the NHPA require that cultural resources be identified and then evaluated using NRHP eligibility criteria.

Federal Evaluation Criteria

Under federal regulations implementing Section 106 of the NHPA (36 CFR 800), cultural resources identified in the Project Area must be evaluated using NRHP and eligibility criteria. The eligibility criteria for the NRHP are as follows (36 CFR 60.4):

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess aspects of integrity of location, design, setting, materials, workmanship, feeling, association, and
>
> a) is associated with events that have made a significant contribution to the broad patterns of our history;
>
> b) is associated with the lives of a person or persons significance in our past;
>
> c) embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
>
> d) has yielded or may be likely to yield information important in prehistory or history."

In addition, the resource must be at least 50 years old, except in exceptional circumstances (36 CFR 60.4).

Effects to NRHP-eligible resources (historic properties) are adverse if the project may alter, directly or indirectly, any of the characteristics of an historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

With respect to Section 106, Title 36 CFR Part 800.5, Assessment of Adverse Effects, requires that the federal agency, in consultation with SHPO, apply the criteria of adverse effect to Historic Properties within the Project Area. According to 36 CFR 800.5(a)(1):

> "an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of an Historic Property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association."

The regulations further define adverse effects to be those that include reasonably foreseeable effects caused by the undertaking, or those that may occur later in time or those that may be cumulative. Examples of adverse effects include, but are not limited to physical destruction or damage to all or part of the property; alteration, restoration, rehabilitation, repair, maintenance, stabilization, or remediation; removal of the property from its historic location; change of the character or physical features; introduction of visual, atmospheric, or audible elements; neglect; or transfer, lease, or sale out of federal ownership (36 CFR 800.5[a][2] et seq.).

Adverse effects on historic properties include, but are not limited to the following:

> (i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

4.5.5.2 State

California Register of Historical Resources

The State Historical Resources Commission designed the California Register of Historic Resources (CRHR) for use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources. This program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

Under state law (CEQA) cultural resources are evaluated using CRHR eligibility criteria in order to determine whether any of the sites are Historical Resources, as defined by CEQA. A requirement of CEQA is that public agencies identify impacts to Historical Resources be identified and, if the impacts would be significant, that mitigation measures to reduce the impacts be applied.

Under CEQA, an Historical Resource is a term with a defined statutory meaning (PRC Section 21084.1). Under CEQA Guidelines Section 15064.5(a), historical resources include the following:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC Section 5024.1).
- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), will be presumed to be historically or culturally significant. Public

agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1), including the following:

    a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    b) Is associated with the lives of persons important in our past;

    c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

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

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1(k)), or identified in a historical resources survey (meeting the criteria in PRC Section 5024.1(g)) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

Historical resources are usually 45 years old or older and must meet at least one of the criteria for listing in the CRHR, described above (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (CCR Title 14, Section 4852[c]).

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 and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC Section 5024.1 and CCR), Title 14, Section 4850. Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

CEQA also requires lead agencies to determine if a proposed project would have a significant effect on unique archaeological resources. If a lead agency determines that an archaeological site is a historical

resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. A unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

> "Unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
> - Has a special and particular quality such as being the oldest of its type or the best available example of its type.
> - Is directly associated with a scientifically recognized important prehistoric or historic event or person."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064[c][4]).

If the project would result in a significant impact to a historical resource or unique archaeological resource, treatment options under PRC Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5(f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Assembly Bill 52

AB 52 is addressed in Section 4.18 of this EIR, Tribal Cultural Resources.

4.5.5.3 Local

County of Sutter

The following goals and policies of the 2019 Sutter County General Plan (Sutter County 2011) address cultural resources:

GOAL ER 8: Identify, protect, and enhance Sutter County's important cultural and paleontological resources to increase awareness of the County's heritage.

ER 8.1: Identification. Identify cultural resources, which include prehistoric, historic, paleontological, and archeological resources, throughout the County to provide adequate protection of these resources.

ER 8.2: Preservation. Ensure the preservation of significant cultural and paleontological resources, including those recognized at the national, state, and local levels.

4.5.6 Environmental Impacts and Mitigation Measures

This Section describes potential impacts on cultural resources that could result from implementation of the Project. The Section also recommends mitigation measures as needed to reduce significant impacts.

4.5.6.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items V (a) through (c), implementation of the Project would have a significant impact related to cultural resources if it would:

(a) cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines section 15064.5;

(b) cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5; or

(c) disturb any human remains, including those interred outsides of dedicated cemeteries.

CEQA Guidelines Section 15064.5(b)(2) defines *materially impaired* for purposes of the definition of substantial adverse change as follows:

"The significance of an historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code,

unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA."

CEQA requires that public agencies consider the effects of their actions on both historical resources and unique archaeological resources. If a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource, alternative plans or mitigation measures must be considered. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources and unique archaeological resources;
- Evaluate the eligibility of historical resources; and
- Evaluate the effects of the project on eligible historical resources.

4.5.6.2 Methods of Analysis

Records Search and Literature Review

Using the Project Area map that encompassed the FRWL from Sacramento Avenue to the SBEL, ECORP requested a records search and literature review from the Northeast Information Center (NEIC) of the CHRIS at California State University-Chico on October 25, 2022 (D22-394). The purpose of the records search was to determine the extent of previous surveys within and near the Project Area, and whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. ECORP obtained site records and reports for all resources within the Project Area and within 0.5 mile of the Project Area in Sutter County.

In addition to the official records and maps for archaeological sites and surveys in Sutter County, the following historic references were also reviewed: Historic Property Data File for Sutter County; The National Register Information System; OHP Built Environment Resource Directory for Sutter County (BERD), CHL; California Points of Historical Interest; Directory of Properties in the Historical Resources Inventory; Caltrans Local Bridge Survey; Caltrans State Bridge Survey; and *Historic Spots in California*. Other references examined include a RealQuest Property Search, historical aerial photographs, and historic General Land Office (GLO) land patent records. ECORP also reviewed historic maps (ECORP 2023b).

In addition to the record search, ECORP contacted the California Native American Heritage Commission (NAHC) on January 2, 2019, to request a search of the Sacred Lands File for the Project Area to determine

whether or not Sacred Lands have been recorded by California Native American tribes within the Project Area. Native American Sacred Lands may coincide with archaeological sites.

ECORP mailed letters to the Sutter County Museum on March 26, 2020 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

Pedestrian Survey

On July 26, 2022, ECORP conducted intensive pedestrian survey within the Project Area under the guidance of the *Secretary of the Interior's Standards for the Identification of Historic Properties* (ECORP 2023b) using transects spaced 15 meters apart. ECORP archaeologists and a Tribal representative from UAIC expended two person-days in the field. At that time, the ground surface was examined for indications of surface or subsurface cultural resources. The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances were examined for artifacts or for indications of buried deposits. No subsurface investigations or artifact collections were undertaken during the pedestrian survey.

Canine Forensic Survey

Additionally, the Institute for Canine Forensics (ICF) conducted a canine survey on October 17 and 18, 2022. The purpose of the canine survey was to utilize cadaver detection dogs to detect potential human burial locations. Six dog and handler teams surveyed the entire waterside of the levee and approximately 0.8 mile of the western portion of the landside of the levee. The conditions of the landside portion of the levee were not conducive to detection. The waterside portion was shaded and the ground temperatures were cooler and provided a better scent profile for the teams. The ICF noted that survey conditions were not ideal as the dogs perform better when ground temperatures are cooler and damp. Due to bioturbation or other disturbance, the strongest scent does not necessarily indicate the location of a burial. The handler interprets the signal based on known behavior of the dog and assigns it a degree of confidence or status of burial.

4.5.6.3 Results

The records search determined that five previously recorded pre-contact and historic-period cultural resources are located within 0.5 mile of the Project Area. The records search revealed three historic-period resources (P-58-99, P-51-147, and P-51-150) have been previously recorded within the Project Area.

A search of the Sacred Lands File by the NAHC returned a negative result on January 3, 2019, meaning that no sacred lands have been previously recorded inside the Project Area. However, a representative from UAIC accompanied archaeologists on the field survey. The three previously recorded resources were updated and three previously unidentified resources (isolated ground stone fragments) were recorded during the pedestrian survey on July 22, 2022 (Table 4.5-1).

As part of a request from the UAIC, ECORP accompanied the ICF on an investigation utilizing cadaver-sensing dogs. The dogs keyed in on multiple locations along the levee that correspond with areas with observed artifacts. A visual inspection of the scent locations did not reveal evidence of human remains. No subsurface ground-truthing of the results was performed.

Table 4.5-1. Cultural Resources in the Project Area

Site #	Description	Eligibility
P-51-99	SPRR Shasta Route	Not eligible for NRHP or CRHR
P-51-147	Sutter Bypass East Levee	Not individually eligible, but contributor to the eligible Sutter Bypass Water Diversion System District.
P-51-150	Feather River West Levee	Eligible under NRHP Criterion A and CRHR Criterion 1
ISO-TL-01	Pre-contact milling stone	Not eligible for NRHP or CRHR
ISO-TL-02	Pre-contact milling stone	Not eligible for NRHP or CRHR
ISO-TL-03	Pre-contact milling stone	Not eligible for NRHP or CRHR

Four of the six cultural resources (P-51-99, ISO-TL-01, -02, and -03) were evaluated as not eligible for the NRHP and CRHR (not significant) and are, therefore, not considered Historical Resources. The historic-period Sutter Bypass East Levee (P-51-147) was evaluated as not eligible for the NRHP and CRHR (not significant), but is considered a contributor to the eligible Sutter Bypass Water Diversion System District, and will be treated as a Historical Resource. The historic-period FRWL (P-51-150) was evaluated as eligible for the NRHP and CRHR and is considered a Historical Resource.

4.5.6.4 Project Impacts and Mitigation Measures

Impact 4.5-1: Implementation of the Proposed Project would cause a substantial adverse change in the significance of a historic resource pursuant to CEQA Guidelines section 15064.5. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Would cause a substantial adverse change in the significance of a historic resource pursuant to CEQA Guidelines section 15064.5.*

As described in Table 4.15-1, resources P-51-99, ISO-TL-01, -02, and -03 have been evaluated as not significant and are not considered further. These resources do not require any further management, preservation, or mitigation under CEQA. The remaining sites are the cultural resources that are eligible for inclusion in the NRHP and CRHR, which constitute historic properties as defined in 36 CFR Part 800.16(l)(1) and historical resources under CEQA, respectively.

P-51-147, the historic Sutter Bypass East Levee, has been previously determined eligible to be a contributor to the NRHP and CRHR-eligible Sutter Bypass Water Diversion System District as it is one of California's earliest and largest reclamation districts. Major reconstruction and repair of other levees in the area were determined to have a no adverse effect to the resources by the USACE with SHPO concurrence

for an unrelated previous federal project. An adverse effect would be caused if the Proposed Project were to significantly alter the aspects of location, design, and association, which are the most important aspects of integrity that convey the significance according to federal statutes. The proposed levee degrade, construction of a cutoff wall, and reconstruction will result in a temporary impact to a portion of the Sutter Bypass East Levee, but following repair, the structure will be in the same location and configuration, and will still be associated with the Sutter Bypass Water Diversion System District. Therefore, the Project will have a less than significant impact on site P-51-147.

P-51-150, the historic Feather River West Levee, while previously determined eligible, through recent Section 106 consultation by the USACE as part of separate but nearly identical projects (Laurel Avenue Critical Repair Project, Cypress to Tudor Road segment, and the emergency repairs at Reaches 14 through 16) concluded that while those projects would have an effect on the resource, the effect would not be adverse for the reasons cited above. The USACE determined in its consultation with SHPO dated August 17, 2017, that the Reaches 14 through 16 repair project would have an effect on P-51-150, but that the effect would not be adverse,. Following a similar determination of no adverse effect by the USACE for the Laurel Avenue project, the SHPO concurred on August 25, 2016 (COE120702B), and also concurred on the Cypress to Tudor Road segment. The proposed levee degrade, construction of a cutoff wall, and reconstruction will result in a temporary impact to a portion of the FRWL, but following repair, the structure will be in the same location and configuration, and will still be associated with the advances in flood control in Northern California and how it was vital to the settlement and development of Sutter and Butte county regions.

However, there remains a possibility that cultural materials will be inadvertently excavated during ground-disturbing activities. In addition, the review of maps and records, the proximity of the Project Area to major water resources, and the fact that buried pre-contact and historic-period resources are known to exist within the Project Area, indicate a high potential for the presence of previously undiscovered buried historic-period and pre-contact archaeological deposits at the Project Area. The presence of alluvium in and around the Project Area further suggests that there remains a potential for deeply buried pre-contact resources to be uncovered during ground-disturbing activities. Without mitigation, impacts associated with inadvertent discovery of cultural resources would be significant.

Therefore, implementation of Mitigation Measures CUL-1 is required. CUL-1 will require archaeological monitoring to ensure proper treatment of any cultural resources inadvertently discovered. Implementation of Mitigation Measure CUL-2 will require proper handling and disposition of resources if they are inadvertently discovered. With these measures in place, the Project would have a less than significant impact on any potential cultural resources that may be inadvertently discovered. These measures are intended to work in coordination with TCR-1 through TCR-8.

Mitigation Measures

CUL-1: Archaeological Monitoring

Prior to and during ground-disturbing construction, SBFCA will take the following actions in the event of inadvertent discovery of cultural resources.

- All ground-disturbing work will be monitored by a qualified professional archaeologist. The monitors' tasks will include observing the active excavation of materials, as well as periodically checking excavated substrate and ensuring the respectful and culturally-appropriate treatment of finds. The monitor will be provided sufficient workspace and an unobstructed view of excavations. SBFCA will authorize the archaeological monitor to pause construction within an area up to 100 feet radius, through the construction manager, periodically as needed for a closer examination of exposed sediments and/or artifacts and the monitor shall implement CUL-2, if necessary. The monitor will record their daily observations on a standard field form.
- The requirements for a monitor should be inclusive of all day and night construction activity that has the potential to result in ground disturbance. *Ground-disturbing activity* is defined herein as any activities that have the potential to disturb soil beyond that which was reasonably visible to archaeologists during the pre-Project pedestrian survey. This includes initial vegetation removal; grading; trenching; if such activity will bring soil to the surface, excavation for below-ground utility installation or foundation work; and any other below-ground activities. Monitoring is not necessary for backfilling of previously excavated areas, levee reconstruction, or for any aboveground Project activity that does not include ground disturbance. Monitoring shall be documented daily with photographs and logs and the results compiled in a report submitted by the qualified archaeological monitor at the conclusion of monitoring activities.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

CUL-2: Post-Review Discoveries

The monitoring archaeologist shall be responsible for taking into account any Tribal recommendations when making the following decisions.

- If the monitoring archaeologist determines that the find is not a cultural resource (such as water-worn cobbles or accumulations of natural materials), no additional action is necessary. Should Tribal representatives desire to take possession of those materials, they may do so as long as the possession is documented by the archaeological monitor and as long as removal has been approved in writing by the property owner; however, taking possession does not obligate SBFCA or the USACE to provide financial support for storing, processing, or reburying materials that are not cultural resources. Until a determination is made by the monitoring archaeologist about whether or not the find is subject to further consideration under

CEQA and Section 106, Tribal representatives shall not remove or take possession of materials or objects observed.

- If the find is determined by the monitoring archaeologist to be redeposited material that lacks primary context, is discovered only in the excavated soils, spoil piles, or stockpiles, or is otherwise not in its original context or place of deposition and does not contain human remains, this discovery is not potentially eligible for the NRHP or CRHR. The archaeological monitor will assign a temporary field number, take a photograph, record its location with a Global Positioning System receiver, and describe the constituents in field notes. If the redeposited find is associated with European or non-Native American culture, the find may be left in place or discarded in order to not interfere with Project activities. If the find is associated with Native American culture, following consultation with the lead agencies, should Tribal representatives desire to take possession of those materials or act in any manner consistent with the Tribal cultural resources treatment plan, they may do so as long as the possession is documented by the archaeological monitor and as long as permission has been granted in writing by the property owner. However, taking possession does not obligate SBFCA or the USACE to provide financial support for storing, processing, or reburying materials that are not eligible for the NRHP or CRHR. If the find was made in spoil piles and stockpiles, the material may be reused by the Project and returned to the levee and will not be subject to screening; however, tribal representatives may take possession of any items found in spoils as long as doing so does not interfere with the Project activities.
- If a Tribal representative disagrees with the determination by the monitoring archaeologist that a discovery is either not a cultural resource or represents a redeposit, no material collection may occur by any party, and the Tribal Historic Preservation Officer (THPO) of the dissenting tribe shall notify the USACE and SBFCA within 48 hours of discovery. All timelines specified in 36 CFR 800.13(b) shall be applied in the event of an archaeological discovery. The USACE will review information submitted by the THPO and communicate its decision to the THPO and SHPO, in accordance with 36 CFR 800.13(b). If the contractor denies the request to stop work at that location during the appeal process (see above), and if the USACE determines that the find does represent an historic property, the USACE and SBFCA will take into consideration the post-discovery impacts to the resource when determining the scope of the effort required to resolve any adverse effect.
- If the find is determined by the monitoring archaeologist to be in original context (in original place of deposition) and does not contain human remains, and that it constitutes a resource that could not have been discovered prior to construction, the USACE and SBFCA shall consult on appropriate treatment, in consultation with Tribal representatives, pursuant to 36 CFR Section 800.13(b) and CEQA, respectively.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

Impact 4.5-2: Implementation of the Proposed Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.*

As discussed under Impact 4.5-1, there remains a possibility that cultural materials will be inadvertently excavated during excavation. In addition, the review of maps and records, the proximity of the Project Area to major water resources, and the fact that buried pre-contact and historic-period resources are known to exist within the Project Area, indicate a high potential for the presence of previously undiscovered buried historic-period and pre-contact archaeological deposits at the Project Area. The presence of alluvium in and around the Project Area further suggests that there remains a potential for deeply buried pre-contact resources to be uncovered during ground-disturbing activities. Without mitigation, impacts associated with inadvertent discovery of cultural resources would be significant.

Therefore, implementation of Mitigation Measure CUL-1 is required and will require archaeological monitoring to ensure proper treatment of any cultural resources inadvertently discovered. Implementation of Mitigation Measure CUL-2 will require proper handling and disposition of resources if they are inadvertently discovered. With these measures in place, the Project would have a less than significant impact on cultural resources inadvertently discovered.

Mitigation Measures

Implementation of Mitigation Measures CUL-1 and CUL-2 will be required.

Impact 4.5-3: Implementation of the Proposed Project would disturb any human remains, including those interred outsides of formal cemeteries. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Would disturb any human remains, including those interred outsides of formal cemeteries.*

No human remains have been identified in the Project Area. However, as described under Impact 4.5-1, implementation of the Proposed Project would include ground-disturbing construction activities that could result in the inadvertent disturbance of currently undiscovered human remains. However, Mitigation Measure TCR-6 would require use of proper procedures following discovery of human remains mandated by the California Health and Safety Code and the PRC.

According to these provisions, should human remains be encountered, all work in the immediate vicinity of the burial must cease, and any necessary steps to ensure the integrity of the immediate area must be taken. The remains are required to be left in place and free from disturbance until a final decision as to the treatment and their disposition has been made. The County Coroner would be immediately notified, and the coroner would then determine whether the remains are Native American. If the coroner determines the remains are Native American, the coroner has 24 hours to notify the NAHC, which will in turn notify the person identified as the Most Likely Descendant (MLD) of any human remains. Further actions would be determined, in part, by the desires of the MLD, who has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. Therefore, with implementation of Mitigation Measure TCR-6, impacts would be reduced to less-than-significant levels.

Mitigation Measures

TCR-6: Human Remains (see Section 4.18)

4.5.7 Cumulative Impacts

4.5.7.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project Site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

Development of the Proposed Project in combination with other projects located along the Feather River would increase the potential for impacts to known and previously unknown archaeological resources that could contribute to the loss of such resources in California. All future projects would be required to follow existing state and federal law or other agency regulations and policies. Projects that do not require discretionary approval may not be subject to the same level of evaluation and thus, result in impacts to cultural resources, and therefore, cumulative impacts from the Proposed Project, along with adjacent development that is not subject to discretionary approval could be significant. However, development in the area that is subject to discretionary approval would be subject to mitigation measures, which would reduce some of the potential impacts on previously unknown historical resources and human remains to less than significant. Consequently, the incremental effects of the Proposed Project, after mitigation, would not be cumulatively considerable with respect to previously unknown historical resources and human remains. Because of the implementation of Mitigation Measures CR-1 and CR-2, the Project's

potentially significant impacts on historical resources present would not be a cumulatively significant contribution to such impacts regionally.

4.5.7.2 Cumulative Impacts and Mitigation Measures

Impact 4.5-5: Implementation of the Proposed Project would Result in a considerable contribution to cumulative impacts on cultural resources. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would result in a substantial adverse change in the significance of an historical resource, archaeological resource, or disturb human remains in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Mitigation Measures

Implementation of Mitigation Measures CUL-1, CUL-2, and TCR-6 will be required.

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4.6 ENERGY

Energy consumption-related impacts include the depletion of nonrenewable resources (i.e., oil, natural gas, coal) and emissions of pollutants during the construction and operational phases. This impact analysis focuses on the sole source of energy that is relevant to the Proposed Project: the equipment fuel necessary for Project construction.

4.6.1 Environmental Setting

Energy relates directly to environmental quality. Energy use can adversely affect air quality and other natural resources. The vast majority of California's air pollution is caused by burning fossil fuels. Consumption of fossil fuels is linked to changes in global climate and depletion of stratospheric ozone. Transportation energy use is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes (i.e., auto, carpool, and public transit); vehicle speeds; and miles traveled by these modes. Construction and routine operation and maintenance of transportation infrastructure also consume energy. In addition, residential, commercial, and industrial land uses consume energy, typically through the usage of natural gas and electricity. As previously mentioned, this analysis focuses on the sole source of energy that is relevant to the Proposed Project: the equipment fuel necessary for Project construction. The Proposed Project would not have an operational phase, as it would complete levee improvements to the existing Feather River West Levee with the goal of meeting State (ULDC) and FEMA requirements. Once upgrades are complete, the Project would not contribute to any energy consumption.

4.6.1.1 Energy Types and Sources

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity, closely followed by renewables, large hydroelectric and nuclear (California Energy Commission [CEC] 2022a). PG&E provides electrical power and natural gas to Sutter County. PG&E serves over 16 million people over a 70,000-square-mile service area in Northern and Central California. In 2021, PG&E provided electricity to customers that was 93 percent GHG emissions-free. They have also committed to a series of climate and emission goals, as they have pledged to reduce their carbon footprint by 2030 by integrating more renewable energy sources, reach net-zero energy system by 2040, and achieve a climate positive energy system by 2050 (PG&E 2022).

4.6.1.2 Energy Consumption

Electricity use is measured in kilowatt-hours (kWh) and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all nonresidential uses in Sutter County from 2017 to 2021 is shown in Table 4.6-1. As indicated, the demand has increased since 2017.

Table 4.6-1. Non-Residential Electricity Consumption in Sutter County 2017-2021	
Year	**Electricity Consumption (kilowatt hours)**
2021	372,627,962
2020	357,925,836
2019	351,822,393
2018	358,407,773
2017	354,962,520

Source: CEC 2022b

The natural gas consumption associated with all nonresidential uses in Sutter County from 2017 to 2021 is shown in Table 3.6-2. As indicated, the demand has decreased since 2017.

Table 4.6-2. Non-Residential Natural Gas Consumption in Sutter County 2017-2021	
Year	**Natural Gas Consumption (therms)**
2021	15,754,591
2020	14,782,823
2019	16,527,176
2018	16,990,625
2017	17,648,878

Source: CEC 2022b

Automotive fuel consumption in Sutter County from 2017 to 2021 is shown in Table 4.6-3. Fuel consumption demand has generally decreased since 2017.

Table 4.6-3. Automotive Fuel Consumption in Sutter County 2017-2021	
Year	**Total Fuel Consumption (gallons)**
2021	74,419,048
2020	67,274,613
2019	76,096,151
2018	75,660,023
2017	76,198,023

Source: CARB 2021

4.6.2 Regulatory Setting

4.6.2.1 State

Senate Bill 1389 Integrated Energy Policy Report

SB 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (PRC Section 25301a). The CEC prepares these assessments and associated policy recommendations every 2 years, with updates on alternate years, as part of the Integrated Energy Policy Report (IEPR).

The 2017 IEPR focuses on next steps for transforming transportation energy use in California. The 2017 IEPR addresses the role of transportation in meeting state climate, air quality, and energy goals; the transportation fuel supply; the Alternative and Renewable Fuel and Vehicle Technology Program; current and potential funding mechanisms to advance transportation policy; transportation energy demand forecasts; the status of statewide plug-in electric vehicle infrastructure; challenges and opportunities for electric vehicle infrastructure.

Executive Order B-55-18

In September 2018 Governor Jerry Brown Signed Executive Order (EO) B-55-18, which establishing a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Carbon neutrality refers to achieving a net-zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for greenhouse gas emission reduction. EO B-55-18 requires the CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law SB 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state's utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the California Public Utilities Commission (CPUC).

The CEC has designed regulations that:

- establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities, of 1,100 pounds carbon dioxide per Megawatt Hour (MWh). This would encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of greenhouse gas;

- require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long term while meeting the State's standards for environmental impact; and
- establish a public process for determining the compliance of proposed investments with the Emissions Performance Standard (EPS) (Perata, Chapter 598, Statutes of 2006).

Renewable Energy Sources (Renewable Portfolio Standards)

Established in 2002 under SB 1078 and accelerated by SB 107 (2006) and SB 2 (2011), California's Renewables Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 RPS to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 60 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator (CAISO) into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

4.6.3 Environmental Impacts

This Section describes potential impacts on energy consumption that could result from the proposed Project.

4.6.3.1 Thresholds of Significance

CEQA Guidelines Appendix G states that a project may have a significant effect on the environment if implementation would result in any of the following:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purpose of this analysis, the amount of fuel necessary for Project construction is calculated and compared to that consumed in Sutter County in 2021, the most recent year of data.

4.6.3.2 Methods of Analysis

As previously stated, the analysis focuses on the source of energy that is relative to the Proposed Project, which is the equipment fuel necessary for Project implementation. Implementation of the Proposed Project consists of levee remedial measures, which include construction of a cutoff wall, a berm tie-in to the SR 99 embankment, pipe penetration improvements, and surficial geometry corrections. The amount of total implementation-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1 and compared to the total fuel usage in Sutter County. The Project is not proposing the construction of any buildings, and once implementation is complete would not result in new traffic trips or energy demand beyond existing conditions. As such, electricity consumption, natural gas consumption and fuel necessary for Project operations are not analyzed.

4.6.3.3 Project Impacts and Mitigation Measures

Impact 4.6-1: Implementation of the Proposed Project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation. Impact Determination: *less than significant*.

Threshold:	*Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.*

Impact Discussion

The impact analysis focuses on the equipment-fuel necessary for Project construction. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use project. For the purpose of this analysis, the amount of fuel necessary for Project construction is calculated and compared to that consumed in Sutter County in 2021, the most recent year of available data.

Energy consumption associated with the Proposed Project is summarized in Table 4.6-4

Table 4.6-4. Proposed Project Energy and Fuel Consumption		
Energy Type	**Energy Consumption (gallons)**	**Percentage Increase Countywide**
Automotive Fuel		
Project Construction Year One		
Phase 1	14,581	0.02
Phase 2	29,064	0.04
Phase 3	77,241	0.10
Phase 4	26,798	0.04
Phase 5	9,754	0.01
Phase 6	2,562	0.003
Phase 7	13,990	0.02
Total Consumption (Phases 1-7):	**173,990**	**0.23**

Source: Climate Registry 2016
Notes: The Project increases in construction fuel consumption are compared with the countywide fuel consumption in 2021, the most recent full year of data.

As indicated in Table 4.6-4, the Project's gasoline fuel consumption during the first year of construction, which is comprised of seven phases, totals an approximate 173,990 gallons. This would increase the annual fuel use in the County by 0.23 percent. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

Impact 4.6-2: Implementation of the Proposed Project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impact Determination: *no impact*.

Threshold:	*Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.*

The Project proposes improvements and repairs to an existing levee to meet FEMA requirements, address issues identified during USACE levee inspections, and to bring the levee into compliance with applicable design criteria. The Project does not include energy consumption sources that are directly subject to state or local energy efficiency plans. The Project would comply with all state and local policy provisions related to renewable energy and energy efficiency, and therefore would not conflict with or obstruct a renewable energy or energy efficiency plan. There would be no impact.

For these reasons, this impact would be less than significant.

Mitigation Measures

No mitigation is required.

4.6.4 Cumulative Impacts

4.6.4.1 Cumulative Setting

The cumulative setting associated with the Proposed Project includes approved, proposed, planned, and other reasonably foreseeable projects and development in the Sutter County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts resulting in energy consumption.

4.6.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.6-3: Result in a considerable contribution to cumulative impacts on energy consumption. Impact Determination: *less than significant*.

Threshold	*Result in a wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

As previously described, the impact analysis contained herein focuses on the fuel consumption needed for Project implementation. As shown, Project fuel consumption would be negligible and would not be considered inefficient, wasteful, or unnecessary with regard to energy. Thus, the Proposed Project's impacts are considered less than considerable contribution to cumulative impacts regarding energy consumption.

Mitigation Measures

No mitigation is required.

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4.7 GEOLOGY AND SOILS

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on geology and soils from the Project, and potential impacts that could result from the Project. Impacts associated with geologic hazards and erosion are discussed below.

4.7.1 Environmental Setting

This section discusses the environmental setting related to geology, soils, seismicity, and paleontological resources in the Project Area. The TFRRP site is approximately 1.65 miles in length and approximately 200 feet wide, located in rural Sutter County. The Project Area is bound by an irrigation canal and orchards on the landside. On the waterside, the Project Area is bound by riparian vegetation within the Nelson Slough Unit of the Feather River Wildlife Area, which is administered by the CDFW. The Project lies north of the Feather River and adjacent to the Feather River Bridge. The nearest residences can be found approximately 0.6 mile southeast of the Project Site, at the census-designated community of Nicolaus.

4.7.1.1 Soils

An issue of concern in the Project Area is the shrink-swell potential of several of the soil series that make up the soil associations (NRCS 2020a). Soils with a moderate to high shrink-swell potential, also known as expansive soils, expand and contract with changes in moisture content and therefore do not provide a suitable substrate for construction without modification. In the Project Area, expansive soils tend to occur in basins and basin rims with high clay content in Sutter County.

According to the NRCS Web Soil Survey (2020b), the Project Site consists of four soil types: Columbia fine sandy loam, frequently flooded, 0 to 2 percent slopes; Shanghai fine sandy loam, channeled, 0 to 2 percent slopes; Shanghai silt loam, 0 to 2 percent slopes; and Yuvas loam, 0 to 2 percent slopes (NRCS 2022b). Of these soil types, only Yuvas loam has shrink-swell potential.

4.7.1.2 Site Geology

The Project Area is located in the central portion of the Sacramento Valley, which forms the northern portion of California's Great Valley geomorphic province. The Great Valley is an alluvial plain approximately 50 miles wide and 400 miles long in the central portion of California (Sutter County 2008). The Great Valley, also called the Central Valley, is a nearly flat alluvial plain that lies between the Sierra Nevada on the east and the Coast Ranges on the west. Its south end is defined by the Tehachapi Mountains north of Los Angeles, and its north end is defined by the Klamath Mountains. The Great Valley is floored by a thick sequence of sedimentary deposits that range in age from Jurassic through Quaternary. Under the eastern and central portions of the valley, the base of the sequence likely rests on Mesozoic crystalline rock allied to the plutons of the Sierra Nevada; to the west, basement rocks are believed to be Franciscan metasediments and/or mélange similar to exposures in the Coast Ranges. Mesozoic sedimentary rocks are in the subsurface record marine deposition. They are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn overlain by Quaternary

fluvial and alluvial strata, recording uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape. During the Pleistocene, erosion of the Sierra Nevada led to the deposition of large alluvial fans at the base of the foothills along the eastern side of the Sacramento Valley. Glacial conditions are generally credited for the deposition of these fans, while subsequent interglacial periods are marked by landscape stability, soil formation, and channel incision. Subsequent depositional cycles during the Holocene progressively buried downstream sections of many older alluvial fans and also led to the formation of inset stream terraces and nested alluvial fans along the foothills (Rosenthal and Willis 2017).

About 4,000 years ago, most of Sacramento Valley had large amounts of alluvium deposited across it, forming a continuous plain extending from southern Glenn County through Yolo County in the west, and from northern Butte County to Sutter County in the east. Along modern streams and rivers in the lower Sacramento Valley, these late Holocene deposits were in part eventually eroded and/or buried by the Latest Holocene and historic period soil deposits (Rosenthal and Willis 2017). The Great Valley's northern portion is the Sacramento Valley, drained by the Sacramento River, and its southern portion is the San Joaquin Valley, drained by the San Joaquin River. The underlying geology in the Project area is Quaternary alluvium (Sutter County 2008).

Holocene (less than 11,000 years old) basin and alluvial deposits are widespread throughout the Project Area, are 4 to 8 feet thick, and overlie the late Pleistocene Modesto Formation. Undifferentiated Quaternary alluvium occurs along the Sutter Bypass and Feather River. Around the southwestern Sutter Buttes, this Holocene alluvium is mapped at the surface as alluvial-fan deposits, which likely consist of poorly sorted mixtures of fine gravel, sand, and silt derived from the volcanic rocks of the Buttes. The Quaternary marsh deposits occur between the levees of the Sutter Bypass and are made up of fine-grained deposits. In addition, alluvial channels and historical alluvial channels have also been mapped in the area. The Holocene alluvial channels occur as a network of moderately sinuous channels with southwesterly orientations. The lower portions of the deposits are made up of relatively loose, coarse sand that fines upward into fine-grained silt and clay. The historical alluvial channels are less than 150 years old and also occur as a network of moderately sinuous channels with southwesterly orientations.

4.7.1.3 Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the Act, which defined an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault is considered to be any fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years) (California Geological Survey [CGS] 2010). According to the Uniform Building Code (UBC), no active faults are known to cross the Project Area.

4.7.1.4 Other Geologic Hazards

Most of the Project Area is located on very gentle valley floor topography. Consequently, the potential for slope failure, including seismically induced landsliding, is low. However, there is the potential for slope instability associated with the levees in the Project Area.

Liquefaction

Liquefaction is the process in which soils and sediments lose shear strength and fail during seismic ground shaking. The vibration caused by an earthquake can increase pore pressure in saturated materials. If the pore pressure is raised to be equivalent to the load pressure, this causes a temporary loss of shear strength, allowing the material to flow as a fluid. This temporary condition can result in severe settlement of foundations and slope failure. The susceptibility of an area to liquefaction is determined largely by the depth to groundwater and the properties (e.g., grain size and density) of the soil and sediment within and above the groundwater. The sediments most susceptible to liquefaction are saturated, unconsolidated sand and silt within 50 feet of the ground surface (California Division of Mines and Geology 1997).

Although sandy units and shallow groundwater occur surrounding the Project Area, particularly near the river, the risk of strong ground shaking is low (CGS 2003). This condition would suggest a relatively low liquefaction hazard. However, geotechnical investigations of Project Area levees indicate that certain layers in the levees are susceptible to liquefaction.

Land Subsidence

Subsidence is the sinking of a large area of ground surface in which the material is displaced vertically downward, with little or no horizontal movement. Many areas in the Central Valley have experienced subsidence, most notably the San Joaquin Valley and Delta (Faunt 2009). Subsidence occurs in primarily three ways: as a result of groundwater overdraft or oil and gas withdrawal, compaction and oxidation of peat soils, and hydrocompaction (USGS 2000). Land subsidence as a result of groundwater overdraft is discussed briefly below. Land subsidence as a result of compaction and oxidation of peat soils and/or hydrocompaction are not significant concerns in the northern Sacramento Valley and are not further discussed.

Land subsidence as a result of groundwater overdraft occurs when excessive groundwater pumping depletes an aquifer and the semi-consolidated sediments of the aquifer collapse together, becoming compacted. This reduction in pore space (i.e., space between sediments that had been occupied by groundwater) is permanent and cannot be recovered (USGS 2020).

The damaging effects of subsidence include gradient changes in roads, streams, canals, drains, sewers, and dikes. Many such systems are constructed with slight gradients and may be significantly damaged by even small elevation changes. Other damaging effects include damage to water wells resulting from sediment compaction and increased likelihood of flooding of low-lying areas.

Sutter County is not subject to significant subsidence. A number of the previously described factors needed to cause subsidence do not exist in Sutter County. However, Sutter County expects that

subsidence could occur during prolonged periods of drought and where there is a significant increase in natural gas withdrawal.

4.7.2 Regulatory Setting

This section summarizes relevant federal and state regulatory information pertaining to geology, soils, seismicity, and paleontological resources.

4.7.2.1 Federal

Clean Water Act

In California, the State Water Board is authorized by USEPA to oversee the NPDES program through the RWQCBs. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. A Stormwater Pollution Protection Plan (SWPPP) and Pollution Prevention Monitoring Plan (PPMP) may be required for construction of the TFRRP to comply with the Construction General Permit and General Dewatering Permit, respectively, under Section 402.

Earthquake Hazard Reduction Act of 1977 (Amended 2004)

The Earthquake Hazard Reduction Act includes provisions for earthquake hazard reduction measures to improve design and construction methods and practices, land-use controls and redevelopment, prediction and early-warning systems, coordinated emergency preparedness plans, and public education/involvement programs. The Act led to the creation of the National Earthquake Hazards Reduction Program (NEHRP) which is a collaborative effort among the FEMA, the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the USGS.

4.7.2.2 State

California Building Code and California Health and Safety Code

The State of California provides minimum standards for building design through the CBC, CCR, Title 24). The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC identifies seismic factors that must be considered in structural design as well as regulates the excavation of foundations and retaining walls, construction on unstable soils, such as expansive soils and areas subject to liquefaction, and regulates grading activities, including drainage and erosion control.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC Division 2, Chapter 7.5) provides policies and criteria to assist cities, counties, and state agencies prohibit the location of developments and structures for human occupancy across the trace of active faults. In order to assist cities and counties, the State Geologist delineates and compiles maps of earthquake fault zones to encompass all potentially and recently active traces of faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (PRC Division 2, Chapter 7.8 and CCR Title 14, Article 10) provides for a statewide seismic hazard mapping and technical advisory program to assist cities and counties in protecting the public health and safety from the effects of strong ground shaking, liquefaction, landslides or other ground failure and other seismic hazards caused by earthquakes.

4.7.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts on geology and soils that could result from the Proposed Project and recommends mitigation measures as needed to reduce significant impacts.

4.7.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items VII (a) through (e), implementation of the Project would have a significant impact related to geology and soils if it would:

(a) directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

  (1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Division of Mines and Geology Special Publication 42);
  (2) Strong seismic ground shaking;
  (3) Seismic-related ground failure, including liquefaction; or
  (4) Landslides;

(b) result in substantial soil erosion or the loss of topsoil;

(c) be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse;

(d) be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property;

(e) have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or

(f) directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

4.7.3.2 Methods of Analysis

For the purposes of this EIR, available USGS and CGS topographical and seismic maps, NRCS soils reports, and other studies that included relevant geologic data, were reviewed and used to evaluate geological and paleontological impacts.

4.7.3.3 Project Impacts and Mitigation Measures

Impact 4.7-1: Implementation of the Proposed Project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides.
Impact Determination: *less than significant*.

Threshold:	*Would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides.*

Although the risk of strong ground shaking in the Project Area is relatively low, a large earthquake on a nearby fault could cause ground shaking in the Project Area. If strong enough, the ground shaking could result in levee deformation, liquefaction, or secondary ground failure, such as lateral spreading or differential settlement, which could result in structural loss, injury, and death. The most common impact of earthquake activity would be lateral spreading and cracking and loss of strength in the levees and foundations (i.e. liquefaction) (DWR 2012). Implementation of the Proposed Project would not substantially alter the overall composition of the levees or foundation soils. The risk associated with levee deformation would occur only when river levels were high, and the potential for levee failure from ground shaking would depend on the degree of the levee saturation during an earthquake. High water levels and a high level of saturation would likely occur only during a major flood event. The probability that a large regional earthquake would occur during a major flood event is relatively low, but such coincidence is not impossible. In addition, the DWR Levee Design Criteria require that if seismic damage is expected after all 100-year flood rehabilitation measures are in place, a post-earthquake remediation plan would be required for quickly restoring the levee system to a 10-year level of protection. If seismic damage to the levee system would be so significant and widespread that it would be infeasible to restore the levee to a 10-year level of protection within a few months, seismic strengthening may be required for 100-year certification. Nonetheless, because of the relatively small likelihood of such coincidental events, and because the expected magnitude of ground shaking from large regional earthquakes is relatively low in the Project Area, the potential for failure or damage of the slurry cutoff wall is considered less than significant.

The proposed slurry cutoff wall would improve the stability of the FRWL by reducing through- and under-seepage and the potential for seepage-related failures by reducing hydrostatic exit gradients (i.e., the average head loss per foot for seepage traveling upward through a blanket layer). These improvements would result in 100-year level of flood protection in rural areas in the Project Area. These improvements would be beneficial compared to the existing condition.

Mitigation Measures

None required.

Impact 4.7-2: Implementation of the Proposed Project would result in substantial soil erosion or the loss of topsoil. Impact Determination: *less than significant*.

Threshold:	*Would result in substantial soil erosion or the loss of topsoil.*

The grading, trenching, clearing for slurry batch plant, and other earthwork that would be conducted during construction of the Proposed Project would result in substantial ground and vegetation disturbance. Ground disturbances would increase the hazard of erosion and could temporarily increase erosion and sedimentation rates above existing levels. Because most of the earthwork would be conducted on and immediately adjacent to the levee, accelerated erosion and sedimentation resulting from construction-related ground and vegetation disturbance would not result in the loss of appreciable quantities of native topsoil resources. In addition, most ground-disturbing activities would occur during the typical construction season, when conditions are generally dry, further reducing the potential for construction-related erosion. The Proposed Project would be required to implement a SWPPP as a requirement of the NPDES General Permit. With implementation of the SWPPP, site-specific measures that control erosion would reduce impacts to less than significant.

Mitigation Measures

None required.

Impact 4.7-3: Implementation of the Proposed Project would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse. Impact Determination: *less than significant*.

Threshold:	*Would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse.*

See discussion under Impact 4.7-4. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.7-4: Implementation of the Proposed Project would be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property.
Impact Determination: *no impact*.

Threshold:	*Would be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property.*

According to the Sutter County *General Plan Update Technical Background Report* (Sutter County 2008), soils with moderate to high shrink-swell potential (soil expansiveness) have potential to occur in the Project Area. According to the NRCS, Yuvas loam, 0 to 2 percent slopes, has shrink-swell potential and exists within the Project site. If the levee is reconstructed with these soils, it could lead to levee instability or surface cracking.

The design specifications for the slurry cutoff wall would consider the characteristics of the existing levee materials. During final design, if expansive or weak soils are documented onsite, modifications to the cutoff wall specifications would be made. In addition, materials used to construct the cutoff wall, whether local or imported, would be required to meet strict material specifications. Also, materials used to cap the levees would be required to have a low plasticity so that the material does not crack over time. The impact of expansive soils would therefore be less than significant.

Mitigation Measures

None required.

Impact 4.7-5: Implementation of the Proposed Project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. Impact Determination: *no impact*.

Threshold:	*Would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.*

Wastewater disposal would not be required for operation of the Proposed Project. Therefore, there would be no impact.

Mitigation Measures

None required.

Impact 4.7-6: Implementation of the proposed Project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would directly or indirectly destroy a unique paleontological resource or site or unique geological feature.*

Based on the geology of the Project Area, paleontological resources are unlikely to be discovered, particularly in the young, recent sediments within the levee. However, the possibility exists that unanticipated paleontological resources would be encountered during ground-disturbing Project-related activities. Mitigation Measure GEO-1 would be implemented to ensure impacts to paleontological or other geologically sensitive resources be identified during any phase of Project development are reduced to less than significant.

Mitigation Measures

With the implementation of Mitigation Measure GEO-1, potential impacts to Paleontological Resources would be reduced to a less-than-significant level.

GEO-1: Unanticipated Discovery of Paleontological Resources

If paleontological or other geologically sensitive resources are identified during any phase of Project development, the construction manager shall cease operation at the site of the discovery and immediately notify SBFCA. SBFCA shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the SBFCA shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, Project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project site while mitigation for paleontological resources is carried out.

Timing/Implementation: This measure shall be printed on construction plan sets and implemented during construction.

Monitoring/Enforcement:SBFCA and Project construction lead.

4.7.4 Cumulative Impacts

Impact 4.7-7: Result in a considerable contribution to cumulative impacts associated with geology and soils and paleontological resources. Impact Determination: *less than significant.*

Threshold:	*Would result in significant impacts to geology and soils and paleontological resources in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Because the Project would have a less than significant impact to geology and soils and paleontological resources, the Project would not contribute to cumulative impacts to these resources in the region.

Mitigation Measures

None required.

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4.8 GREENHOUSE GAS EMISSIONS

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on GHG emissions from the Project, and potential impacts that could result from the Project.

4.8.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead *trapped*, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 4.8-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Table 4.8-1. Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.

Table 4.8-1. Greenhouse Gases	
Greenhouse Gas	**Description**
Methane (CH_4)	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about 12 years.
Nitrous Oxide (N_2O)	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. Nitrous oxide is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.

Source: USEPA 2016a, 2016b, 2016c

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in Carbon Dioxide Equivalents (CO_2e), which weight each gas by its Global Warming Potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

4.8.1.1 Sources of Greenhouse Gas Emissions

In 2022, CARB released the 2022 edition of the California GHG inventory covering calendar year 2020 emissions. In 2020, California emitted 369.2 million gross metric tons of CO_2e including from imported

electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2020, accounting for approximately 38 percent of total GHG emissions in the state. Continuing the downward trend from previous years, transportation emissions decreased 27 million metric tons of CO_2e in 2020, though the intensity of this decrease was most likely from light duty vehicles after shelter-in-place orders were enacted in response to the COVID-19 pandemic. Emissions from the electricity sector account for 16 percent of the inventory and have remained at a similar level as in 2019 despite a 44 percent decrease in in-state hydropower generation (due to below average precipitation levels), which was more than compensated for by a 10 percent growth in in-state solar generation and cleaner imported electricity incentivized by California's clean energy policies. California's industrial sector accounts for the second largest source of the State's GHG emissions in 2020, accounting for 23 percent (CARB 2022b).

4.8.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to greenhouse gas emissions are discussed below.

4.8.2.1 Federal

There are no federal regulations pertaining to GHG emissions.

4.8.2.1 State

Executive Order S-3-05

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

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed AB 32 (Health and Safety Code Section 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020, representing a 25 percent reduction in emissions. Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlined measures to meet the 2020 GHG reduction goals. California exceeded the target of reducing GHG emissions to 1990 levels by the year 2017.

The Scoping Plan is required by AB 32 to be updated at least every 5 years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by SB 32 as discussed below and establishes a proposed framework of action for California to meet a 40-percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the

use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030.

Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

In 2018, SB 100 was signed codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

4.8.2.3 Regional

The local air quality agency regulating the Yuba and Sutter counties is the FRAQMD, the regional air pollution control officer for the basin. The FRAQMD has yet to establish a significance threshold for construction and operational GHG emissions.

4.8.2.4 Local

Sutter County Climate Action Plan

The Sutter County Climate Action Plan (CAP) was designed under the premise that the County is uniquely capable of addressing emissions associated with sources under the County's jurisdiction. The County's emissions reduction efforts coordinate with State strategies in order to accomplish emissions reductions in an efficient and cost-effective manner.

In July 2010, the County adopted the CAP based on the premise that the County and the community it represents are uniquely capable of addressing emissions associated with sources under the County's jurisdiction and that the County's emission reduction efforts should coordinate with the State strategies of reducing emissions in order to reduce emissions in an efficient and cost-effective manner. This CAP presents a comprehensive set of actions to reduce the County's internal and external GHG emissions to 15 percent below current levels by 2020, consistent with the Scoping Plan. The CAP identifies GHG emissions reduction measures categorized in six sectors: Building Energy (addressing energy efficiency and alternative energy in buildings and renewable energy generation facilities), Solid Waste/Landfills, Landscapes, Agriculture, Transportation, and Industrial/Stationary Sources. Reduction strategies have been developed for each sector to achieve the County's 2020 emissions reduction target.

The Sutter County CAP contains CEQA Threshold and Screening Tables for land use projects. The purpose of the CAP CEQA Threshold and Screening Tables are to provide guidance on how to determine the significance of a project's GHG contribution. They are based on the CAP, the GHG inventories within the CAP, and the GHG reduction measures that reduce emissions consistent with the reduction goals of AB 32, which promulgates the statewide GHG-reduction goal of achieving 1990 levels of statewide GHG

emissions by the end of the year 2020. The CAP CEQA Threshold and Screening Tables are used by Sutter County staff for review of development projects in order to ensure that the specific reduction strategies in the CAP are implemented as part of the CEQA process from development projects.

The Screening Tables, used for larger land use development projects, use a point system geared toward encouraging efficiency in building developments. Projects that achieve 100 or more points do not need to quantify GHG emissions and are assumed to have a less than significant impact. Small projects with minor levels of GHG emissions, or ones that do not propose buildings to accommodate the majority of project operations, typically cannot achieve the 100-point threshold and therefore must quantify GHG emission impacts. As such, Sutter County developed a two-tier pre-screening procedure involving Pre-Screening Measures, as part of a 2016 update to the CAP, using a threshold of 3,000 metric tons of CO_2e per year, as described below.

Sutter County Greenhouse Gas Pre-Screening Measures

As part of the 2016 update to the CAP, the County developed Pre-Screening Measures for land use projects. The purpose of the CAP Screening Measures is to provide further guidance on how to determine the significance of a project's GHG contribution. The County has developed a two-tiered screening procedure that uses a threshold of 3,000 metric tons of CO_2e per year. Under Tier 1, projects are pre-screened out based on project type and under Tier 2, projects are pre-screened out based on estimated emissions.

Sutter County General Plan

The following policy of the 2030 Sutter County General Plan (Sutter County 2011) is applicable to the Project:

> *ER 9.10* *Contractor Preference. Give preference to contractors that use low-emission equipment and other practices with air quality benefits for County-sponsored construction projects, and to businesses that practice sustainable operations.*

4.8.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts on GHG emissions that could result from the Proposed Project. The section also recommends mitigation measures as needed to reduce significant impacts.

4.8.3.1 Thresholds of Significance

Based on CEQA Guidelines Appendix G: Items VIII (a) through (b), implementation of Project would have a significant on greenhouse gas emissions if it would:

(a) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;
(b) conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant

for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Specifically, the assessment of GHG emissions below is based on guidance from the County. As previously described, the Sutter County CAP contains CEQA Screening Tables for larger land use projects that are based on a point system geared toward encouraging efficiency in building developments. Projects that achieve or more100 points do not need to quantify GHG emissions and are assumed to have a less than significant impact. However, land use development projects that do not propose buildings or any permanent operations, such as the Proposed Project, typically cannot achieve the 100-point threshold. As such, Sutter County developed a two-tier pre- screening procedure using a threshold of 3,000 metric tons of CO_2e per year, previously described. The 3,000 metric tons of CO_2e per year threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 3,000 metric tons of CO_2e per year value is typically used in defining small projects that are considered less than significant because it represents less than one percent of the future 2050 statewide GHG emissions target and the lead agency can provide more efficient implementation of CEQA by focusing its scarce resources on the top 10 percent. This threshold is correlated to the 90 percent capture rate for industrial projects within the air basin. Land use projects above the 3,000 metric tons of CO_2e per year level would fall within the percentage of largest projects that are worth mitigating without wasting scarce financial, governmental, physical and social resources.

Thus, for the purposes of this analysis, the Project is evaluated with the County two-tier pre-screening procedure. It is noted that the County's bright-line threshold of 3,000 metric tons of CO_2e annually is based, in part, on the GHG-reducing target established for the year 2020 under AB 32, but the Project would be implemented in the year 2023. Statewide goals for GHG reductions in the years beyond 2020 were codified into state law with the passage of SB 32, which as described previously mandates that California achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. This equates to 40 percent below the statewide GHG reduction target for the year 2020. Therefore, the Project's contribution to GHG emissions will be compared to a significance threshold of 1,800 metric tons of CO_2e per year, which equates to 40 percent less than 3,000 metric tons.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, PRC Section 21003(f) provides it is a policy of the state that:

> "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment."

The Supreme Court-reviewed study noted:

> "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

4.8.3.2 Methods of Analysis

Where GHG emission quantification was required, emissions were modeled using the RCEM, version 9.0.1. The RCEM is a spreadsheet-based model that is able to estimate exhaust emissions from heavy-duty construction equipment, haul trucks, and worker commute trips from the construction of a new roadway, road widening, roadway overpass, levee or pipeline projects.

Project GHG emissions were calculated using a combination of model defaults for Sutter County and Project details contained in Section 3.0, Project Description, of this EIR, including the Construction Equipment List contained in Table 3-3 of Section 3.0. The anticipated timeline of the Project can also be found in Table 3-3 of the Project Description. Additionally, construction materials quantities expected to be generated from the Project can be found in Table 3-2 of the Project Description.

4.8.3.3 Project Impacts and Mitigation Measures

Impact 4.8-1: Implementation of the Proposed Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impact Determination: *less than significant*.

Threshold:	*Would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.*

Implementation of the Proposed Project would result in GHG emissions during construction. The significance criteria established by the Sutter County CAP is relied upon to make the determination whether the Project would result in a cumulatively considerable impact.

GHG emissions generated during Project implementation would be short term and of temporary duration, lasting only as long as construction and hauling activities occur, but would be considered a significant air quality impact if the volume of GHG emissions generated exceeds the threshold of significance. The predominate source of GHG emissions would be generated from the operation of the equipment (i.e., tractors, haul trucks).

Table 4.8-2 illustrates the specific construction-generated GHG emissions that would result from construction of the Project.

Table 4.8-2. Annual Implementation GHG Emissions

Alternative	CO_2e (Metric Tons per Year)
Preferred Project	
Phase 1 (Clearing, Grubbing, and Stripping)	148
Phase 2 (Levee Degrade for Cutoff Wall Construction)	295
Phase 3 (Cutoff Wall Construction)	784
Phase 4 (Levee Reconstruction)	272
Phase 5 (Levee Resurfacing)	99
Phase 6 (Hydroseeding)	26
Phase 7 (Demobilization and Site Cleanup)	142
Total Greenhouse Gas Emissions	1,766
Sutter County CAP Threshold	*1,800*
Exceed Threshold?	**No**

Source: RCEM version 9.0.1. Refer to Appendix C for Model Data Outputs.

As shown in Table 4.8-2, the Project's GHG emissions would not exceed the significance threshold of 1,800 metric tons of GHG emissions per year. Once Project implementation is complete, the generation of these GHG emissions would cease. This impact is less than significant.

Mitigation Measures

None required.

Impact 4.8-2 Implementation of the Proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impact Determination: *no impact*.

Threshold:	*Would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.*

The Sutter County CAP includes a GHG inventory, an emission reduction target, and reduction measures to reach its GHG-reduction target. As previously described, the CAP includes a two-tiered approach using CEQA Threshold and Screening Tables. Due to the relatively short duration of levee construction activity and lack of a permanent operational contribution to GHG emissions, the Project's contribution to GHG emissions was compared to the significance threshold of 1,800 metric tons of CO_2e, as previously described. As shown in Table 4.8-2, the Proposed Project would produce CO_2e at a rate that does not exceed the threshold and is therefore consistent with the County CAP and statewide GHG reduction

efforts. The Project would not conflict with any applicable plans or policies related to the reduction of GHG emissions. There is no impact.

Mitigation Measures

None required.

4.8.4 Cumulative Impacts

4.8.2.2 Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe.

Impact 4.8-3: Result in a considerable contribution to cumulative impacts associated with greenhouse gas emissions. Impact Determination: *less than significant*.

Threshold:	*Would result in significant greenhouse gas emissions in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe. It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (refer to CEQA Guidelines Section 15130). The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change as the Project was not found to have any cumulatively significant impacts. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. As previously discussed, the Project would not interfere with implementation of any of the statewide GHG reduction goals for 2030 or 2050 or impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050. Therefore, the Proposed Project would have a less than considerable contribution to cumulative impacts regarding GHG emissions.

Mitigation Measures

None required.

4.9 HAZARDS AND HAZARDOUS MATERIALS

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts of hazards and hazardous materials associated with the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts associated with hazardous materials management and hazardous waste disposal are discussed below. Impacts associated with flood hazards are discussed in Section 4.10, Hydrology and Water Quality of this EIR. Impacts associated with geologic hazards are discussed in Section 4.7, Geology and Soils, of this EIR. Impacts associated with wildfire hazards are discussed in Section 4.20, Wildfire of this EIR.

4.9.1 Environmental Setting

4.9.1.1 Definition of Hazardous Materials

A hazardous material is defined "as any substance or material that could adversely affect the safety of the public, handlers or carriers during transportation" (U.S. Department of Transportation [U.S. DOT] 2020). Hazardous materials are often byproducts of manufacturing uses or waste from commercial products such as cleaning fluids or pesticides. Hazardous materials such as diesel fuel, gasoline, paints and solvents, and oil are also commonly used. The USEPA, the federal Occupational Safety and Health Administration (OSHA), and other federal, state, and county regulatory agencies closely monitor the use, handling, and ultimate disposition of hazardous materials. Hazardous materials require special methods of storage and handling. The U.S. DOT regulates the transport of hazardous materials.

4.9.1.2 Definition of Hazardous Waste

Hazardous waste is "a waste with properties that make it potentially dangerous or harmful to human health or the environment" (Department of Toxic Substances Control [DTSC] 2020). Hazardous wastes can be liquids, solids, or contained gases and can be the byproducts of manufacturing processes, discarded used materials, or discarded unused commercial products, such as cleaning fluids (solvents) or pesticides. Common sewage and drainage systems are not capable of handling disposal of these substances. Improper disposal can harm the environment and workers who may come in contact with these substances. Hazardous materials are often considered hazardous waste, which require special disposal procedures, tracking of the waste through the disposal process, and disposal at special facilities that can accept hazardous waste. Commercial businesses that typically handle hazardous materials and generate small quantities of hazardous waste include dry cleaners, auto repair shops, medical facilities, and photo processing centers. Generators of large quantities of hazardous waste include chemical manufacturers, large electroplating facilities, and petroleum refineries.

Hazardous waste can also include soil, surface water, or groundwater that has become contaminated by past spills and/or land use practices if the soil, surface water, or groundwater meets the characteristics of a hazardous waste. Specifically, a hazardous waste is a waste that appears on one of the four Resource Conservation and Recovery Act (RCRA, described below) hazardous wastes lists (the F-list, K-list, P- list, or U-list) or that exhibits one of the four characteristics of a hazardous waste – ignitability, corrosivity,

reactivity, or toxicity. In California, a substance is also classified as a hazardous waste if it is on California's M-list. The F-, K-, P-, M-, and U-lists, contain chemicals that are used or derived from certain industries (e.g., petroleum refining, pesticide manufacturing, pharmaceuticals). Ignitable wastes can create fires under certain conditions or undergo spontaneous combustion. Corrosive wastes are materials that are acids or bases or that produce acidic or alkaline solutions. Reactive wastes are unstable under normal conditions; they can cause explosions or release toxic fumes, gases, or vapors when heated, compressed, or mixed with water. Toxic wastes are harmful or fatal when ingested or absorbed. When toxic wastes are disposed, the toxic constituents may leach from the waste and pollute the soil, sediment, surface water, or groundwater. Toxic wastes may cause cancer (i.e., carcinogens), death, or sublethal adverse effects (DTSC 2020).

Adverse effects could be chronic (i.e., effects last over a long duration) or acute (i.e., effects last over a short duration). USEPA and CalEPA have established thresholds to determine if soil, sediment, or water are classified toxic and therefore, classified as hazardous waste.

4.9.2 Existing Setting

4.9.2.1 Project Site Location and Surrounding Land Use

The Proposed Project involves repair of a portion of the FRWL in unincorporated Sutter County. Surrounding land uses for the Project include agriculture (i.e., rice and orchards) to the north, SR 99 to the east, open space owned and the Feather River to the south, and the Sutter Bypass and additional agriculture uses to the west. The Project Area for the TFRRP, is focused between the Sutter Bypass East Levee and SR 99 just opposite the Feather River from Nicolaus, California and is approximately 1.65 miles (8,700 linear feet) in length. The levee landside is bound by an irrigation canal and orchards owned and operated by Odysseus Farms. The irrigation canal is located between approximate stations 11+00 and 58+00, an irrigation pipe crossing (penetrating through the levee) is located near station 52+25, a PG&E transmission tower is located at the landside of the levee near station 70+00, and SR 99 intersects the levee near station 98+00 (Figure 2-1). The levee waterside is bound by open space that is part of the Nelson Slough unit of the Feather River Wildlife Area, which is owned and maintained by CDFW. Levee improvements are currently anticipated to tie into the west side of SR 99. This portion of the FRWL is operated and maintained by State Maintenance Area 3.

Levee remedial measures for the Project include construction of a cutoff wall, a berm tie-in to the SR 99 embankment, pipe penetration improvements, and surficial geometry corrections. Improvement measures were developed based on the 100-year DWSE provided in *Design Water Surface Profiles for the Feather River West Levee Project, Addendum #2*, dated December 2013 and prepared by Peterson Brustad, Inc.

Private residences and agricultural buildings and associated structures are found throughout the area. The town of Nicolaus is to the southeast of the Project Site, across the Feather River, approximately 0.5 mile from the eastern end of the Project Area. The Bobelaine Audubon Sanctuary and Lake of the Woods State Wildlife Area are northeast of the site, approximately 1.5 and 3 miles from the site, respectively.

4.9.2.2 Potential Sources of Hazardous Materials

It is common for farms and ranches to have various hazardous materials, such as pesticides, herbicides, and fertilizers, in storage prior to use and in soils after application. Petroleum hydrocarbons are common on agricultural lands for fueling equipment. Hazardous materials used for maintenance and fueling of agricultural equipment and vehicles may pose hazards from incidents such as spills and releases.

The following common hazardous materials may be present in the Project Area in a variety of common contexts:

- Pesticides, herbicides, and fertilizers associated with agricultural lands
- Petroleum hydrocarbons
- Underground storage tanks
- Contaminated debris
- Lead associated with paints and structures
- Wastewater
- Pits or ponds
- Stormwater runoff structures
- Transformers that may contain Polychlorinated biphenyls (PCBs).

Hazardous materials stored or used at existing agricultural sources, particularly near and adjacent to levees, pose significant hazards. The elevation of the Feather River fluctuates seasonally and the groundwater elevation is assumed to fluctuate with river levels. During periods of low flow, it is likely that groundwater under agricultural lands flows toward the river and that any contaminated water could be transported to the soils within and near the levees.

Additionally, hazards related to hazardous materials may occur during general commerce transport on SR 99 (e.g., leaks, spills) and occasional maintenance of the existing levee on the Project Site may produce hazardous materials during periodic maintenance (e.g., spills of fuels, motor oil or lubricant from equipment).

4.9.2.3 Known Sources of Hazardous Materials

The owner or operator of any business or entity that handles a hazardous material above threshold quantities is required by state and federal laws to submit a business plan to the local Certified Unified Program Agency (CUPA). The Sutter County's Environmental Health Division has been designated as the Sutter County's CUPA by CalEPA in order to focus the management of specific environmental programs at the local government level. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits and conduct inspection and enforcement activities throughout Sutter County. This approach strives to reduce overlapping and sometimes conflicting requirements of different

governmental agencies independently managing these programs. The County will refer large cases of hazardous materials contamination or violations to the Central Valley RWQCB (Region 5) and the California DTSC. It is common for other agencies, such as federal and state OSHAs, to become involved when issues of hazardous materials arise.

Under Government Code Section 65962.5, both the DTSC and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. The Project site is not listed by the DTSC as a hazardous substances site on the list of hazardous waste sites compiled pursuant to Government Code Section 65962.5 (Cortese List).

4.9.3 Regulatory Setting

For the purpose of this section of the EIR, a hazard is the potential for an adverse effect to cause damage to human health or the environment. The regulatory framework for the management of hazardous materials, including hazardous wastes and contamination, is complex. Various federal, state, and local agencies regulate and administer the transportation and handling of hazardous materials, as well as the generation, storage, treatment, and disposal of hazardous wastes (a subset of hazardous materials). The purpose of these applicable rules and regulations is to protect human health and the environment from the associated hazards.

4.9.3.1 Federal

Hazardous Materials

Federal laws ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment. The federal agencies with responsibility for hazardous materials management include the USEPA, OSHA, and the U.S. DOT. Applicable federal regulations pertaining to hazardous materials are contained in the CFR Titles 29, 40, and 49. Hazardous materials are defined in 49 CFR 172.101.

The Toxic Substances Control Act of 1976 (15 USC Sections 2601–2697) regulates the manufacturing, inventory, and disposition of hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil. This is also the federal law that requires the use of the Universal Hazardous Waste Manifest to track hazardous substances from *cradle to grave*.

The federal Hazardous Materials Transportation Act (49 USC Sections 5101–5127) is the statute regulating transport of hazardous materials in the U.S. Hazardous materials regulations are enforced by the FHWA, the U.S. Coast Guard, the Federal Railroad Administration, the Federal Aviation Administration, and the Federal Motor Carrier Safety Administration.

OSHA is the agency responsible for protecting workers involved in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 29 USC Sections 651-678). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29

that set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials.

Hazardous Waste

Hazardous waste is governed under the following federal regulations:

- The RCRA of 1976 (42 USC Sections 6901–6992k) is the law under which the USEPA regulates hazardous waste from the time the waste is generated until its final disposal (*cradle to grave*).
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA; 42 USC Sections 9601–9675) gives the USEPA authority to seek out parties responsible for releases of hazardous substances and to ensure site remediation.
- The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), requires notification and planning requirements to help notify and protect local communities in the event of accidental release and its remediation.

4.9.3.2 State

Hazardous Materials

California Environmental Protection Agency/Office of Emergency Services

The CalEPA establishes regulations governing the use of hazardous materials in the state to protect air, water, and soil, as well as proper disposal and cleanup of hazardous waste. CalEPA oversees California's Certified Program, which streamlines and provides consistent regulatory activities, including inspections, permitting, and enforcement for the following:

- Aboveground Petroleum Storage Act
- California Accidental Release Prevention
- Hazardous Materials Business Plan (HMBP)
- Hazardous Waste Management
- Underground Storage Tanks

Under the program, CalEPA may authorize local agencies to implement and enforce various hazardous materials and hazardous waste components of the above list. Once authorized, the agency becomes a CUPA. This program protects Californians from hazardous materials and hazardous wastes by ensuring local regulatory agencies consistently apply statewide standards. Sutter County's Environmental Health Division has been designated as the Sutter County's CUPA by CalEPA (Sutter County 2023). As part of this authorization, the County is responsible for administering and enforcing the HMBP program.

The Office of Emergency Services (OES) coordinates state and local agencies and resources for educating, planning, and warning citizens of hazardous materials and related emergencies, including organized response efforts in case of emergencies.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted U.S. DOT regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 California CCR. State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and Caltrans. Together, these agencies determine container types, placarding, and signage used, and license hazardous waste haulers to transport hazardous waste on public roads.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts onsite evaluations and issues notices of violation to enforce necessary improvements to health and safety practices. Cal/OSHA's regulatory purview includes provisions to minimize the potential for release of asbestos and lead during construction and demolition activities.

Hazardous Waste

California Department of Toxic Substances Control

The DTSC is a branch of CalEPA and regulates the management of hazardous waste (i.e., generation, storage, treatment, transportation, and disposal) and the cleanup of hazardous substances and wastes, oversees remedial investigations, protects drinking water from toxic contamination, and warns the public that could potentially be exposed to listed carcinogens.

California Health and Safety Code, Division 20, Chapter 6.8, Hazardous Substances Account

Chapter 6.8 of Division 20 of the California Health and Safety Code (HSC) also establishes a program for state cleanup processes to provide for response authority for releases of hazardous substances, including spills and hazardous waste disposal sites, which pose a threat to the public health or the environment.

4.9.3.3 Local

Chapter 10 of Sutter County's General Plan, Public Health and Safety (PHS), addresses risks of natural and manufactured hazards to its residents. (Sutter County 2011). Potential hazards that could affect residents include flooding, geologic and seismic risks, and exposure to hazardous materials. Hazardous materials are routinely used, stored, and transported in the County for a variety of uses such as industrial and commercial/retail businesses, educational facilities, medical facilities, and households. Hazardous materials that are improperly used, stored, transported, or disposed may pose hazards to human health and the environment.

The following PHS goals and policies of the 2019 Sutter County General Plan (Sutter County 2011) are applicable to the Project:

Goals

PHS 3: Protect health, safety, property, and the environment from the use, transport, disposal, and release/discharge of hazardous materials and waste.

Policies

PHS 3.1: Use and Disposal. Ensure that the use and disposal of hazardous materials and waste complies with appropriate federal, state, and local requirements.

PHS 3.4: Hazardous Materials Business Plan (HMBP). Require the owner or operator of a facility to complete a HMBP if the facility handles hazardous materials or a mixture containing hazardous materials that has a quantity equal to or greater than 55 gallons for liquid, 500 pounds for solids, or 200 cubic feet for compressed gas. Provide a copy of the HMBP to the Sutter County Environmental Health Division (as a Certified Unified Program Agency [CUPA]).

Sutter County's Environmental Health Division has been designated as the Sutter County's CUPA by CalEPA (Sutter County 2023). As part of this authorization, the County is responsible for administering and enforcing the hazardous materials business plan program.

4.9.3.4 Definitions of Hazards and Hazardous Materials

The term *hazardous material* is defined by the California HSC as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment (HSC, Chapter 6.95, Section 25501). Under Title 22 of the CCR, the term hazardous material is further defined as: A substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed (CCR, Title 22, Section 66260.10).

The U.S. DOT hazardous materials regulations, found in Title 49 of the CFR, Parts 171-180, provide standards that reduce risks during transportation. Under these regulations, hazardous materials include those materials that may burn, explode, react violently, or cause injury to people or the environment when offered for transportation in commerce.

The term *hazardous waste*, a subset of hazardous materials, is specifically defined in the California HSC as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment (HSC, 14 Chapter 6.95, Section 25501). Hazardous wastes include RCRA hazardous waste, extremely hazardous

waste, and acutely hazardous waste (California HSC Section 25117). CCR, Title 22, Division 4.5, Chapter 11, section 66261.3 also defines hazardous waste. Hazardous substances are defined more broadly in the California HSC, Chapter 6.8, Section 25316 as being inclusive of hazardous materials, hazardous wastes, hazardous contaminants, and hazardous pollutants. Hazardous wastes can be liquids, solids, or contained gases and can be the byproducts of manufacturing processes, discarded used materials, or discarded unused commercial products, such as cleaning fluids (solvents) or pesticides. Common sewage and drainage systems are not capable of handling disposal of these substances. Improper disposal can harm the environment and workers who may come in contact with these substances. Hazardous materials are often considered hazardous waste that require special disposal procedures, tracking of the waste through the disposal process, and disposal at special facilities that can accept hazardous waste. Commercial businesses that typically handle hazardous materials and generate small quantities of hazardous waste include dry cleaners, auto repair shops, medical facilities, and photo processing centers. Generators of large quantities of hazardous waste include chemical manufacturers, large electroplating facilities, and petroleum refineries. Hazardous waste can also include soil, surface water, or groundwater that has become contaminated by past spills and/or land use practices if the soil, surface water, or groundwater meets the characteristics of a hazardous waste.

4.9.4 Environmental Impacts and Mitigation Measures

This section describes potential impacts related to hazards and hazardous materials that could result from Project implementation and discusses any recommended mitigation measures to reduce significant impacts.

4.9.4.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items IX (a) through (g), implementation of the Project would have a significant impact related to hazards and hazardous materials if it would:

"(a) create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

(b) create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

(c) emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

(d) be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;

(e) for a project located within an airport Land Use Plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in or outside the Planning Area;

(f) impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or

(g) expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires."

Impacts on emergency response (criteria f) and wildland fire (criteria g) are discussed in Section 4.20, Wildfire and are not discussed further in this section.

4.9.4.2 Methods of Analysis

This impact analysis examines the potential for implementation of the Proposed Project to result in release of hazardous materials into the environment. Construction and operation of the Project will comply with all applicable laws, permits, and legal requirements pertaining to hazards and hazardous materials, as discussed above.

4.9.4.3 Project Impacts and Mitigation Measures

Impact 4.9-1: Implementation of the Proposed Project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.*

The Project would involve the temporary use and transport of fuels, lubricating fluids, solvents, and oil for construction equipment that have the potential to result in minor spills and releases. Maintenance of equipment and vehicles will be conducted offsite, for anything other than minor needs, at an appropriately permitted facility or business. Vehicles may be fueled onsite. However, implementation of standard BMPs for management of hazardous materials during construction as well as Mitigation Measure HAZ-1 would ensure that the potential risk of spills and releases and adverse impacts on the environment is minimized. Therefore, impacts associated with hazardous materials use would be less than significant with implementation of mitigation.

Excavated soil is not anticipated to be defined as a hazardous waste; however, proper sampling protocol will be in place and implemented should characterization be necessary. Any excavated material that cannot be placed back into an excavation pit will be properly characterized prior to transport offsite and will be transported in accordance with applicable regulations. All waste generated as part of onsite maintenance and other Project activities will be properly managed and characterized while onsite; all waste will be transported offsite in accordance with applicable regulations.

Mitigation Measures

HAZ-1: Avoid Feather River

Vehicles shall be moved away from the Feather River prior to refueling and lubrication, as well as for conducting repairs, if feasible. Staging and storage areas for equipment, materials, fuels, and lubricants and solvents shall be located well away from the top of bank and riparian areas. Stationary equipment such as motors, pumps, generators, compressors, and welders located within or adjacent to Waters of the State shall be positioned over drip-pans. Debris, refuse, oil, gasoline or diesel fuel, or other petroleum products, or any other substances that could be hazardous to aquatic life resulting from Project activities shall be prevented from contaminating the soil and/or entering Waters of the State. Absorbent materials designated for spill containment shall be used for all activities performed in or within 50 feet of a watercourse that involve use of hazardous materials to be used for spill response and cleanup in the event of an accidental spill.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

Impact 4.9-2: Implementation of the Proposed Project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.*

Hazardous materials used during construction would include diesel fuel, oil, gasoline, and solvents. Use of these hazardous materials has the potential to be spilled or released and potentially be considered a major spill or release. As noted in HAZ-1, various BMPs will be in place that are commensurate with the maximum volume of the material. With implementation of Mitigation Measure HAZ-1, adverse impacts associated with a risk of upset would be minimized, and reduced to less-than-significant levels.

Mitigation Measures

Mitigation Measure HAZ-1 will be required.

Impact 4.9-3: Implementation of the Proposed Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment. Impact Determination: *no impact*.

Threshold:	*Would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.*

As discussed in Section 4.9.1.2, the Project Site is not included on any hazardous materials sites compiled pursuant to Government Code Section 65962.5. There would be no impact.

Mitigation Measures

None required.

Impact 4.9-4: Implementation of the Proposed Project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Impact Determination: *no impact*.

Threshold:	*Would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.*

As discussed under Impact 4.9-1, hazardous materials that would be used during construction of the Proposed Project would include diesel fuel, oil, and gasoline. However, use of these materials would not extend beyond the boundaries of the Project Area.

The East Nicolaus High School and Marcum-Illinois Elementary School are the nearest schools. They are located 2.5 miles northeast and 3.4 miles east of the Proposed Project Site, respectively. Therefore, there would be no impact.

Mitigation Measures

None required.

Impact 4.9-5: For a project located within an airport Land Use Plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, implementation of the Project would result in a safety hazard or excessive noise for people residing or working in or outside the Planning Area. Impact Determination: *no impact*.

Threshold:	*For a project located within an airport Land Use Plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in or outside the Planning Area.*

The closest airport is the Lincoln Regional/Karl Harder Field Airport, approximately 13.5 miles to the east of the Project Area. Therefore, there would be no impact.

Mitigation Measures

None required.

4.9.5 Cumulative Impacts

4.9.5.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are:

- Yuba City Boat Ramp Sediment Removal Project Phase 2. This is a dredging proposal by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba Rivers in Yuba City. The project, which is several miles upstream of the Proposed Project site, will move forward when the project receives funding.
- SBEL Critical Repairs Project. This project is located several miles north of the TFRRP site along the Sutter Bypass and will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project.
- Lower Sutter Bypass Anadromous Fish Habitat Restoration. This is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.9.5.2 Cumulative Impacts and Mitigation Measures

Impact 4.9-6: Result in a considerable contribution to cumulative impacts associated with hazards and hazardous materials. Impact Determination: *less than significant*.

Threshold:	*Would result in significant impacts associated with exposure to hazards, hazardous materials, or hazardous waste in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

As discussed under Impact 4.9-1, hazardous materials that would be used during implementation of the Proposed Project would include diesel fuel, oil, and gasoline. However, use of these materials would not extend beyond the boundaries of the Project Site. Hazardous materials use would be short-term in nature and would not be used onsite post-construction. Therefore, the Proposed Project would have a less than considerable contribution to cumulative impacts associated with hazards and hazardous materials in the area.

Mitigation Measures

None required.

4.10 HYDROLOGY AND WATER QUALITY

This section of the EIR describes the existing hydrologic conditions in the Project Area as well as existing water and sediment quality in the Project Area. The section includes the regulatory framework necessary to evaluate potential environmental impacts on hydrology, water quality, and sediment quality resulting from the Project and describes potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts on groundwater supply and other water-supply related issues are discussed in EIR Section 4.19, Utilities and Service Systems.

4.10.1 Environmental Setting

The following considerations are relevant to water quality and groundwater resources conditions in the Proposed Project Area.

4.10.1.1 Groundwater

The Project Area is located in the Sacramento Valley Groundwater Basin (Basin No. 5-021). One groundwater subbasin intersects the Project Area (DWR 2020a). The Sutter Subbasin (Subbasin No. 5-021.62) occurs to the west of the Feather River (DWR 2020a).

Groundwater quality in Sutter County ranges from poor to very good and includes contaminants in some areas resulting from both natural conditions and human influence (Sutter County 2008). Some groundwater is hard water (i.e., high calcium and magnesium), and some has higher levels of iron, manganese, and arsenic, and some areas also have high nitrates. Constituents of general concern for groundwater are Total Dissolved Solids (TDS), nitrate, and several other individual chemical constituents. Septic systems can introduce nitrates, salts, bacteria, viruses, medications, household chemicals, and other contaminants into the groundwater. Nitrate contamination can also come from agricultural practices.

4.10.1.2 Surface Hydrology

The Project Site is located in the greater Sacramento River hydrologic region (DWR 2020a). The Sacramento River hydrologic region covers approximately 17.4 million acres (27,200 square miles, USEPA 2020a). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border to the Sacramento-San Joaquin Delta (DWR 2020a). The lower Feather River is the largest natural tributary to the Sacramento River (USEPA 2020a).

The Feather River is located within the Honcut Headwaters-Lower Feather River watershed (Hydrologic Unit Code [HUC] 8-18020159), which is part of the Sacramento River Watershed. The Lower Feather River Watershed begins from the waters behind the Oroville Dam, the tallest dam in the U.S. Approximately 190 miles of major creeks and rivers, 695 miles of minor streams, and 1,266 miles of agricultural water delivery canals are in the Lower Feather River Watershed. Hydrology is also influenced by the operation of the

Sutter Bypass, which brings Sacramento River water through Butte Slough and into the Lower Feather River. This system is designed, in part, to relieve flood flows in the Sacramento River.

4.10.1.3 Flood Hazard

The Project Area is mapped as a regulatory floodway (flood hazard zone A) by FEMA (Flood Insurance Rate Map [FIRM 0603940715E effective 12/2/08). The National Flood Insurance Program (NFIP) defines a *regulatory floodway* as the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. This designated height is 1 foot for most NFIP communities unless existing floodway agreements allow otherwise (FEMA 2019). Base flood elevations are mapped at 75 feet above mean sea level by FEMA in the Project Area. Figure 4.10-1 shows the flood hazard area as currently mapped by FEMA.

Water Quality

The preparation and adoption of water quality control plans (Basin Plans) is required by the California Water Code (Section 13240) and supported by Section 303 of the Federal CWA to establish water quality standards (i.e., water quality objectives) for the protection of the designated beneficial uses of navigable waters (RWQCB 2018). California's basin plans also establish water quality standards for groundwater in addition to surface water (RWQCB 2019). The Porter-Cologne Water Quality Control Act requires the Regional Water Boards to establish water quality objectives which are defined as "...the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area" (RWQCB 2019). The federal government (USEPA) has also established recommended aquatic water quality criteria for determining when water has become unsafe for people and wildlife.

Beneficial uses represent the services and qualities of a water body (i.e., the reasons the water body is considered valuable). The Basin Plan describes beneficial uses for the waters in the Sacramento River watershed (CVRWQCB 2009). Table 4.10-1 lists the beneficial uses for water bodies that are within or have influence on the hydrology of the affected area and could be affected by project activities.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 10. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC–3, #9202
1315 East–West Highway
Silver Spring, MD 20910–3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713–3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:24,000 from aerial photography dated 2005.

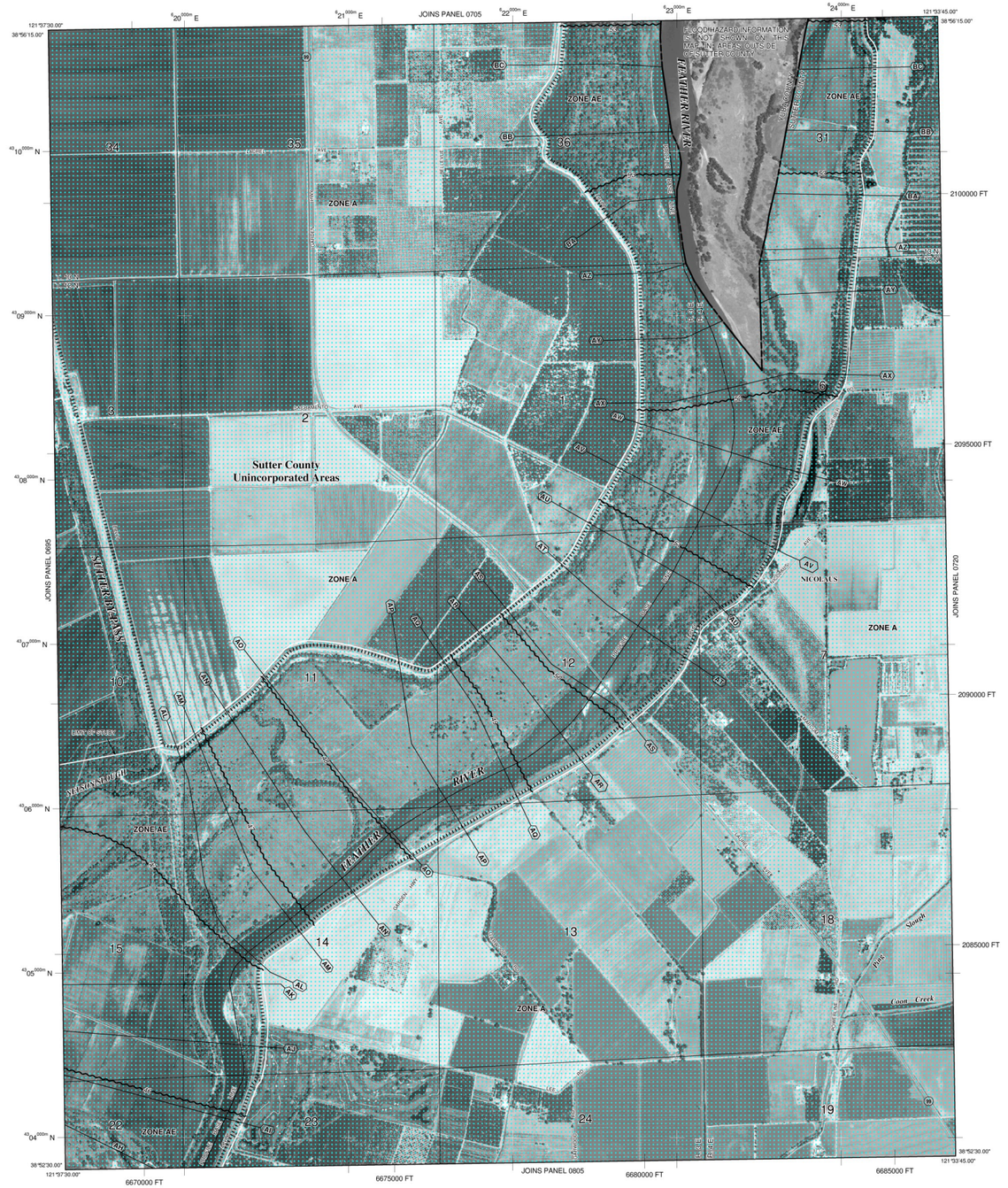
This map reflects more detailed and up–to–date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de–annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map showing the layout of map panels for this jurisdiction.

Contact the **FEMA Map Service Center** at 1–800–358–9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1–877–FEMA MAP** (1–877–336–2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513 (EL 987)	Base Flood Elevation line and value; elevation in feet*
	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29)

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 10
6000000 FT	5000-foot grid ticks: California State Plane coordinate system, II zone (FIPSZONE 0402), Lambert Conformal Conic
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORY
Sutter County Administrators Office, 1160 Civic Center Blvd., Suite A, Yuba City, California 95993 (Maps available for reference only, not for distribution.)

INITIAL NFIP MAP DATE
June 7, 1977
FLOOD HAZARD BOUNDARY MAP REVISIONS

FLOOD INSURANCE RATE MAP EFFECTIVE
April 5, 1988
FLOOD INSURANCE RATE MAP REVISIONS
November 15, 1989 July 6, 1998

December 2, 2008 – to change base flood elevations, to reflect updated topographic information, to update map format, to add base flood elevations, to change zone designations, and to add roads and road names.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1–800–638–6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0715E

FIRM
FLOOD INSURANCE RATE MAP

SUTTER COUNTY, CALIFORNIA
(UNINCORPORATED AREAS)

PANEL 715 OF 880
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SUTTER COUNTY	060394	0715	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 0603940715E

MAP REVISED DECEMBER 2, 2008

Federal Emergency Management Agency

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4.10-1. FEMA FIRM Map

2015-036.011 Tudor Flood Risk Reduction Project

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Table 4.10-1 Beneficial Uses of the Feather River	
Municipal and Domestic Supply (MUN) - Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.	**Warm Freshwater Habitat (WARM)** - Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. (Resident does not include anadromous. Any Segments with both COLD and WARM beneficial use designations will be considered COLD water bodies for the application of water quality objectives).
Agricultural Supply (AGR) for Irrigation - Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.	**Migration of Aquatic Organisms (MIGR) for Warm and Cold Water Species** - Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish. (Warm: Striped bass, sturgeon, and shad; Cold (Salmon and steelhead)
Water Contact Recreation (REC-1) including Canoeing and Rafting - Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.	**Spawning, Reproduction, and/or Early Development (SPWN) for Warm and Cold Water Species** - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. (Warm: Striped bass, sturgeon, and shad; Cold (Salmon and steelhead)
Non-contact Water Recreation (REC-2) - Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.	**Wildlife Habitat (WILD) -** Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Section 303(d) of the CWA also requires that states develop a list of water bodies that do not meet water quality standards (i.e., impaired water bodies), to establish priority rankings for waters on the list, and to develop action plans, called Total Maximum Daily Loads (TMDLs), to improve water quality (USEPA 2020b). The Lower Feather River, from the Lake Oroville Dam to the confluence of the Sacramento River, is on the Category 5 303(d) list of impaired water bodies for chlorpyrifos, Group A pesticides, mercury, PCBs, and other unknown toxicity (USEPA 2020b). A Category 5 list contains water bodies that have listed pollutants that still require the development of a TMDL.

4.10.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to the protection of groundwater quality, water and sediment quality, and protection of the public from flooding and other hydrologic hazards are discussed below.

4.10.2.1 Federal

Rivers and Harbors Appropriation Act of 1899

Section 10 of the Rivers and Harbors Appropriation Act of 1899 prohibits obstructions, alterations, and modifications to the navigable waters of the United States. The Feather River is considered navigable in the 28-mile reach extending from its mouth to the railroad bridge in the City of Marysville; therefore, it is

considered navigable in the Project Area by the USACE (California Harbors and Navigation Code Section 102 [2019]).

Executive Order 11988 (Floodplain Management)

EO 11988 (Floodplain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial floodplain values. Specifically, federal agencies are directed to avoid conducting, allowing, or supporting actions on the base floodplain unless the agency finds that the base floodplain is the only practicable alternative location.

Floodplain Development

FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE studies and approved agency studies. FEMA is also responsible for distributing the FIRMs, which are used in the NFIP. These maps identify the locations of Special Flood Hazard Areas (SFHAs).

Clean Water Act (CWA)

The federal CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs such as the NPDES Program, to the SWRCB and the RWQCBs.

CWA Section 303(c)(2)(b). Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface Waters of the U.S. based on the water body's designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numeric standards. Water quality standards applicable to the proposed Project are listed in the Basin Plan (RWQCB 2018).

CWA Section 303(d). Section 303(d) of the CWA requires that states develop a list of water bodies that do not meet water quality standards (i.e., impaired water bodies), establish priority rankings for waters on the list, and develop action plans, called TMDLs, to improve water quality.

CWA Section 401. Section 401 of the CWA requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. Therefore, a Water Quality Certification under Section 401 of the CWA must accompany the USACE permit that must be issued for the Project pursuant to Section 10 of the Rivers and Harbors Act.

CWA Section 402. National Pollutant Discharge Elimination System Program

The CWA prohibits discharging *pollutants* through a *point source* into *Waters of the U.S.* unless they have an NPDES permit. The permit contains limits on what can be discharged, creates monitoring and reporting requirements, and implements other provisions to ensure that the discharge does not diminish water quality and/or people's health. For construction projects larger than 1 acre, a SWPPP and PPMP may be

required for construction to comply with the Construction General Permit and General Dewatering Permit, respectively, under Section 402.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. Pursuant to the SDWA, legally enforceable standards have been set to protect public health.

National Toxics Rule and California Toxics Rule

In 1992, pursuant to the CWA, USEPA promulgated the National Toxics Rule (NTR) criteria to establish numeric criteria for priority toxic pollutants for California. The NTR established water quality standards for 42 priority pollutants not covered at that time under California's statewide water quality regulations. In May 2000, USEPA issued the California Toxics Rule (CTR), which promulgated numeric criteria for additional priority pollutants. The CTR documentation (Volume 65, pages 31682–31719 of the Federal Register [65 FR 31682–31719], May 18, 2000), along with amendments in February 2001 *carried forward* the previously promulgated criteria of the NTR, thereby providing a single document listing of water quality criteria for 126 priority pollutants for California surface waters.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect existing uses and the level of water quality necessary to protect existing uses. The federal policy directs states to adopt a statewide policy that includes the following primary provisions (40 CFR 131.12):

1. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

2. Where the quality of waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the state finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

3. Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Nonindigenous Aquatic Nuisance Prevention And Control Act Of 1990

The Nonindigenous Aquatic Nuisance Prevention And Control Act Of 1990 (as amended through Public Law 106–580, December 29, 2000) is the act under which the USFWS and National Oceanic and Atmospheric Administration (NOAA) manage the Aquatic Nuisance Species Task Force and their Aquatic

Nuisance Species Programs. Per Executive Order 13112, an *invasive species* is defined as a species that is (USDA 2020):

- Nonnative (or alien) to the ecosystem under consideration; and
- Whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Aquatic Nuisance Species (ANS) are "nonindigenous species that threaten the diversity or abundance of native species, the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters. ANS include nonindigenous species that may occur within fresh, estuarine, or marine waters and that presently or potentially threaten ecological processes or natural resources" (ANS Task Force 2020). The goals of the ANS Task Force are to:

- prevent the introduction and dispersal of ANS;
- monitor, control and study such species;
- conduct research on methods to monitor, manage, control and eradicate such species;
- coordinate ANS programs and activities of ANS Task Force members and affected state agencies; and
- educate and inform the general public and program stakeholders about the prevention, management, and control of these species.

4.10.2.2 State

Division of Flood Management of the Department of Water Resources

The goals of the Division of Flood Management of the DWR are as follows:

- Plan for and improve the flood management system;
- Maintain levees;
- Provide emergency preparedness and response;
- Forecast river levels based on weather conditions;
- Reduce flood risk;
- Enhance public safety;
- Enhance fisheries and wildlife habitat;
- Improve recreation and open spaces;
- Promote wise use of floodplains;
- Improve water quality and supply reliability;

- Produce water supply forecasts that are used to set statewide standards and determine water allocations affecting most Californians;
- Provide grant-funded programs that benefit 27 million Californians directly or indirectly. (DWR 2020b)

Porter-Cologne Water Quality Control Act and Waste Discharge Requirements (WDRs)

The Porter-Cologne Water Quality Control Act is California's statutory authority for the protection of water quality. Under this act, California must adopt water quality policies, plans, and objectives (synonymous with the term *criteria* used by USEPA) that ensure beneficial uses of State waters are reasonably protected. The Porter-Cologne Water Quality Control Act requires the nine RWQCBs to adopt water quality control plans that define the beneficial uses of the water bodies throughout the region to be protected, the water quality objectives necessary for reasonable protection of the beneficial uses, and a program of implementation for achieving the water quality objectives. In addition, the act authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements for discharges of waste to surface waters and land. The Feather and Yuba rivers are within the jurisdiction of the Central Valley RWQCB.

Low Threat Waiver for Discharges to Land. The Central Valley RWQCB has a Waiver of WDRs for Low Threat Discharges to Land (Low-Threat Waiver) (Order No. R5-2018-0085). Disposal of dredged material to land may qualify under this Waiver, however, submittal of a Report of Waste Discharge is still required for the request to be covered.

Limited Threat Discharges to Surface Water. The Central Valley RWQCB has issued General WDRs for Limited Threat Discharges to Surface Water (Order R5-2016-0076-01), such as for dewatering discharges. An Notice of Intent (NOI) must be filed to request coverage under this General Order.

Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin

The *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin* (Basin Plan) (RWQCB 2018) defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of the Sacramento River and San Joaquin River basins. The Basin Plan contains specific numeric water quality objectives for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, temperature, turbidity, and trace elements, as well as numerous narrative water quality objectives, which are applicable to certain water bodies or portions of water bodies.

State Water Resources Control Board Resolution No. 68-16: Statement of Policy with Respect to Maintaining High Quality Waters in California

The goal of SWRCB Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality Waters in California") is to maintain high quality waters where they exist in the State. Resolution No. 68-16 states, in part:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent

with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The SWRCB has interpreted Resolution No. 68-16 to incorporate, and be consistent with, the federal antidegradation policy.

Municipal Regional Stormwater NPDES Permit

The Municipal Stormwater (MS4) NPDES Permitting Program requires that Permittees (i.e., cities, counties) reduce pollutants and runoff flows from new development and redevelopment into their municipal separate storm sewers (MS4) using BMPs to the Maximum Extent Practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that result in the capture, infiltration, and treatment of storm water runoff. The Central Valley RWQCB adopted a Regionwide MS4 Permit on June 23, 2016, under Order No. R5-2016-0040. Municipal Stormwater NPDES Permitting Programs require that a new development project or redevelopment of a project site results in no net hydromodification of the site.

Statewide National Pollutant Discharge Elimination System Storm Water Permit for General Construction Activity

The SWRCB has issued a general NPDES permit for stormwater discharges associated with construction activity of greater than 1 acre in size - Order 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ (General Construction Permit). The General Construction Permit requires the preparation of a SWPPP that identifies and describes the BMPs to be implemented at construction sites to control pollution from stormwater runoff. Coverage is obtained by submitting an NOI, risk assessment, post-construction calculations, a site map, the SWPPP, and a signed certification statement by the legally responsible person to the SWRCB prior to construction.

Title 22 of the California Code of Regulations

Maximum Contaminant Levels (MCLs) that shall not be exceeded in water supplied to the public have been established in CCR Title 22, Division 4. This section is equivalent to the federal SDWA.

4.10.2.3 Regional

Central Valley Flood Protection Board

Any project encroaching into rivers, waterways, and floodways within and adjacent to federal- and State-authorized flood control projects or within designated floodways must receive approval from the CVFPB.

Under California Water Code Sections 8534, 8608, and 8710–8723, the CVFPB is required to enforce appropriate standards for the construction, maintenance, and protection of adopted flood control plans that will best protect the public from floods. The area of CVFPB jurisdiction includes the entire Central Valley, including all tributaries and distributaries of the Sacramento and San Joaquin rivers and Tulare and Buena Vista basins.

Feather River Regional Flood Management Plan)

To better address the regionwide flood management issues and concerns, a number of stakeholders in the Feather River Basin recently partnered with DWR to develop the Feather River Regional Flood Management Plan (FRRFMP). The FRRFMP addresses flood management for 302,000 acres of levee-protected lands within Sutter, Butte, and Yuba counties and a small portion of Placer County along the Bear River near Wheatland. The region addressed by the FRRFMP extends about 56 miles from north to south and between 5 and 17 miles from west to east (YCWA 2018).

4.10.2.4 Local

Sutter County

The following goals and policies of the Sutter County General Plan (Sutter County 2011) are applicable to the Project:

Goal Public Health and Safety (PHS) 1: Minimize the potential for loss of life, personal injury, and property damage associated with floods.

LU 1.4: Identification of Floodplains. Identify the unincorporated areas of Sutter County that are subject to flooding, and evaluate and regulate development within these areas according to state and federal regulations to minimize the loss of life and damage to property caused by potential flood events.

ER 2.3: Minimize Surface Runoff. Minimize direct discharge of surface runoff into wetland areas and design new development in such a manner that pollutants and siltation will not significantly affect jurisdictional wetlands.

ER 6.2: Surface Water Resources. Protect the surface water resources in the County including the Sacramento, Feather and Bear Rivers and their significant tributaries.

Sutter County's Levee District #1 is the Local Maintenance Area for Flood Protection (DWR 2020a).

4.10.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to hydrology and water quality that could result from the Project. The Section also recommends mitigation measures as needed to reduce significant impacts

4.10.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: (a), (c), and (d), implementation of the Project would have a significant impact related to hydrology and water quality if it would:

(a) violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality;

(c) substantially alter the existing drainage pattern of the Project area or vicinity, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation in or outside the Project area;
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of additional runoff;
iv) impede or redirect flood flows; or

(d) risk release of pollutants in flood hazard, tsunami, or seiche zones, due to project inundation.

Impacts on groundwater supply are discussed in EIR Section 4.19, Utilities and Service Systems.

4.10.3.2 Methods of Analysis

The methodology for evaluating impacts on hydrology and water quality included review of existing data and literature in the Project area including FEMA's FIRM maps, the RWQCB's 303(d) list, and review of existing laws and regulations.

4.10.3.3 Project Impacts and Mitigation Measures

Impact 4.10-1: Implementation of the Proposed Project would violate water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality. Impact Determination: *less than significant.*

Threshold:	*Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality.*

In accordance with NPDES regulations, the State of California requires that any construction activity affecting more than 1 acre obtain a General Construction Activity Stormwater Permit (General Permit) to minimize the potential effects of construction runoff on receiving water quality. Performance standards for obtaining and complying with the General Permit are described in NPDES General Permit No. CAS000002, WDRs, Order No. 2009-0009-DWQ.

General Permit applicants are required to submit Permit Registration Documents for the Project to the appropriate regional board, which include an NOI, risk assessment, site map, signed certification statement, an annual fee, and a SWPPP. The SWPPP includes pollution prevention measures (i.e., erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. The SWPPP must also include implementation of BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction BMPs included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. SWPPP BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Strict SWPPP compliance, couples with the use of appropriate BMPs, would reduce potential surface water quality impacts during construction activities.

In addition to SWPPP requirements, construction phasing and sequencing coupled with proposed dewatering activities would provide further water quality protections. As part of typical permit requirements, the contractor would be required to prepare a dewatering plan for agency (NMFS and CDFW) review and approval prior to implementation. Given applicable SWPPP and construction phasing and sequencing requirements, the Project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. This would be a less than significant impact.

Mitigation Measures

None required.

Impact 4.10-2: Implementation of the Proposed Project would substantially alter the existing drainage pattern of the Project area or vicinity, including through the alteration of the course of a stream or river or through the addition of impervious surfaces. Impact Determination: *less than significant.*

Threshold:	*Substantially alter the existing drainage pattern of the Project area or vicinity, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.*

The Project would introduce limited impervious surfaces that would not lead to increased runoff. The Levee remediation measures for this project include placement of a cutoff wall. Seepage cutoff walls are vertical walls approximately 3-feet wide consisting of low hydraulic conductivity materials placed through the levee embankment and foundation to cutoff potential through and under seepage. Construction of the new cutoff wall would involve removal, or degradation, of the top third of the existing levee, then

excavation of a trench 38 to 64 feet deep, installation of the new wall, and buildup of the levee to the original height (see Chapter 3 for more detail). To be effective for under seepage, cutoff walls usually tie into an impervious sublayer. Cutoff walls generally require no additional permanent levee footprint. As a result, the implementation of cutoff walls with impervious sublayers would not significantly impact the course of a stream or river in the Project Area.

Mitigation Measures

None required.

Impact 4.10-3: Implementation of the Proposed Project would risk release of pollutants in flood hazard, tsunami, or seiche zones, due to project inundation. Impact Determination: *no impact*.

Threshold:	*Risk release of pollutants in flood hazard, tsunami, or seiche zones, due to project inundation.*

The Project is the improvement of a segment of the FRWL to meet FEMA requirements (100-year Design Water Surface Elevation), address issues identified during USACE and MA3 levee inspections, and to bring the levee into compliance with applicable design criteria. Once completed, the TFRRP will bring the remainder of the FRWL up to date with the various levee improvement projects already completed along this levee. This would not result in an increase in the risk for the release of pollutants during an inundation event because construction of the Proposed Project would not use of pollutants that could be released in floods or other natural disasters. The Project would have no impact in this area.

Mitigation Measures

None required.

4.10.4 Cumulative Impacts

4.10.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction is anticipated to occur during the timeline of the Proposed Project.

4.10.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.10-4: Result in a considerable contribution to cumulative impacts on hydrology and water quality. Impact Determination: *no impact*.

Threshold:	*Would result in significant impacts on hydrology and water quality in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Because the Project would have a less than significant impact on hydrology and water quality resources, the Project would not contribute to cumulative impacts on to hydrology and water quality in the region.

Mitigation Measures

None required.

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4.11 LAND USE AND PLANNING

This section describes existing land uses on and near the Project Site. This section also describes plans and regulations pertaining to land use management in the Project Area; evaluates Project consistency with relevant land use plans, goals and policies; and addresses Project compatibility with adjacent land uses.

4.11.1 Environmental Setting

The Project Site is a segment of the constructed Feather River West Levee and is approximately 17 miles directly south of Yuba City, California. The almost 2-mile-long segment is within the County of Sutter and is under the jurisdiction of SBFCA. SBFCA is a joint powers agency formed in 2007 by the counties of Butte and Sutter, the cities of Biggs, Gridley, Live Oak and Yuba City, and Levee Districts 1 and 9. The agency has the authority to finance and construct regional levee improvements. It is governed by a 13-member board comprised of elected officials from the cities, counties, and levee districts. SBFCA's Boundaries encompass 34,200 properties in Butte and Sutter counties.

The Project Site is within unincorporated Sutter County. Nearby land uses for the Project include agriculture (rice and orchards), SR 99, open space owned and maintained by CDFW, and the Sutter Bypass. The Feather River flows east to west immediately to the south of the Project Area, and the community of Nicolaus is approximately 0.6 mile from the eastern end of the Project Area.

4.11.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to land use and planning are discussed below.

4.11.2.1 Federal

There are no federal land use regulations governing the site.

4.11.2.2 State

General Plan Law (California Government Code Section 65300)

California Government Code Section 65300 requires each city and county to adopt a General Plan for the physical development of the county or city, and any land outside its boundaries that bears relation to its planning. General Plans must include seven mandatory elements (or topics): Land Use, Circulation, Housing, Conservation, Open Space, Noise, and Safety. The General Plan expresses the community's vision and goals for buildout over a 15- to-25-year horizon and directs public policy relative to the distribution of future land uses, both public and private. Policies of the General Plan are intended to guide most land use decisions. Zoning ordinances are adopted to reflect the goals, policies, and development standards in a General Plan.

4.11.2.3 Local

Sutter County

The Project site is zoned as AG-80 (Agricultural) according to the Sutter County General Plan. The surrounding properties north of the Project Site are also zoned as Agricultural. The area south of the Project Site is zoned OS (Open Space).

The following goals and policies of the 2011 Sutter County General Plan (Sutter County 2011) are applicable to the Project:

LU 1.1: *Conservation and Growth Areas. Assign land use designations consistent with the boundaries and intent of the Agriculture and Open Space, Rural Community, and Growth Areas reflected on Figure 3-1. Avoid General Plan amendments that would conflict with these boundaries and intent.*

LU 1.5: *Minimize Land Use Conflicts. Avoid/minimize conflicts between land uses and ensure that new development maintains the viability of adjacent agricultural, open space, and rural uses and minimizes impacts upon existing residents, businesses, and resources.*

4.11.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts on land use and planning that could result from the Proposed Project. The Section also recommends mitigation measures as needed to reduce significant impacts.

4.11.3.1 Thresholds of Significance

Based on the Appendix G CEQA Guidelines, implementation of the Project would have a significant impact related to land use and planning if it would:

(a) physically divide an established community; or

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

(c) conflict with any applicable habitat conservation plan or natural community conservation plan.

4.11.3.2 Project Impacts and Mitigation Measures

Impact 4.11-1: Implementation of the Proposed Project would physically divide an established community. Impact Determination: *no impact*.

Threshold:	*Would physically divide an established community.*

The Project involves temporary, short-term construction and maintenance activities that would not block access to any community. Therefore, there would be no impact.

Mitigation Measures

None required.

Impact 4.11-2: Implementation of the Proposed Project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impact Determination: *no impact*.

Threshold:	*Would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.*

The Project is consistent with the Sutter County General Plan and other regional land use planning policies. Therefore, there would be no impact.

Mitigation Measures

None required.

Impact 4.11-3: Implementation of the Proposed Project would cause a significant environmental impact due to a conflict with any applicable habitat conservation plan or natural community conservation plan. Impact Determination: *no impact*.

Threshold:	*Would cause a significant environmental impact due to a conflict with any applicable habitat conservation plan or natural community conservation plan.*

The Project is not in conflict with any applicable HCPs or natural community conservation plans. Therefore, there would be no impact.

Mitigation Measures

None required.

4.11.4 Cumulative Impacts

4.11.4.1 Cumulative Impacts and Mitigation Measures

Impact 4.11-4 Result in a considerable contribution to cumulative impacts on land use and planning. Impact Determination: *no impact*.

Threshold:	*Would result in significant impacts on land use and planning in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Because the Project would have no impact on land use and planning, it would not contribute to a cumulative impact in the region.

Mitigation Measures

None required.

4.12 MINERAL RESOURCES

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on mineral resources from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts associated with the loss of mineral resources are discussed below.

4.12.1 Environmental Setting

Minerals means "any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to, coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum" according to the Surface Mining and Reclamation Act (SMARA).

Sutter County contains areas classified by the State Geologist as Mineral Resource Zone (MRZ)-1, and MRZ-3, for concrete aggregate production. MRZ-1 indicates an area where little likelihood exists for the presence of significant mineral deposits. MRZ-3 indicates areas containing mineral deposits, the significance of which requires further evaluation. There are no areas within Sutter County designated by the State Mining and Geology Board to have regional or statewide significance (Sutter County 2011). However, mineral extraction does occur and is subject to the Sutter County Surface Mining Code and the Zoning Code for Sutter County (2011). The extraction of mineral resources in Sutter County has historically been limited to the extraction of clay, sand, soils, and rock (Sutter County 2011). There are currently three active mining operations within the County for construction sand and gravel, all of which are open-pit mines (Sutter County 2008). There are currently no deep-shaft mine activities.

4.12.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to mineral resources are discussed below.

4.12.2.1 Federal

There are no federal regulations that pertain to mineral resources.

4.12.2.2 State

Surface Mining and Reclamation Act (SMARA)

Mining activities are regulated by the SMARA (PRC Section 2710 et seq. and its regulations at 14 CCR Section 3500 et seq.). Under this act, the California State Mining and Geology Board provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized and mined lands are reclaimed. SMARA also encourages the production, conservation, and protection of the State's mineral resources.

The purpose of this act is to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

1. adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses;
2. the production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, wildlife, range and forage, and aesthetic enjoyment; and
3. residual hazards to the public health and safety are eliminated.

These goals are achieved through land use planning by allowing a jurisdiction to balance the economic benefits of resource reclamation with the need to provide other land uses.

California Geological Survey

The CGS, formally the Division of Mines and Geology, has classified regions of the state according to the presence or absence of significant mineral resources. The land classification is presented in the form of MRZs (DOC 2022a). CGS guidelines for establishing the MRZs are as follows:

MRZ-1: *Areas where available geologic information indicates there is little or no likelihood for presence of significant mineral resources.*

MRZ-2a: *Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.*

MRZ-2b: *Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered mineral deposits that are either inferred reserves as determined by limited sample analysis, exposure, and past mining history or are deposits that presently are sub-economic. Further exploration and/or changes in technology or economics could result in upgrading areas classified MRZ-2b to MRZ-2a.*

MRZ-3a: *Areas containing known mineral occurrences of undetermined mineral resource significance. Further exploration within these areas could result in the reclassification of specific localities as MRZ-2a or MRZ-2b.*

MRZ-3b: *Areas containing inferred mineral occurrences of undetermined mineral resource significance. Land classified MRZ-3b represents areas in geologic settings that appear to be favorable environments for the occurrence of specific mineral deposits. Further exploration could result in the reclassification of all or part of these areas as MRZ-3a or specific localities as MRZ-2a or MRZ-2b.*

MRZ-4: *Areas of no known mineral occurrences where geologic information does not rule out the presence or absence of significant mineral resources.*

4.12.2.3 Local

There are no local goals or policies regarding protection of mineral resources, although development standards for extraction of mineral resources are contained in the municipal code of the local jurisdiction (Sutter County 2011).

4.12.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts on mineral resources that could result from the Proposed Project and recommends mitigation measures as needed to reduce significant impacts.

4.12.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items XII (a) and (b), implementation of the Project would have a significant impact related to mineral resources if it would:

(a) result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

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

4.12.3.2 Methodology

Information related to the location of mineral resources was obtained from the Mineral Land Classification Maps located on the DOC website (2022a).

Information related to the location of mines was obtained from the Division of Mine Reclamation (DMR) Mines Online Map (2022a).

Information related to the location of oil, gas, and geothermal resources in the area was obtained from the DOC Well Finder Map (DOC 2022b).

In addition, data from the Sutter County 2030 General Plan (Sutter County 2011) was used to complete this section.

4.12.3.3 Project Impacts and Mitigation Measures

Impact 4.12-1 Implementation of the Proposed Project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Impact Determination: *no impact*.

Threshold:	*Would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.*

There are no known, state-recognized, mineral, oil, gas, or geothermal resources in or near the Project Area (DOC 2022b, 2022c). Therefore, the Project would have no impacts on mineral resources known to be of value to the region and residents of the state.

Mitigation Measures

None required.

Impact 4.12-2 Implementation of the Proposed Project would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Impact Determination: *no impact*.

Threshold:	*Would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.*

There are no known local mines, or oil, gas, or geothermal resources in or near the Project Area according to the Sutter County General Plan, DOC Well Finder Map, and DMR Mines Online Map (Sutter County 2011, DOC 2022b, 2022c). Therefore, the Project would have no impact on mineral resources known to be of local value.

Mitigation Measures

None required.

4.12.4 Cumulative Impacts

Because the Project would have no impact on mineral resources, the Project would have no contribution to cumulative impacts on mineral resources in the area.

Mitigation Measures

None required.

4.13 NOISE

This section describes the environmental setting for noise, including the regulatory setting and existing site conditions and the noise impacts that would result from the Proposed Project.

4.13.1 Fundamentals of Noise and Vibration

4.13.1.1 Addition of Decibels

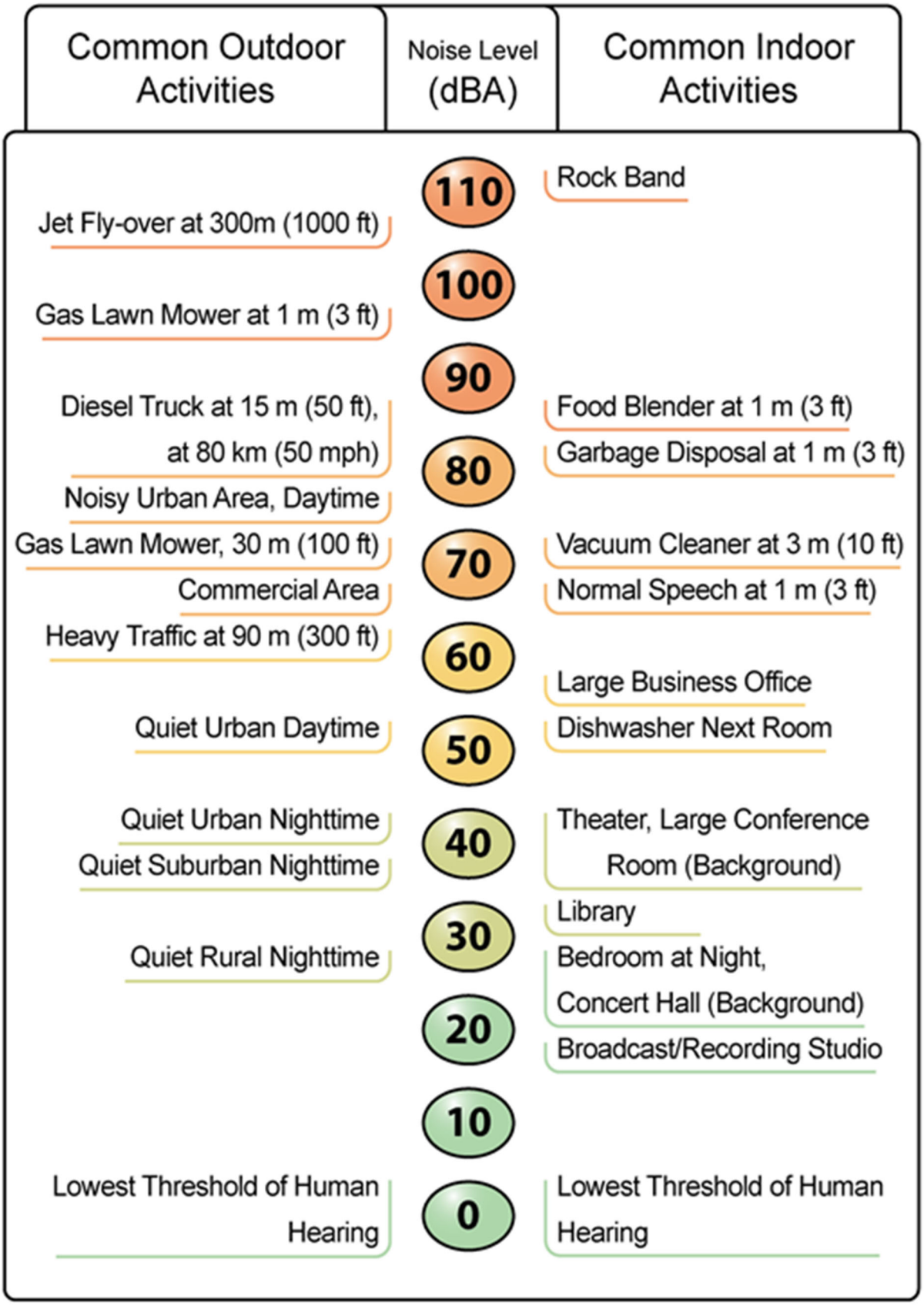
The Decibel (dB) scale is logarithmic, not linear; therefore, sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

Typical noise levels associated with common noise sources are depicted in Figure 4.13-1.

4.13.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dBA for each doubling of distance from a stationary or point source (Federal Highway Administration [FHWA] 2017). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics ([FHWA] 2017). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces such as soft dirt or grass can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about 5 dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000).



Source: California Department of Transportation (Caltrans) 2020a

Figure 4.13-1. Common Noise Levels

To achieve the most potent noise-reducing effect, a noise enclosure or barrier must physically fit in the available space, must completely break the *line of sight* between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the *line of sight* between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 to 65 dBA Community Noise Equivalent Level (CNEL), interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code (CBC) methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

4.13.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA *weighting* added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The

logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.

- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 p.m. to 10:00 p.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Table 4.13-1 provides a list of other common acoustical descriptors.

Table 4.13-1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average Leq with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

4.13.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5-dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

4.13.1.5 Effects of Noise on People

Hearing Loss.

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

OSHA has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance.

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

4.13.1.6 Environmental Groundborne Vibration

Vibration Sources and Characteristics.

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV); another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 4.13-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Table 4.13-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/ second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Threshold at which there is a risk of architectural damage to extremely fragile historic buildings, ruins, ancient monuments
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Threshold at which there is a risk of architectural damage to fragile buildings. Virtually no risk of architectural damage to normal buildings
0.25	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.3	96	Vibrations may begin to feel severe to people in buildings	Threshold at which there is a risk of architectural damage to older residential structures
0.5	103	Vibrations considered unpleasant by people subjected to continuous vibrations	Threshold at which there is a risk of architectural damage to new residential structures and Modern industrial/commercial buildings

Source: Caltrans 2020b

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 4.13-2, is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

4.13.2 Environmental Setting

4.13.2.1 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential and are also considered noise-sensitive land uses.

The Project Area for the TFRRP is focused between the Sutter Bypass East Levee and SR 99 just opposite the Feather River from Nicolaus, CA. The levee landside is bound by an irrigation canal and orchards that are owned and operated by Odysseus Farms. The nearest noise sensitive receptor to the Project Site is a single-family home located approximately 1,580 feet north of the eastern-most edge of the Project Site. This single-family residence fronts Sacramento Avenue approximately 1,300 feet east of SR 99 at the nearest point.

4.13.2.2 Existing Ambient Noise Environment

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present* provides a table of approximate background sound levels in L_{dn}, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 4.13-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "95% prediction interval [confidence interval] is on the order of ±10 dB." The majority of the Project Site would be considered ambient noise Category 6, due to the rural location.

Table 4.13-3 ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67 dBA	66 dBA	58 dBA
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62 dBA	61 dBA	54 dBA
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57 dBA	55 dBA	49 dBA
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52 dBA	50 dBA	44 dBA
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small wooded valley.	638	47 dBA	45 dBA	39 dBA
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42 dBA	40 dBA	34 dBA

Source: The American National Standards Institute (ANSI) 2013

4.13.3 Regulatory Setting

4.13.3.1 Federal

Occupational Safety and Health Act of 1970

OSHA regulates on-site noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with dBA over an 8-hour work shift (29 CFR 1910.95). Employers are required to develop a hearing conservation program when employees are

exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

National Institute of Occupational Safety and Health

A division of the US Department of Health and Human Services, the National Institute for Occupational Safety and Health (NIOSH) has established a construction-related noise level threshold as identified in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998. NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. The intention of these thresholds is to protect people from hearing losses resulting from occupational noise exposure.

4.13.3.2 State

State Office of Planning and Research Noise Element Guidelines

The State Office of Planning and Research (OPR, 2003) Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land-use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.13.3.3 Local

Sutter County General Plan

Chapter 11, *Noise,* of the Sutter County General Plan contains goals and policies for the purpose of regulating noise within Sutter County. The following goals and policies are applicable to the Proposed Project:

Goal N 1: Protect the health and safety of County residents from the harmful effects of exposure to excessive noise and vibration.

N 1.3: Interior Noise Standards. Require new development to mitigate noise impacts to ensure acceptable interior noise levels appropriate to the land use type as shown in Table 4.13-4.

Table 4.13-4 Maximum Allowable Environmental Noise Standards			
Land Use	**Exterior Noise Level Standard for Outdoor Activity Areas[1]**	**Interior Noise Level Standard**	
	L_{dn}/CNEL, dB	**L_{dn}/CNEL, dB**	**L_{eq}, dB[2]**
Residential (Low Density Residential, Duplex, Mobile Homes)	60[3]	45	N/A
Residential (Multi Family)	65[4]	45	N/A
Transient Lodging (Motels/Hotels)	65[4]	45	N/A
Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums	70	45	N/A
Theaters, Auditoriums	70	N/A	35
Playgrounds, Neighborhood Parks	70	N/A	N/A
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	N/A
Office Buildings, Business Commercial and Professional	70	N/A	45
Industrial, Manufacturing, Utilities, and Agriculture	75	N/A	45

Source: Sutter County 2011

Notes: Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Community Services Department.

1. Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multi-family development.
   Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas.
   Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.
2. As determined for a typical worst-case hour during periods of use.
3. Where it is not possible to reduce noise in outdoor activity areas to 60 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 65 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Where it is not possible to reduce noise in outdoor activity areas to 65 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

N 1.6: Construction Noise. Require discretionary projects to limit noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays, 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibit construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

N 1.7: Vibration Standards. Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in Table 4.13-5 (Groundborne Vibration Impact Criteria for General Assessment) of the Sutter County General Plan.

Table 4.13-5. Groundborne Vibration Impact Criteria for General Assessment			
Land Use Category	Impact Levels (VdB)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65[4]	65[4]	65[4]
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

Source: Sutter County 2011
Notes: Vibration levels are measured in or near the vibration-sensitive use.
1. "Frequent Events" is defined as more than 70 vibration events of the same source per day.
2. Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.
4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels.

Sutter County Municipal Code (2021)

Article 21.5, Noise Control, Chapter 1500-21.5-070, Exceptions to Noise Standards, states that noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property or public works project located within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical facilities), is exempt, provided such activities take place between the following times:

1. 7:00 a.m. to 6:00 p.m. on weekdays
2. 8:00 a.m. to 5:00 p.m. on Saturdays

4.13.4 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to noise and vibration that could result from the Project.

4.13.4.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce the following:

(a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
(b) Generate excessive groundborne vibration or groundborne noise levels; or
(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport, expose people residing or working in the project area to excessive noise levels.

The Proposed Project would include the construction of a cutoff wall, a berm tie-in to the State Route 99 embankment, pipe penetration improvements, and surficial geometry corrections. To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptor in the Project vicinity, in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the *Criteria for a Recommended Standard: Occupational Noise Exposure* prepared in 1998 by NIOSH. A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

4.13.4.2 Methods of Analysis

In order to estimate the worst-case noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity as a result of Project implementation, predicted noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Additionally, roadway noise levels due to increased haul truck trips were calculated for the Project vicinity roadway segments using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) coupled with traffic volumes identified in Section 3.0, Project Description.

Groundborne vibration levels associated with implementation-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from the Caltrans guidelines set forth above. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from earthwork activities to nearby land uses.

4.13.4.3 Project Impacts and Mitigation Measures

Impact 4.13-1: Implementation of the Proposed Project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in in the local general plan or noise ordinance, or applicable standards of other agencies. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in in the local general plan or noise ordinance, or applicable standards of other agencies.*

Onsite Construction Noise

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, building construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The nearest sensitive receptor to the Project Site is a single-family home located approximately 1,580 feet north of the eastern-most edge of the Project Site. As previously described, the County limits all noise associated with construction within 1,000 feet of a noise-sensitive uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays. The County prohibits construction on Sundays and holidays unless permission has been applied for and granted by the County. It is typical to regulate construction noise with time limits as opposed to numeric noise thresholds since construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Furthermore, construction would occur throughout the Project Site and would not be concentrated at one point.

To evaluate the potential health-related effects (i.e., physical damage to the ear and mental damage from lack of sleep or focus) from construction noise, construction equipment noise levels are calculated and compared against the construction-related noise level threshold established in the *Criteria for a Recommended Standard: Occupational Noise Exposure* prepared in 1998 by NIOSH of 85 dBA L_{eq}. The anticipated short-term construction noise levels generated for the necessary equipment were calculated using the Roadway Noise Construction Model for the construction anticipated for the Proposed Project. It is acknowledged that the majority of construction equipment is not situated at any one location during construction activities, but rather spread throughout the Project Site and at various distances from sensitive receptors. For a conservative approach, assessment of impacts on sensitive receptors (the single-family residence previously mentioned) is based on the assumption that project-related noise sources would be concentrated at the easternmost edge of the Project Site, as opposed to the center of the Project Site, as recommended by the FTA.

Table 4.13-6. Preferred Project Implementation Noise Levels at Nearest Sensitive Receptors			
Equipment	**Estimated Exterior Construction Noise Level @ Closest Residence**	**Construction Noise Standard (dBA Leq)**	**Exceeds Standards?**
Phase 1			
Excavator (2)	46.7 (each)	*85*	**No**
Scraper (2)	49.6 (each)	*85*	**No**
Combined Equipment	***54.4***	***85***	***No***
Phase 2			
Excavator (4)	46.7 (each)	*85*	**No**
Roller (4)	43 (each)	*85*	**No**
Scraper (4)	49.6 (each)	*85*	**No**
Combined Equipment	***58.0***	***85***	***No***
Phase 3			
Excavator (4)	46.7 (each)	*85*	**No**
Generator (2)	47.6 (each)	*85*	**No**
Grader	51.0	*85*	**No**
Flat Bed Truck (8)	40.3 (each)	*85*	**No**
Roller (2)	43.0 (each)	*85*	**No**
Gradall	49.4	*85*	**No**
Combined Equipment	***58.1***	***85***	***No***
Phase 4			
Grader (4)	51.0 (each)	85	**No**
Roller (4)	43.0 (each)	85	**No**
Scraper (2)	49.6 (each)	85	**No**
Tractor (4)	50.0 (each)	85	**No**
Combined Equipment	***60.7***	***85***	**No**
Phase 5			
Grader (2)	51.0 (each)	85	**No**
Roller (2)	43.0 (each)	85	**No**
Combined Equipment	***54.7***	***85***	***No***
Phase 6			
Flat Bed Truck (8)	40.3 (each)	85	**No**
Combined Equipment	***49.3***	***85***	***No***
Phase 7			
Flat Bed Truck	40.3 (each)	85	No
Gradall	49.4	85	No
Combined Equipment	***52.4***	***85***	***No***

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix G for Model Data Outputs.

Notes: Equipment derived from Table 3-1 of Section 3.0, Project Description. Distances to the nearest receptors are calculated at 1,580 feet from construction.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown, no individual or cumulative pieces of equipment used during Project implementation for any phase would exceed the 85 dBA NIOSH noise standard at the nearest noise sensitive receptors. A less than significant impact would occur and no mitigation is necessary.

Offsite Construction Worker Traffic Noise

Project construction would result in additional traffic on adjacent roadways over the period that construction occurs. According to the RCEM, which is used to predict the number of on-road Project construction-related trips, Project construction/implementation would instigate a maximum of 314 traffic trips per day over the 20 days of Phase 1 (304 haul truck trips and 10 worker commute trips). According to the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The Project Site is accessible from Sacramento Avenue, which is accessed via SR 99 approximately 1 mile northeast of the Project Site. Sacramento Avenue is classified as both a *Local Roadway* and *Rural Minor Collector* by the Sutter County General Plan (2011). There are no sensitive receptors fronting the segment of Sacramento Avenue classified as Rural Minor Collector. There is one noise-sensitive single-family residential receptor fronting the segment of Sacramento Avenue classified as Local Roadway. According to the General Plan, Local Roadways are intended to serve to primarily provide access to adjacent land as well as service to travel over relatively short distances as compared to collectors or other higher systems. The General Plan does not identify specific daily traffic trips for Sacramento Avenue, yet classifies Local Roadways as designed to accommodate up to 7,000 vehicle trips daily while providing an efficient level of service. Thus, there are no aspects of Sacramento Avenue that would result in unusual traffic maneuvering that could potentially increase noise. Nonetheless, it is likely that Project construction traffic from construction worker commute trips and haul truck trips would double traffic on Sacramento Avenue, resulting in a perceptible noise increase at the single-family residence over the course of construction. Construction worker commutes would largely be limited to two blocks of time daily: one in the morning when workers are arriving at the Project Site, and the other in the evening when workers return home. However, the haul truck trips, the majority of Project construction traffic, would occur throughout the entire day. While it is noted that construction is temporary and these trips would cease upon completion of the Project, Mitigation Measure NOI-1 is required in order to reduce the temporary nuisance noise generated by the addition of construction related traffic on Sacramento Avenue. Specifically, Mitigation Measure NOI-1 limits all Project construction haul trucks, including delivery trucks, to the daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays. All Project haul truck traffic would be prohibited on Sundays and holidays. As previously described, the County limits all noise associated with construction within 1,000 feet of noise-sensitive uses to the daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. and 5:00 p.m. on Saturdays. Additionally, the County prohibits construction on Sundays and holidays unless permission has been applied for and granted by the County. This may be necessary, for example, if the work schedule must be accelerated to seven days per week to complete repairs prior to the rainy season. While the Project construction site is greater than 1,000 feet from the nearest noise-sensitive receptor, construction traffic would traverse within 1,000 of the residential receptor. Implementation of Mitigation Measure NOI-1 would reduce potential impacts to less than significant.

Operational Noise

The Project proposes levee improvements to the existing Feather River West Levee with the goal of meeting State ULDC and FEMA requirements. Once upgrades are complete, operational noise associated with the Project would return to baseline noise levels. The Project would not be a greater source of operational noise beyond current conditions.

Mitigation Measures

NOI-1: **Haul Truck Hours.** The Project applicant and/or its contractor shall limit all Project construction haul trucks, including delivery trucks, to the daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays. All Project haul truck traffic on Sundays and holidays shall generally be prohibited unless permission has been applied for and granted by the County.

Timing/Implementation: *During construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

Impact 4.13-2: Implementation of the Proposed Project would generate excessive groundborne vibration or groundborne noise levels. Impact Determination: *less than significant*.

Threshold:	*Would generate excessive groundborne vibration or groundborne noise levels.*

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment at 25 feet distant are summarized in Table 4.13-7.

Table 4.13-7. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Approximate Vibration Decibels (VdB) at 25 Feet
Vibratory Roller	94
Large Bulldozer	87
Caisson Drilling	87
Loaded Trucks	86

Table 4.13-7. Representative Vibration Source Levels for Construction Equipment	
Equipment Type	**Approximate Vibration Decibels (VdB) at 25 Feet**
Hoe Ram/Rock Breaker	87
Jackhammer	79
Small Bulldozer/Tractor	58

Source: Caltrans 2020b; FTA 2018

The County's construction vibration threshold requires construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses using the standards presented in Table 4.13-5. These standards are based on criteria from the FTA. The nearest structures of concern to the Project Site are associated with the single-family home located approximately 1,580 feet north of the eastern-most edge of the Project Site. This single-family residence fronts Sacramento Avenue approximately 1,300 feet east of SR 99 at the nearest. Thus, due to the temporary nature of construction activities, the thresholds for Land Use Category 2, *Residences and Buildings where People Normally Sleep*, of 80 VdB for infrequent events will be used in this analysis.

Based on the representative vibration levels presented for various construction equipment types in Table 4.13-7 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential Project construction vibration levels. The FTA provides the following equation:

$$[L_{v.\ distance} = L_{ev\ ref} - 30_{log}\ (D/25)]$$

Table 4.13-8 presents the expected Project related vibration levels at a distance of 1,580 feet.

Table 4.13-8. Construction Vibration Levels at 1,580 Feet									
Receiver VdB Levels[1]							Peak Vibration	Threshold	Exceed Threshold?
Vibratory Roller	Large Bulldozer	Drilling	Loaded Trucks	Rock Breaker	Jack-hammer	Small Bulldozer			
39.9	32.9	32.9	31.9	32.9	24.9	3.9	**39.9**	*80*	**No**

[1]Based on the Vibration Source Levels of Construction Equipment included on Table 3.11-6 (FTA 2018).

As shown, vibration as a result of construction activities would not exceed 39.9 VdB at the nearest structure. Thus, Project construction would not exceed the significance threshold. This impact is less than significant.

Impact 4.13-3: Implementation of the Proposed Project would for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport, expose people residing or working in the project area to excessive noise levels. Impact Determination: *less than significant impact*.

Threshold:	*Would for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport, expose people residing or working in the project area to excessive noise levels.*

The Project Site is located approximately 13 miles south of the Yuba County Airport. According to the Yuba County Airport Land Use Compatibility Plan (2010), the Project Site is located outside of the 55 CNEL Noise Contour. Thus, the Proposed Project would not expose people working on the Project Site to excess airport noise levels and would not hinder aircraft activity.

4.13.5 Cumulative Impacts

4.13.5.1 Cumulative Setting

The cumulative setting associated with the Proposed Project includes approved, proposed, planned, and other reasonably foreseeable projects and development in greater Sutter County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to noise impacts during construction. However, once construction is completed, the Project would not have any noise-related impact. There are no other planned, approved, proposed, or reasonably foreseeable projects in the vicinity of the projects as it pertains to noise.

4.13.5.2 Cumulative Impacts and Mitigation Measures

Impact 4.13-4: Implementation of the Proposed Project would result, in combination with existing, approved, proposed, and reasonably foreseeable development in Sutter County, in a cumulatively considerable noise impact: *less than significant with mitigation incorporated.*

Threshold:	*Result, along with any foreseeable development in the project vicinity, cumulative impacts related to noise.*

Implementation activities associated with the Project would result in construction-type noise in the area. However, such noise impacts primarily affect the areas immediately adjacent to the construction site. Construction-type noise for the Proposed Project was determined to be less than significant with the implementation of Mitigation Measure NOI-1. Cumulative development in the vicinity of the Project Site could result in elevated construction noise levels at sensitive receptors in the Project area. However, each project would be required to comply with the applicable limitations on allowable hours of construction-type activities. For these reasons, the Proposed Project would have a less than considerable contribution to cumulative impacts regarding noise.

Mitigation Measures

Implementation of Mitigation Measure NOI-1 would be required.

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4.14 POPULATION AND HOUSING

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on population and housing from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts associated with the division of a community, conflicts with land use plans or policies regarding housing, unplanned population growth in the area, and loss or conversion of affordable housing are discussed below.

4.14.1 Environmental Setting

The Project Site is located in the County of Sutter and is approximately 17 miles directly south of Yuba City, California. The population of the County of Sutter in 2022 was approximately 98,503 and the population of the City of Yuba City was 69,014 (U.S. Census Bureau 2023).

4.14.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to population and housing are discussed below.

4.14.2.1 State

Housing Element Law (California Government Code Article 10.6)

State Law requires each city and county to prepare and maintain a current Housing Element as part of the community's General Plan to attain a Statewide Goal of providing "decent housing and a suitable living environment for every California family." Under State Law, Housing Elements must be updated every 5 years and reviewed by the State Department of Housing and Community Development.

4.14.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to population and housing that could result from the Project. The Section also recommends mitigation measures as needed to reduce significant impacts.

4.14.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items XIII (a) through (c), implementation of the Project would have a significant impact related to population and housing if it would:

(a) induce substantial unplanned population growth either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure); or

(b & c) displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

4.14.3.2 Project Impacts and Mitigation Measures

Impact 4.14-1: Implementation of the Proposed Project would induce substantial unplanned population growth either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure). Impact Determination: *less than significant*.

Threshold:	*Would induce substantial unplanned population growth either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).*

The Project would involve approximately 30 construction workers who are expected to commute from nearby areas over a relatively short period of time. The Project does not propose any new homes or businesses. Therefore, the Project would not induce a substantial unplanned population growth in the area. There would be less than significant impact.

Mitigation Measures

None required.

Impact 4.14-2: Implementation of the Proposed Project would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere. Impact Determination: *no impact*.

Threshold:	*Would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.*

Construction of the Project would not cause the displacement of people or housing. Therefore, there would be no impact.

Mitigation Measures

None required.

4.14.4 Cumulative Impacts

4.14.4.1 Cumulative Impacts and Mitigation Measures

Impact 4.14-3: Result in a considerable contribution to cumulative impacts on population and housing. Impact Determination: *no impact*.

Threshold:	*Would result in conversion or loss of housing or a shortage of housing in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Construction of the Project would not cause the conversion or loss of housing or cause a shortage of housing and would not contribute to a cumulative impact to population or housing.

Mitigation Measures

None required.

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4.15 PUBLIC SERVICES

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on public services from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Potential impacts on police and fire protection services, medical services, schools, and libraries are discussed below. Provided by a governmental agency, public services are offered deemed important to improve and maintain the quality of life of a population, with no financial goals attached. Quality public services contribute to the livability for residents and businesses within Sutter County.

4.15.1 Environmental Setting

4.15.1.1 Police

The Proposed Project Site is located in unincorporated Sutter County. Law enforcement services are provided by the Sutter County Sheriff's Department. The Sheriff's Department's main operations office is located in the Law Enforcement Center at 1077 Civic Center Boulevard, Yuba City, California, approximately 16 miles north of the Proposed Project Site.

Responsibilities of the Sheriff's Department include crime prevention, law enforcement, and criminal investigation in the unincorporated areas of Sutter County, as well as the City of Live Oak. Under contract, the Sheriff's Department provides services to a large portion of incorporated Yuba City. The Sheriff's Department maintains working relationships with other law enforcement agencies in the area and has mutual aid agreements with the CHP, the Yuba City Police Department, the Yuba County Sheriff Department, and the Marysville Police Department. Resident deputies are assigned to some of the outlying areas of the county (Sutter County Sheriff's Office 2023a).

The Sutter County Communications Unit, within the Sutter County Sheriff's Department, has the responsibility of answering incoming 911 calls as well as non-emergency calls for service. Radio-dispatching services for the Sheriff's Department as well as the Fire Department are provided by the unit. The unit may also assist and communicate with Animal Control, Public Works, and sometimes CDFW field personnel. The center is operated 24 hours, 7 days a week, with a minimum of two dispatchers on duty (Sutter County Sheriff's Office Dispatch Unit 2023b).

4.15.1.2 Fire Protection

Fire protection and emergency services for unincorporated Sutter County are provided by County Service Area F of the Sutter County Fire Department. The Fire Department protects approximately 250 square miles of Sutter County, which includes four county service areas and two independent fire protection districts. The Fire Services Manager directs operations and personnel at the three county fire stations. The Fire Department has a total of approximately 16 paid staff, two battalion chiefs, nine captains, and five engineers, as well as 30 volunteer firefighters. Services also include the volunteer Pleasant Grove Fire Department and the East Nicolaus Fire Department. The nearest fire station is the East Nicolaus Fire

Station at 1988 Nicolaus Avenue in East Nicolaus, approximately 2.5 miles east of the Project (Sutter County Fire Services 2023c).

4.15.1.3 Medical Emergency Facilities

There are five hospitals in Sutter County, all in Yuba City, serving a population of 99,063 people in an area of 603 square miles. These hospitals provide medical and surgical treatment, as well as emergency care in response to injuries and sudden or severe illness and are located as follows (Sutter County 2023d):

- Fremont Medical Center, 970 Plumas Street ,Yuba City, California
- North Valley Behavioral Health,1535 Plumas Court, Yuba City, California
- Rideout Health, 989 Plumas Street, Yuba City, California
- Sutter Surgical Hospital-North Valley, 455 Plumas Boulevard, Yuba City, California
- Sutter-Yuba Psychiatric Health Facility, 1965 Live Oak Boulevard, Yuba City, California

Yuba City is approximately 15 miles north of the Proposed Project site.

4.15.1.4 Schools

The Sutter County Superintendent of Schools Office (SCSOS) provides services to approximately 20,000 public school students located within 12 school districts and nine charter schools (Sutter County 2023e).The nearest schools are in East Nicolaus, approximately 2.25 miles east from the east end of the Project Site (Marcum-Illinois Union Elementary School, East Nicolaus High School, and South Sutter Charter School; CDOE 2022).

4.15.1.5 Libraries

Sutter County Library services are accessed at the Main Branch (Yuba City), Barber Branch (Live Oak), and Sutter Branch (Sutter). Additionally, county systems are integrated with the Sacramento Public Library system for online catalog searches, account management, and library computer reservations (Sutter County Library 2023f). The Main Branch is at 750 Forbes Avenue in Yuba City, approximately 15 miles to the north of the Project.

4.15.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to public services are discussed below.

4.15.2.1 Federal

There are no applicable federal policies related to public services.

4.15.2.2 State

There are no applicable state policies related to public services.

4.15.2.3 Local

The following policies of the Sutter County General Plan 2030 are applicable to the Project:

Police

Goal

PS 1: Protect citizens and property from criminal activity and deter the incidence of crime.

Applicable Policies

PS 1.1: Law Enforcement Services and Facilities. Ensure the provision of appropriate law enforcement services and facilities to protect existing and future citizens and businesses.

PS 1.2: Response Times. Strive to achieve and maintain appropriate response times for all priority level calls to support high-quality law enforcement services.

Fire Protection

Goal

PS 2. Protect life and property from the risk of fire, and provide for coordinated emergency medical services.

Applicable Policies

PS 2.1: Coordinated Operations. Coordinate operations between County Service Areas, independent Fire Protection Districts, and neighboring fire service area agencies to ensure optimum fire protection and efficient use of all fire suppression resources.

PS 2.2: Standardization of Operations. Promote standardization of operations among fire protection agencies.

PS 2.4: Fire Services and Facilities. Ensure the provision of high quality fire protection services and facilities to protect existing and future citizens and businesses.

Schools

Goal

PS 4: Provide for the educational needs of current and future Sutter County residents.

Libraries

Goal

PS 5: *Provide public library services and facilities that enhance Sutter County's quality of life and create a civic environment with opportunities for self-learning, educational, recreational, and cultural enrichment.*

Applicable Policies

PS 5.1: *Library Services and Facilities. Ensure adequate public library services and facilities are maintained for all residents. Adequate services and facilities include full-service libraries with trained staff, and collections, programs, and computer access for residents of all ages.*

4.15.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to public services that could result from implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

4.15.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items XV (a), implementation of the Project would have a significant impact related to public services if it would:

(a) 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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

- Fire Protection
- Emergency Medical Service
- Police Protection
- Public Schools
- Libraries or other Public Facilities

4.15.3.2 Project Impacts and Mitigation Measures

Impact 4.15-1: Implementation of the Proposed Project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or substantial impacts to public service ratios. Impact Determination: *less than significant*.

Threshold:	*Would 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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, emergency medical services, police protection, schools, parks, or other public facilities.*

Construction of the Project would involve only approximately 25 to 50 construction workers who are expected to commute from nearby areas over one construction season. The Project would have no physical impacts on existing public service facilities. Therefore, construction of new facilities to maintain acceptable service ratios in the nearby areas would not be required for the Project.

Fire Protection, Emergency Medical Services, and Police Protection

Frequent truck trips on roads where police and fire stations and emergency medical facilities are located could potentially have an affect on service. Public access roads for the Proposed Project include SR 99 and Sacramento Avenue. None of the public services described above are stationed on these routes in the vicinity of the Project. SBFCA would coordinate the construction schedule with fire, police, and emergency response units prior to the start of construction. Therefore, the Project would have a less than significant impact on fire protection, emergency medical services, and police protection.

Schools, Libraries, and Other Public Services

There are no schools, libraries, or other public buildings in the general vicinity of the Project site. Therefore, the Project would have a less than significant impact on schools, libraries, and other public service buildings.

Mitigation Measures

None required.

4.15.4 Cumulative Impacts

4.15.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project include:

- Yuba City Boat Ramp Sediment Removal Project Phase 2. This is a dredging proposal by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City. The project, which is several miles upstream of the Proposed Project site, will move forward when the project receives funding.
- SBEL Critical Repairs Project. This project is located several miles north of the TFRRP site along the Sutter Bypass and will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project.

- Lower Sutter Bypass Anadromous Fish Habitat Restoration. This is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.15.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.15-2: Result in a considerable contribution to cumulative impacts on fire protection and emergency medical services, police protection, schools, or libraries. Impact Determination: *less than significant*.

Threshold:	*Would result in a loss or shortage of fire protection and emergency medical services, police protection, schools, or libraries in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

None of other projects planned in the area would involve alterations to fire protection, police, school, or library facilities. The combination of all of the projects in the area would not involve a significant number of personnel that would warrant construction of new public service facilities as well, as workers are expected to live in the area already. Truck traffic associated with the projects described in Section 4.15.4.1 would occur several miles from the Proposed Project. Therefore, the combined planned projects in the area are not likely to disrupt public services along haul routes. The Proposed Project would have a less than considerable contribution to cumulative impacts on public services in the area.

Mitigation Measures

None required.

4.16 RECREATION

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on recreation from the Proposed Project, and potential short-term, long-term, and cumulative impacts that could result from the Proposed Project. Impacts on parks and in-water recreational uses in the area are discussed below. Impacts on trails and bicycle lanes and paths are discussed in Section 4.17, Transportation.

4.16.1 Environmental Setting

The Feather River and its adjacent levees are a popular recreation venue for residents and visitors. While recreation opportunities vary among locations along the river, recreationists are attracted to water- and land-based recreation on the levees and facilities surrounding the river. Such activities include bicycling, walking, hiking, hunting, birdwatching, wildlife viewing, enjoying nature trails, photography, picnicking, and more. Access to the west bank of the Feather River is provided by state wildlife areas, local parks, and a wildlife sanctuary. Many parts of the shoreline are inaccessible to recreationists.

4.16.1.1 Recreation Facilities and Resources

Recreation facilities and resources, adjacent to, or within a 2-mile radius of the Project Area are described below from east to west.

Bobelaine Audubon Sanctuary

Located about 1.75 miles upstream from the Project Area, the Bobelaine Audubon Sanctuary is a 430-acre wildlife sanctuary owned by the National Audubon Society and managed by volunteers of the Sacramento Audubon Society. Bobelaine is a rare remnant of the riparian forests that once projected 2 to 5 miles on either side of the rivers in the Great Central Valley of California. The sanctuary is registered as a *State Ecological Reserve* and is protected by CDFW and the National Audubon Society. It is also listed as part of an *Important Bird Area* by the National Audubon Society. Hiking, walking, and wildlife viewing are all allowed recreational uses within the preserve (Sacramento Audubon Society 2023).

Feather River Wildlife Area

Designated as a wildlife area by the California Fish and Game Commission in 1991, the Feather River Wildlife Area offers 2,800 acres of local recreational activity including fishing, wildlife viewing, and seasonal hunting. The wildlife area includes six units. One of the units, Nelson Slough, is adjacent to the southern edge of the Project Area, extending for 2.5 miles. In the winter, it diverts overflow from the Feather River into the Sutter Bypass. It dries up in the summer. Nelson Slough attracts game species including deer, rabbit, tree squirrel, waterfowl, wild turkey, pheasant, quail, and dove, which are hunted recreationally year-round (CDFW 2023).

Lake Minden RV Resort

Found at Marcum and Powerline Road south of Nicolaus, about 1.75 miles northeast of the Project Site is Lake Minden Recreational Vehicle (RV) Campground. This 175-acre private RV campground and resort facility includes a 41-acre manufactured lake and is popular for camping, fishing, and boating year-round. (Thousand Trails 2023).

River Oaks Golf Club

Surrounded by orchards and peaceful weeping willows, the River Oaks Golf Club is located along the Feather River in Nicolaus, about 1.5 miles south of the Project Site. Golfers of all skills enjoy the diverse course layout and serene river adjacent golfing experience (Visit Yuba Sutter).

"Beer Can" Beach

Beer Can Beach is the informal name of this local beach, approximately 1 mile southwest from the Project Site. The beach can be accessed just west of the intersection of Garden Highway and Lee Road, next to the River Oaks Golf Club and downstream from the Feather River Bridge. The beachfront is a quiet spot across from the Sutter Bypass where locals and visitors gather to fish and swim.

4.16.2 Regulatory Setting

This section discusses regulatory information that applies to recreational resources. There are no federal policies related to recreational resources that apply to implementation of the Proposed Project. Relevant state and local laws and regulations pertaining to recreation are discussed below.

4.16.2.1 State

The following state policies related to recreation may apply to implementation of the Proposed Project.

Feather River Wildlife Area Management Plan

In the Feather River Wildlife Area Management Plan, CDFW identifies preservation and enhancement of habitat, recreation, and education as the purposes for acquisition of property (California Department of Fish and Game [CDFG] 1991:1). The document describes the expansion of, improvements to, and ongoing maintenance of the wildlife area (CDWF 1991:9). The following two goals are defined in the document relating to recreation:

Goal 4: *Provide for public use of the area. Appropriate uses of the area are hunting, fishing, trapping, birdwatching, hiking, nature study, picnicking, and boating.*

Goal 5: *Provide for public education facilities concerning the value of habitat and wildlife. This may include the construction of buildings, signs, trails, etc., which increases the public's appreciation for the area. An adequate road and trail system now exists in the area and new construction should be held to a minimum.*

Quimby Act

The Quimby Act authorizes cities and counties to pass ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements. Revenues generated by the Quimby Act cannot be used for the operation and maintenance of park facilities. A 1982 amendment (AB 1600) requires agencies to clearly show a reasonable relationship between the public need for a recreation facility or park land, and the type of development project upon which the fee is imposed.

4.16.2.2 Local

Sutter County

The following goals and policies of the 2030 Sutter County General Plan (Sutter County 2011) are applicable to the Project:

LU 2.5: Commercial Recreation Overlay. Allow for the allocation of the Commercial Recreation Overlay land use designation within, or "inside" the levees along the Sacramento, Feather, and Bear River corridors. Consider allocation of this land use designation to adjacent areas "outside" the levees when determined to be necessary for the proposed use and if the use will not have an adverse impact on adjacent agricultural operations or natural resources.

GOAL PS 6: Ensure that adequate park, recreation, and open space lands and programs are provided to meet the diverse needs of Sutter County's residents.

PS 6.1: Park Facilities. Support the development of new parks and recreational facilities, and the maintenance and enhancement of existing parks and recreational facilities, to provide for a variety of active and passive recreational needs.

PS 6.10: River Recreation. Support the development of public recreational amenities that enhance public access to and use of the Sacramento, Feather, and Bear River corridors including launch ramps, marinas, camping facilities, picnic areas, vista points, interpretive centers, and commercial recreation and services.

PS 7.1: Multi-Use Trails. Support the development of a network of safe, interconnected multi-use trails that link activity and resource areas, and connect with regional trail systems.

PS 7.3: River Trails. Support opportunities to create multi-use trails along the Sacramento, Feather, and Bear Rivers, including enhancement of the Feather River Parkway, through collaboration with the cities of Yuba City and Live Oak.

GOAL PS 7: Support creation of an interconnected multi-use trail system that enhances Sutter County's recreational opportunities.

4.16.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to recreation that could result from implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

4.16.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items XVI (a) and (b), implementation of the Project would have a significant impact related to recreation if it would:

(a) increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;

(b) include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.16.3.2 Methods of Analysis

The potential effects of Proposed Project construction and operation on recreational use in areas likely to be directly or indirectly affected by these activities are qualitatively evaluated and presented herein.

4.16.3.3 Project Impacts and Mitigation Measures

Impact 4.16-1: Implementation of the Proposed Project would 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. Impact Determination: *no impact*.

Threshold:	*Would 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.*

Implementation of the Project would not result in disruption of the recreational facilities and resources discussed above. The staging areas for construction are to be identified by the Contractor during Project construction and would be located within the construction limits provided in the Project description. Therefore, there would be no impacts to other recreational facilities.

Mitigation Measures

None required.

Impact 4.16-2: Implementation of the Proposed Project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Impact Determination: *no impact*.

Threshold:	*Would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.*

The Project would not involve the construction or expansion of new recreational facilities. Therefore, there would be no impact.

Mitigation Measures

None required.

4.16.4 Cumulative Impacts

4.16.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.16.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.16-3: Implementation of the Proposed Project would result in a considerable contribution to cumulative impacts on recreation. Impact Determination: *no impact*.

Threshold:	*Would result in conversion or loss of recreational opportunities in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

The projects listed above are unlikely to have long-term impacts to recreation. The projects represent short-term levee improvements that are intended to address deficiencies in the existing flood control system, dredging activities to remove excess sediment, and activities to improve fish habitat, and would not result in conversion or loss of recreational opportunities. The Proposed Project would have no impact on recreation resources and would not cumulatively contribute to impacts on recreation resources in the region.

Mitigation Measures

None required.

4.17 TRANSPORTATION

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on transportation from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project.

4.17.1 Environmental Setting

4.17.1.1 Roadway System

This information is repeated from Section 3.5.3 *Truck Haul Routes and Construction Personnel Access*. The proposed routes for construction material delivery (haul) trucks and worker trips are listed below and shown in Figure 3-4, Construction Access Routes within the Project Description. The routes would be used for equipment and material deliveries and worker trips to the Proposed Project Site. Import of construction materials would be commercially-sourced and determined by the contractor. Truck trips are approximated as follows:

- Approximately 15 to 25 truck trips would be needed for site mobilization and clearing and grubbing in Phase 1.
- Approximately 10 to 20 truck trips would be needed to import bentonite to the site for cutoff wall construction during Phases 1, 2, and/or 3.
- Approximately 54,000 cy of material is needed for the clay core. Assuming 12 cy per truck, 4,500 truck trips would be needed to deliver this material to the site during Phases 3 and/or 4.
- Approximately 6,700 tons of aggregate base is needed for crown resurfacing. Assuming 12 cy per truck, 250 truck trips would be needed to deliver this material to the site during Phase 5.
- Approximately 15 to 20 truck trips for site demobilization would occur in Phase 7.
- Approximately 25 to 50 daily construction personnel trips would occur throughout all Phases.

State Route 99 (HWY 99)

SR 99 extends in a north-south direction through Sutter County and is the primary corridor connecting the County to the region. SR 99 passes above the eastern boundary of the Project Area via the Feather River Bridge. SR 99 intersects Sacramento Avenue north of the Project Area.

Sacramento Avenue

Sacramento Avenue is a paved local road north of the Project Area that provides access to SR 99, the levee access roads, and surrounding agricultural uses. The portion of Sacramento Avenue west of SR 99 will be used by construction vehicles and haul trucks to deliver materials and machinery to the Project Area. The portion of Sacramento Avenue east of SR 99 was recently resurfaced by the County, and will be used by construction fleet vehicles only (i.e., no construction equipment or haul trucks).

Levee Access Roads

There are three unpaved levee access roads that run parallel to each other and connect to Sacramento Avenue on either side of the Project Area. The levee crown road is the middle road, mirrored by land-side and water-side maintenance roads. The levee access roads within the Project Area will be used for truck delivery, staging, and construction activities.

Unnamed Private Roads

SBFCA and/or the construction contractor may also coordinate with the private landowners between the Project Area and west side of Sacramento Avenue to utilize the unpaved, privately owned agricultural roads for haul truck use.

4.17.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to transportation are discussed below.

4.17.2.1 Regional

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is designated by the federal government as the Metropolitan Planning Organization (MPO) for the Sacramento region, including Sutter and Yuba counties. SACOG works with its 28 member cities and counties to conduct transportation infrastructure planning and to provide funding assistance for cities, counties, transit operators, and other entities responsible for providing for the travel needs of the region's residents (SACOG 2019). SACOG generated a regional transportation plan, the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), a "20-year multimodal transportation plan that is financially feasible, achieves health standards for clean air, and addresses statewide climate goals" (SACOG 2019). The four priority policy areas of the MTP/SCS are as follows:

- Build vibrant places for today's and tomorrow's residents;
- Foster the next generation of mobility solutions;
- Modernize the way we pay for transportation infrastructure; and
- Build and maintain a safe, reliable, and multimodal transportation system.

4.17.2.2 Local

Sutter County

The following goals and policies of the Sutter County 2030 General Plan (Sutter County 2011) are applicable to the Project:

M 1.1: *Multimodal Roadways. Design County roads to support all users of multimodal transportation options serving automobiles, transit, trucks, bicycles, and pedestrians for safe and convenient travel that is suitable to the rural context of the County.*

M 4.1: *Protect Rail Facilities. Protect and enhance existing rail facilities to support the transportation of agricultural goods and other materials within and through Sutter County.*

M 7.1: *New Development. Implement, as appropriate, the reduction measures in the Climate Action Plan targeted to reduce greenhouse gas emissions caused by automobile use. Such measures may include the following: reducing employee based automobile trips; adopting a comprehensive parking program for public and private parking lots that facilitate carpooling and alternative transportation use; managing transportation flow; increasing the use of carpooling; and expanding the use of renewable fuels and low emission vehicles.*

M 7.2: *New Development. Require that new development projects avoid or mitigate environmental impacts to the transportation system.*

4.17.3 Environmental Impacts and Mitigation Measures

This section describes potential transportation impacts that could result from the Project. The section also recommends mitigation measures, as needed, to reduce significant impacts to less than significant levels.

4.17.3.1 Thresholds of Significance

Based on current CEQA Guidelines, Appendix G: Items XVII (a) through (d), implementation of the Project would have a significant impact on transportation if it would:

(a) conflict with an applicable program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities;

(b) conflict with or be inconsistent with CEQA Guidelines section15064.3(b);

(c) substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

(d) result in inadequate emergency access.

Changes to CEQA and the CEQA Guidelines went into effect on December 28, 2018, whereby an evaluation of impacts on Level of Service (LOS) is no longer required in CEQA but an evaluation of impacts on VMT is now required. Specifically, Section 15064.3 of the CEQA Guidelines entitled, "Determining the Significance of Traffic Impacts" was added and states:

"(a) Purpose.

This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact.

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within 0.5 mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

(c) Applicability. The provisions of this section shall apply prospectively as described in section 15007. A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide."

Because the Proposed Project would have only temporary effects on transportation during construction, and would have only very minor effects during operation for maintenance activities, impacts to transportation are discussed qualitatively below.

4.17.3.2 Project Impacts and Mitigation Measures

Impact 4.17-1: Implementation of the Proposed Project would conflict with an applicable program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities. Impact Determination: *less than significant*.

Threshold:	*Would conflict with an applicable program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.*

Short-term construction trips would include the transfer of construction equipment, construction worker trips, and hauling trips for construction materials; however, impacts in this regard would be temporary and would cease upon Project completion. Import of machinery and fill and export of excess and unsuitable material would occur via the Sacramento Avenue/SR 99 intersection. Construction traffic may contribute to temporary congestion on the Feather River Bridge. SBFCA would be required to obtain a transportation permit for any use of overweight-transport vehicles on State highways. Long-term operation of the Project would not generate an increase in vehicle trips that would adversely affect the circulation system; no impacts would occur. No Project components would require removal of vehicular lanes such that capacity would be reduced, or that would affect transit service. The Project would not conflict with any applicable plan, ordinance or policy addressing the circulation system and impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.17-2: Implementation of the Proposed Project would result in a significant increase in vehicle miles traveled (VMT). Impact Determination: *less than significant*.

Threshold:	*Would result in a significant increase in vehicle miles traveled (VMT).*

The Project potentially would generate construction traffic along Sacramento Avenue and SR 99 during the short-term construction period. In addition, trips associated with workers commuting to and from the job site and deliveries of equipment, materials, and supplies would also result in daily trips on other local roadways. However, implementation of the Project would not generate any increase in operational vehicle trips over the long term. Therefore, impacts associated with vehicle miles traveled would be less than significant.

Mitigation Measures

None required.

Impact 4.17-3: Implementation of the Proposed Project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Impact Determination: *less than significant*.

Threshold:	*Would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*

There would be an increase in short-term construction traffic, including haul trucks operating within the Project Area and at the Sacramento Avenue/SR 99 intersection. SBFCA and the construction contractor would ensure that construction traffic is managed in and out of this area with traffic control and signage to minimize conflicts between truck traffic and normal day-to-day traffic. Upon completion of the Project, traffic in the area would operate identical to the existing condition. The Project would not increase hazards due to geometric design or incompatible uses. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.17-4: Implementation of the Proposed Project would result in inadequate emergency access. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Result in inadequate emergency access.*

The Project Area is located at the southern tip of Evacuation Zone 10 within Sutter County. Evacuation Zone 10 is generally defined as the area bordered on the east by the Feather River, north by SR 20, and west by the Butte Slough, excluding Yuba City, which has its own evacuation zones. In the case of an evacuation, Zone 10 occupants are directed to evacuate south on SR 99 to Sacramento or southwest through Knight's Landing to Interstate-5. Residents are further directed to take George Washington, Township, or Garden Highway if southbound SR 99 north of Tudor Road becomes congested. As identified in Impact 4.17-1, Project construction could contribute to short-term congestion on SR 99. Mitigation Measure TRANS-1 would require construction activities to cease in the event of an emergency evacuation and reduce impacts to less than significant.

Mitigation Measures

TRANS-1: Emergency Evacuations

All construction activities and truck traffic on area roadways shall cease during an event requiring emergency evacuations in Sutter or Yuba counties.

Timing/Implementation: *This measure shall be printed on plans and implemented at all times during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

4.17.4 Cumulative Impacts

4.17.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. THE SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity for these projects would occur during the timeline of the Proposed Project.

4.17.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.17-5: Result in a considerable contribution to cumulative impacts on transportation. Impact Determination: *less than significant*.

Threshold:	*Would result in conflicts with a program, plan, ordinance, or policy addressing transit, roadway, bicycle and pedestrian facilities, result in a significant increase in vehicle miles traveled, substantially increase hazards due to a geometric design feature or incompatible uses, or result in inadequate emergency access in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

The other projects identified involve short-term construction, dredging or restoration activities within the existing flood control system and would not generate increased trips in the long term. These projects are not within the Project vicinity, are anticipated to occur during different construction timelines, and would not contribute to substantial cumulative increases in trips on the same roadway network. None of the cumulative projects are anticipated to conflict with programs, plans, ordinances or policies addressing transit, roadways, bicycle and pedestrian facilities or significantly increase VMT in the long term. The exception here is in the case of an emergency evacuation event. Without implementation of Mitigation Measure TRANS-1, the Proposed Project could result in a considerable contribution to inadequate access to evacuation routes during the construction timeline due to construction traffic. However, TRANS-1 would ensure that the Proposed Project construction would cease if emergency evacuations within Sutter or Yuba counties occur, thereby reducing a potential cumulative effect to less than significant.

Mitigation Measures

Implementation of Mitigation Measure TRANS-1 is required.

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4.18 TRIBAL CULTURAL RESOURCES

This section of the EIR describes the existing environment and regulatory framework necessary to evaluate potential impacts on tribal cultural resources (TCRs) from the Project, and potential Project-specific and cumulative impacts on TCRs that could result from the Project. A TCR is a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.

The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources:

- California NAHC Sacred Lands File Search, January 3, 2019;
- Archaeological Inventory Report for the Tudor Flood Risk Reduction Project (ECORP 2023b);
- Ethnographic overviews of the Nisenan (Beals 1933; Kroeber 1925; Littlejohn 1928; Wilson and Towne, 1978); and
- Confidential tribal consultation record under SBFCA's tribal consultation policy and AB 52.

4.18.1 Environmental Setting

4.18.1.1 Ethnographic History and Cultural Context

The following ethnographic history (or ethnohistory) is provided for context of TCRs inside the Project Area and does not constitute a comprehensive or diachronic ethnographic overview of Native American culture in and around the Project Area.

The Project Area is in the territory occupied by the Penutian-speaking Nisenan. Nisenan traditionally inhabit the drainages of the Yuba, Bear, and American rivers, and the lower reaches of the Feather River, extending from the eastern banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east. They are culturally affiliated with the area surrounding the current city of Oroville on the north to a few miles south of the American River in the south. The Sacramento River is the western boundary, and in the east, it extended to a general area located within a few miles of Lake Tahoe. The descendants of traditional Nisenan, including the UAIC, continue to reside in the region and retain many of the traditional lifeways that were described by ethnographers, as summarized below.

The basic social and economic group for the traditional Nisenan is the family or household unit. The nuclear or extended family forms a corporate unit. In pre-contact times, basic units were combined into distinct village or hamlet groups, each largely composed of relatives in the same extended family. Individual populations of Valley Nisenan were as large as 500 persons at contact, while foothill and mountain groups ranged between 100 and 300 persons.

Traditional, pre-contact Nisenan groups practiced seasonal migration, a subsistence strategy involving moving from one area or elevation to another to harvest plants, fish, and hunt game across different

ecosystems that were in relatively close proximity to each other. Most of the year, traditional Nisenan usually lived in permanent villages located below about 2,500 feet that generally had a southern exposure, were surrounded by an open area, and were located above but close to watercourses. The rather large uninhabited region between the 3,000-foot contour and the summit of the Sierra Nevada was considered open ground that was only used by communities living along its edge. Permanent villages in the foothills and mountains were usually located on high ground between rivers. Valley villages were also usually located on raised areas to avoid flooding. Studies indicate that at one time there were settlements located on every small stream within Nisenan territory, but permanent villages were not located in steep, dark, narrow canyons of large rivers, or at altitudes where deep snows persisted throughout the winter. In fact, permanent occupation sites above 3,500 feet were only located in protected valleys. Village sites along the Feather River were common, with natural high ground being favored for occupation. Many of these areas of high ground were incorporated into the levees that now flank each side of the river.

The Spanish arrived on the central California coast in 1769. The first known occupation by European-Americans was marked by American and Hudson Bay Company fur trappers in the late 1820s establishing camps in Nisenan territories. In 1833, a deadly epidemic (probably malaria) swept through the Sacramento Valley and had a devastating effect on Nisenan populations. Entire villages were lost, and many surviving Nisenan retreated into the hills. An estimated 75 percent of their population was wiped out, and only a handful were left to face the gold miners and settlers who were soon to follow. Captain John Sutter settled in Nisenan territory in 1839, and through force and persuasion he coerced most of the remaining Valley Nisenan to be on peaceful terms. The discovery of gold, however, led to their territory being overrun within a matter of a few years, forcing the Nisenan to abandon their villages and homes along the rivers. James Marshal's 1848 gold discovery was in the middle of Nisenan territory, and thousands of miners were soon living in the area. As Europeans flooded Northern California after 1849 and mining methods changed, the assistance of the native population was less relied upon, and they were viewed as an obstacle to settlement of land. This dynamic led to widespread killing, destruction, and persecution of the Nisenan and their culture. The survivors were relegated to working in agriculture, logging, ranching, or domestic pursuits. A native culture resurgence occurred around 1870 with influence from the Ghost Dance revival, but by the 1890s the movement had all but ended in dissolution. By the Great Depression, it was said that no living Nisenan could remember a time before European contact.

Despite enduring over a century of adversity and hardship, descendants of the pre-contact Nisenan exist in thriving communities today. They are members of modern society and many still practice traditional Nisenan customs. Their ties to the village sites along the Feather River are still strong, and drive the historic preservation programs of descendent communities such as UAIC.

4.18.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to cultural resources are discussed below.

4.18.2.1 Federal

National Historic Preservation Act

The NHPA requires that the federal government list significant historic resources on the NRHP, which is the nation's master inventory of known historic resources. The NRHP is administered by the NPS and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or traditional cultural significance at the national, state, or local level. The act defines the responsibilities of federal agencies to protect and preserve historic properties found eligible for or listed in the NRHP. Sections 106 and 110 include specific provisions for the identification and evaluation of these properties for inclusion in the NRHP, such as consulting with interested parties that often include local Native American tribes.

Through amendments to the NRHP in 1992 and their implementing regulations, federal responsibilities under Section 106 for consultations with interested parties, and especially Native American tribes, were expanded. The result has been a more focused effort by federal agencies to involve interested parties in identifying historic properties of cultural significance and, if warranted, in considering effects that may result from a federal undertaking. Traditional Cultural Properties (TCPs) are more often identified as resources during these consultation efforts.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a historic district can also be included in the NRHP. In 1990, National Register Bulletin 38 presented guidelines for evaluating traditional cultural significance as a kind of cultural significance for which historic properties can be found eligible for inclusion in the NRHP using established criteria (Parker and King 1990, revised in 1992 and 1998). The process for considering TCPs is situated within the framework of the NRHP as the preservation of tangible cultural properties that have historical and ongoing significance to living communities, as evidenced in their traditional cultural practices, values, beliefs, and identity.

The criteria for listing in the NRHP include resources that:

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

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

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

d) have yielded or may likely yield information important in prehistory or history.

Additionally, the NRHP guidelines describe a type of cultural significance for which properties may be eligible for inclusion in the NRHP. A property with traditional cultural significance will be found eligible for the NRHP because it is associated with cultural practices or beliefs of a living community that:

a) are rooted in that community's history, and

b) are important in maintaining the continuity of the cultural identity of the community.

This type of significance is grounded in the cultural patterns of thought and behavior of a living community, and refers specifically to the association between their cultural traditions and a historic property.

4.18.2.2 State

Assembly Bill 52

In 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include TCRs, potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the PRC defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the PRC defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are any of the following:

    a. Included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
    b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
    c. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their TCRs and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

In accordance with Section 21082.3(c)(1) of the PRC, "… information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the CCR, without the prior consent of the tribe that provided the information." Therefore, the details of tribal consultation summarized herein are provided in a confidential administrative record and not available for public disclosure without written permission from the tribes.

4.18.2.3 Local

Sutter Butte Flood Control Agency

On May 13, 2015, SBFCA adopted a tribal consultation policy with four key desired outcomes:

1. SBFCA will ensure that agency staff meet with applicable tribal chairs or leaders and recognize that, as governments, tribes have the right to be treated with appropriate respect and dignity, in accordance with principles of self-determination.
2. SBFCA will reach out, through designated points of contact, to involve tribes in collaborative processes designed to ensure information exchange, consideration of disparate viewpoints before and during decision making, and utilize fair and impartial dispute resolution mechanisms.
3. SBFCA will search for ways to involve tribes in programs, projects and other activities that build economic capacity and foster abilities to manage tribal resources while preserving cultural identities.
4. SBFCA will act to fulfill obligations to preserve and protect trust resources, comply with applicable state and federal laws, and ensure reasonable access to sacred sites in accordance with published and easily accessible guidance.

On April 20, 2016, SBFCA amended the tribal consultation policy to add specific procedures for bi-lateral government-to-government consultation between SBFCA and UAIC, specifically.

County of Sutter

The following goals and policies of the 2019 Sutter County General Plan Policy Document (Sutter County 2019) are applicable to TCRs:

Goal ER 8.5: Consultation. Consult with the appropriate organizations and individuals early in the development process (e.g., Information Centers of the California Historical Resources

Information System, Native American Heritage Commission, and Native American groups and individuals) to minimize potential impacts to cultural resources.

4.18.3 Environmental Impacts and Mitigation Measures

This section describes potential impacts TCRs that could result from implementation of the Project. The section also recommends mitigation measures as needed to reduce impacts to less than significant.

4.18.3.1 Thresholds of Significance

Based on the CEQA Guidelines Appendix G: Items XVII (a) and (b) of the CEQA Guidelines, TCR impacts are considered to be significant if a project would cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074. The CEQA lead agency makes this determination based on the expert opinion of culturally affiliated consulting tribes.

4.18.3.2 Methods of Analysis

Tribal Consultation Under SBFCA's Consultation Policy

On June 6, 2022, SBFCA sent project notification letters to UAIC, Yocha Dehe Wintun Nation, Mechoopda Indian Tribe, and Mooretown Rancheria of Maidu Indians. The notifications included information about the Proposed Project and requested a response within 30 days.

On June 24, 2022, the Yocha Dehe Wintun Nation responded and declined consultation, referring SBFCA to UAIC. On July 7, 2022, UAIC responded to accept the opportunity to consult and send a monitor to attend the field survey. A summary of consultation with UAIC is provided below. No other tribes responded to the opportunity to consult.

Tribal Consultation Under AB 52

At the time SBFCA was ready to initiate CEQA review, it had received written requests to receive project notices from two California Native American Tribes that identified themselves as being traditionally and culturally affiliated with the lands subject to SBFCA jurisdiction: the UAIC of Auburn Rancheria and the Torrez Martinez Desert Cahuilla Indians. In 2016, the Torrez Martinez Desert Cahuilla Indians rescinded their general AB 52 notification request to defer to tribes closer to the SBFCA's areas of operation. Correspondence with UAIC is summarized below.

On July 5, 2022, SBFCA determined that it had a complete Project description and it was ready to begin review under CEQA. The SBFCA uploaded the letter with an invitation to consult on the Project to UAIC's portal and received confirmation of delivery. SBFCA requested responses to the offer to consult within 30 days of the receipt of the letter.

The UAIC responded with a request to consult on the Project on July 7, 2022. The first AB 52 meeting between UAIC and SBFCA occurred on August 16, 2022 with a second meeting on December 13, 2022. As part of these meetings, the UAIC stated that they were not aware of any TCRs within the Project Area; however, the Project Area is near two village sites and, based on observations during the field visit,

requested a survey by a canine forensics team, as well as geoarchaeological trenching in addition to compensating tribal monitors onsite during ground disturbance.

On July 26, 2022, the UAIC accompanied the archaeologist during the pedestrian survey. Based on the material observed by the tribal monitor, the UAIC identified a couple areas of concern where there is a higher likelihood of tribal deposits, however, they did not identify an area as a TCR.

The canine survey occurred on October 17 and 18, 2022; however, due to restrictions by the USACE, trenching may not occur until a Section 408 permit is issued. Consultation is ongoing and will be concluded before the adoption of this environmental document.

4.18.3.3 Tribal Cultural Resources

Information about potential impacts to TCRs was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnohistory information about pre-contact lifeways and settlement patterns; 3) information on archaeological site records obtained from surveys of the Project Area and the California Historical Resource Information System; and 4) the tribal consultation record under AB 52 and SBFCA's tribal consultation policy for the Project.

Sacred Lands File Search

A search of the NAHC Sacred Lands File was requested on January 2, 2019. The NAHC responded on January 3, 2019 that the sacred lands file search was negative, meaning no sacred lands have been previously recorded within the Project Area.

Ethnographic History Information

The ethnohistorical information reviewed for the Project, including ethnographic maps (Wilson and Towne 1978) lists the nearest Native American villages as *Yokol* and *Ol'-las*. These villages are shown as being on the opposite side of the Feather River in 1910, but within less than 0.5 mile of the Project Area. There is nothing in the ethnographic literature that suggests that the Project location is either known or suspected to have ethnographic villages or resources within its boundaries; however, the Project Area is in a sensitive location and the boundaries of ethnographic villages are approximate.

Archaeological Site Records

The entire Project Area was subjected to an archaeological survey and records search review, and no Native American site had been previously mapped within its boundaries. In addition, approximately 40 percent of the area within a 0.5-mile radius surrounding the Project Area has been subject to cultural surveys, resulting in one Native American archaeological site having been previously recorded in the vicinity. As a result of the field survey, ECORP observed and recorded three isolated pre-contact milling rocks (ISO-TL-01, -02, and -03), and the tribal monitor noted multiple items of cultural interest within the APE (identified by the tribe as worry stones, fire-cracked rock, charm stones, or utilized tools). The forensic canine survey identified multiple locations along the levee that correspond with observed artifacts. A visual inspection of the scent locations did not reveal evidence of human remains on the surface.

Tribal Consultation Results

The UAIC, a culturally affiliated tribe, has provided information to SBFCA that indicates the project could have a significant effect on TCRs that may be unearthed during ground disturbing activities and this would be considered a significant impact. Therefore, mitigation measures are required to reduce the impact to unknown TCRs to less than significant.

4.18.3.4 Project Impacts and Mitigation Measures

Impact 4.18-1: Implementation of the Proposed Project would cause a substantial adverse change in the significance of a Tribal Cultural Resource. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Would cause a substantial adverse change in the significance of a Tribal Cultural Resource.*

The Project would have a significant impact on a TCR if it were to result in a substantial adverse change by way of physical demolition, destruction, relocation, or alteration of TCRs discovered during ground disturbing activities. As discussed in the Cultural Resources Report (ECORP 2023), the Proposed Project will involve the reconstruction of a 1.8-mile segment of the Feather River West Levee. The possibility exists that TCRs will be inadvertently excavated during degrade and cutoff wall excavation. In addition, according to the review of maps and records, the proximity of the Project Area to major water resources, AB 52 consultation with the UAIC, and the fact that buried pre-contact resources are known to exist within 0.5 mile of the Project Area, indicate a high potential for the presence of previously undiscovered buried pre-contact archaeological deposits at the Project Area, including additional potential TCRs. The presence of alluvium in and around the Project Area further suggests that there remains a potential for deeply buried pre-contact resources to be uncovered during ground-disturbing activities. Without mitigation, impacts associated with inadvertent discovery of TCRs would be adverse and significant.

Further subsurface exploration, such as geoarchaeological trenching, cannot be performed prior to project approval because of the prerequisite permitting requirements, which require CEQA approval; however, this EIR concludes that TCRs are present, and that pre-construction trenching (as part of implementing mitigation measures for TCRs) will inform the level and location of tribal monitoring and slow degrade during construction. Therefore, implementation of Mitigation Measures TCR-1 through TCR-10 is required to ensure proper treatment of any inadvertently discovered TCRs.

Mitigation Measures

Implementation of Mitigation Measures TCR-1 through TCR-10 will be required.

TCR-1: **Geoarchaeological Profiling.** After a Section 408 permit is obtained from the USACE, the tribe and project archaeologist shall expose and document the soil profiles within or adjacent to the levee prism. These profiles shall be exposed by equipment under the direction of a qualified geoarchaeologist in three to ten locations along the levee using auger tests or trenching, all of which would be monitored by tribal monitors. The location of these profiles shall be selected by the Tribe from areas within the Project Area that are

approved for ground disturbance. The results of these tests shall inform the levels and locations of slow degrade and focused monitoring (TCR-4 and 6). If the geoarchaeological profiling does not reveal any evidence of cultural deposits, the slow degrade may not be necessary. The exposed soil may be retained on-site and may be reburied, at tribal request.

Timing/Implementation: *Prior to construction.*

Monitoring/Enforcement: *SBFCA.*

TCR-2: **Develop a Burial Treatment Agreement.** In the event of the identification of Native American human remains and UAIC has been designated Most Likely Descendant (MLD) by the NAHC, SBFCA will develop a Burial Treatment Agreement (BTA) in consultation with the UAIC. The BTA will govern the disposition and treatment of all human remains, objects, and soil disturbed or removed from the Project Area. The BTA shall include provisions for reburial as close as possible to the original location from which they were obtained. Scientific handling, or testing will only be conducted if the tribe consents to such handling or testing and the USACE and SHPO do not object to such treatment.

Timing/Implementation: *This measure shall be developed prior to construction.*

Monitoring/Enforcement: *SBFCA.*

TCR-3: **Cultural Sensitivity Training.** All personnel involved in Project construction, including field consultants and construction workers, are required to undergo cultural resources and TCRs sensitivity and awareness training program through development and implementation of a Worker Environmental Awareness Program (WEAP). The WEAP will be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, as well as culturally affiliated Native American tribes. SBFCA shall invite a Native American representative from interested culturally affiliated Native American tribes to participate. The WEAP shall be conducted before any Project-related construction activities begin at the Project location. The WEAP will include relevant information regarding sensitive cultural resources and TCRs, including applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations. The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and TCRs that could be located at the Project Site and will outline what to do and who to contact if any potential cultural resources or TCRs are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented prior to construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-4: **Tribal Monitoring.** All ground disturbing activity or activity that has the potential to disturb TCRs shall be monitored by a qualified tribal monitor representing a consulting tribe. This includes any fence installation, staging work, clearing and grubbing, and levee degrade. The monitor must be given a minimum of 7 days' notice of the opportunity to be present during these activities and may coordinate closely with the archaeological monitor, to observe work activities, and assist in ensuring that sensitive TCRs are not adversely affected. The monitor shall be given a reasonable opportunity to inspect soil and other material as work proceeds to assist in determining if resources significant to the tribes are present. If a potential tribal resource is identified by the monitor, they may pause or redirect work temporarily in order to closely inspect the potential discovery. If the tribe cannot recommend a monitor or if the tribal monitor does not report at the scheduled time, all work may continue as long as the specified notice of 7 days was provided.

Recovery of cultural items, reburial preparation, and reburial shall also be conducted by Tribal Monitors.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-5: **Discoveries.** Any potential TCRs observed in any location will be subject to the decision process in CUL-2 and subsequent consultation between the monitoring tribe and the lead agencies to evaluate and, if necessary, treat the discovery of the satisfaction of the lead agencies.

If the discovery includes human remains, then the procedures in TCR-7 shall apply. If the discovery is determined to not be a tribal cultural resources by UAIC but is determined by the consulting archaeologist or SBFCA to be a non-tribal cultural or archaeological resource, them the consulting archaeologist shall follow the procedures therein and as generally described in CUL-2 without further involvement by the tribal monitors or tribe(s). SBFCA shall consult with USACE on appropriate treatment.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-6: **Slow Degrade.** Based on the results of geoarchaeological profiling in TCR-1 and other relevant information, UAIC shall select various locations along the Project totaling not more than 1,500 linear feet along the levee to undergo a "slow degrade" of the upper third of the levee prior to construction of the cutoff wall. In the areas of slow degrade, the excavator shall use a bucket with a flat blade (no teeth) under the observation of a tribal monitor to remove soil in 4 to 6-inch lifts (depths) to allow for examination by monitors.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction excavation activities in the Project Area.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-7: **Human Remains.** In the event that suspected Native American human remains in any state of decomposition or skeletal completeness are found during Project activities, SBFCA shall immediately halt ground disturbing activity at that location and within a 100-foot radius and contact the County Coroner. The Coroner shall ensure that notification is provided to the NAHC as required by California Health & Safety Code § 7050.5 and PRC § 5097.98(a). Health and Safety Code Section 7050.5 establishes the authority of the County Coroner regarding the discovery of human remains and the role of the NAHC if the coroner determines that the remains are that of a Native American. PRC § 5097.98 provides the notification process used by the NAHC for the discovery of Native American human remains, descendants, and also provides guidance for the appropriate and dignified disposition of human remains and associated grave goods. If UAIC is identified as the Most Likely Descendent by the NAHC, then the procedures in the Burial Treatment Agreement (Mitigation Measure TCR-2) between the UAIC and SBFCA shall be followed.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-8: **Recovery, Treatment Storage and Reburial of Native American Cultural Items and Soils.** SBFCA shall provide a locking storage cabinet within a work trailer for storage of cultural items. If there is a large volume of cultural items and upon Tribal request, SBFCA shall provide a secure, climate controlled, trailer. The tribe and tribal monitors shall control access to the secure storage area.

SBFCA shall provide on-site locations for the secure storage of cultural or burial soils. These locations shall be subject to Tribal approval. SBFCA shall take action to protect soil piles from erosion, looting, or vehicular traffic, upon Tribal request.

Tribal Monitors shall recover cultural items from the Project Area, record the recovered cultural items, and the recovered cultural items in secure location on-site.

Burial or cultural soils in large quantities shall be stockpiled in a designated area.

Monitors from the UAIC will conduct the burial recovery, repatriation, and reburial of any human remains, burial goods, and soils from the Project site for which UAIC is the designated MLD. These monitors will be in addition to those observing construction activities.

SBFCA will coordinate with the tribe to designate a repatriation area to accommodate reburial of human remains, burial offerings, cultural items and cultural or burial soils from the Project Site. Repatriation and reburial shall occur prior to the completion of the Project.

Timing/Implementation: *This measure shall be printed on construction plan sets and implemented during construction.*

Monitoring/Enforcement: *SBFCA and Project construction lead.*

TCR-9: **Documentation of Finds.** All TCRs encountered during construction shall be documented in a report prepared in coordination with the UAIC as well as by completing a Department of Parks Recreation Form 523 and submitting it to the Northeast Information Center (NEIC) of the California Historical Resources Information System (CHRIS) in Chico, California. UAIC shall have the opportunity to review and revise these documents.

UAIC shall be invited to prepare a chapter or confidential appendix for the report and may invoice for the costs of preparing such report under a consulting agreement with SBFCA.

Timing/Implementation: *This measure shall be implemented within 6 months of the completion of construction and reburial.*

Monitoring/Enforcement: *SBFCA.*

TCR-10: **Mitigation.** Tribes shall recommend for lead agency approval appropriate and commensurate mitigation based on adverse effects or impacts to Tribal Cultural Resources, including cumulative effects. SBFCA shall be responsible for coordinating the funding for recommended mitigation no later than 1 year following the completion of the project.

4.18.4 Cumulative Impacts

4.18.4.1 Cumulative Setting

The cumulative setting associated with the Proposed Project includes proposed, planned, and other reasonably foreseeable projects. The Existing Setting subsection provides an overview of TCRs and the pre-contact history of the region.

4.18.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.18-2: Result in a considerable contribution to cumulative impacts on TCRs. Impact Determination: *less than significant with mitigation incorporated.*

Threshold:	*Would result in a substantial adverse change in the significance of a Tribal Cultural Resource in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba Rivers in Yuba City several miles upstream of the Project site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. The SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. Based on current available schedules, no construction activity would occur during the timeline of the Proposed Project.

Development of the Proposed Project in combination with other projects located along the Feather River would increase the potential for impacts to known and previously unknown archaeological resources that could contribute to the loss of such resources in California. All future projects would be required to follow existing state and federal law or other agency regulations and policies, although projects that do not require discretionary approval may not be subject to the same level of evaluation and thus, result in impacts to TCRs. Therefore, cumulative impacts from the Proposed Project, along with adjacent development, would be significant. However, development within the vicinity would be subject to mitigation measures, which would reduce some of the Project's potential impacts on previously unknown TCRs and human remains to less than significant. Consequently, the incremental effects of the Proposed Project, after mitigation, would not be cumulatively considerable with respect to previously unknown TCRs and human remains. With the implementation of Mitigation Measures TCR-1 through 8, the Project's potentially significant impacts on TCRs present would not be a cumulatively significant contribution to such impacts regionally.

Mitigation Measures

Implementation of Mitigation Measures TCR-1 through TCR-8 will be required.

4.19 UTILITIES AND SERVICE SYSTEMS

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on utilities and service systems from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts from the Project on water supply, wastewater treatment, and solid waste generation are discussed below.

4.19.1 Environmental Setting

4.19.1.1 Electric Power Transmission and Natural Gas

PG&E provides Sutter County with most of its electricity. Electricity purchased from PG&E by local customers in Sutter County is generated and transmitted to the county by a statewide network of power plants and transmission lines. Residents and businesses in parts of Sutter County not served by PG&E's gas distribution network, including many of the county's rural areas, make use of Liquid Propane Gas (LPG) or other tanked or bottled gas for heating or cooking.

4.19.1.2 Water Supply

The source of potable water is groundwater from privately owned wells within the unincorporated areas of Sutter County (Sutter County 2008). Groundwater in many areas of Sutter County has naturally occurring elevated levels of arsenic and nitrates; elevated nitrates are attributable to septic systems and agricultural practices (Sutter County 2008, 2012). As discussed in Section 4.10, Hydrology and Water Quality, the Project Area is located in the Sacramento Valley Groundwater Basin (Basin No. 5-021). The Sutter Subbasin (Subbasin No. 5-021.62) occurs on this portion of the Feather River (DWR 2020a).

4.19.1.3 Stormwater and Drainage

There are 11 major drainage watersheds within Sutter County. Stormwater drainage throughout much of Sutter County is provided by piped storm drain conveyance systems in communities and open channel systems in the rural/agricultural areas. Stormwater flowing in these systems is either pumped or gravity-drained into the Sacramento River, the Sutter Bypass, or the Feather River. The Project Area lies within the RD 823 Watershed, which drains to the south through several ditches, all of which lead to a privately owned pump station that discharges to the Feather River. Directly south of the Project Area is the RD 1001 Watershed, which drains to the south through several ditches and channels to the Verona Pump Station, which lifts the water into the Cross Canal. RD 1001 also has three small pump stations that lift stormwater from the northern portion of this watershed into the Yankee Slough. The communities of Nicolaus, East Nicolaus, Trowbridge, and Rio Oso are within this drainage shed (Sutter County 2011).

4.19.1.4 Wastewater

Wastewater in Sutter County is either treated at individual parcels with septic systems (On-Site Wastewater Treatment Systems [OWTS]) or at - or city-owned Publicly Owned Treatment Works (POTW).

Privately owned septic systems provide for the treatment and disposal of wastewater throughout much of Sutter County. The County ensures that septic systems are designed and installed appropriately by requiring that the system by permitted by the Community Services Department (Sutter County 2011).

4.19.1.5 Solid Waste

The Yuba-Sutter Regional Waste Management Authority (RWMA) is the local enforcement agency that oversees regional solid waste management, monitoring and evaluation of programs, waste removal services, and solid waste planning in Sutter and Yuba counties (Sutter County 2011). The Project Area is within the jurisdiction of the RWMA, which works in conjunction with Recology Yuba-Sutter (formerly Yuba-Sutter Disposal, Inc.) to provide for the collection, recycling, and disposal of municipal solid waste under an exclusive franchise agreement. Recology Yuba-Sutter provides weekly refuse collection of commercial and residential solid waste, garden waste, curb-side recycling, and oversized items. They also provide refuse and recycling bins for construction sites. Regulatory fees are collected to fund the bi-county region curb-side pickup, education programs, and the RWMA.

The Ostrom Road Landfill is located in Wheatland, in Yuba County, and is owned and operated by Norcal Waste Systems Ostrom Road LF Inc., and is the primary location for the disposal of waste by Recology Yuba-Sutter. The 225-acre Class II Landfill is permitted to accept the following types of waste: solid waste, construction debris, food and green waste, some types of contaminated soils, and non-friable asbestos. (Sutter County 2011). The landfill can accept a maximum of 3,000 tons of waste per day; and is estimated to have enough capacity to remain open until year 2066. The remaining refuse capacity as of June 2016 was 24,395,000 tons, which assumes a compacted effective refuse density of 1,395 pounds per cy and accounts for settlement (Central Valley RWQCB 2018).

4.19.1.6 Telecommunications

Telephone, cable television, and other telecommunications services are provided by a variety of private companies in the Project Area. Telecommunications are primarily provided by AT&T and Comcast for telephone, internet, and cable television. Cellular phone service providers in the area include T-Mobile, Verizon, Metro PCS, Virgin Mobile, and Net 10. Infrastructure necessary to provide these services, including fiber optic lines, above- and below-ground service lines, and internet remote terminals are located strategically throughout Sutter County.

4.19.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to utilities and service systems are discussed below.

4.19.2.1 State

Water Supply

California Department of Water Resources

The California DWR is responsible for the management and regulation of water usage, including the delivery of water to two-thirds of California's population through the nation's largest State-built water development and conveyance system, the State Water Project. Working with other agencies and the public, DWR develops strategic goals and near-term and long-term actions to conserve, manage, develop, and sustain California's watersheds, water resources, and water management systems. DWR also works to prevent and respond to floods, droughts, and catastrophic events that would threaten public safety, water resources and management systems, the environment, and property.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) established a new structure for managing California's groundwater resources at the local level by local agencies. SGMA required Groundwater Sustainability Agencies (GSAs) to form in the state's high- and medium-priority basins and subbasins by June 30, 2017. The Water Code states that a GSA shall have 5 years from the date of reprioritization to be managed under a Groundwater Sustainability Plan (GSP). The planning deadline for California's first round of GSPs is January 31, 2020 for basins subject to critical conditions of overdraft, and January 31, 2022 for all other high- and medium-priority basins.

Assembly Bill 1668 and Senate Bill (SB) 606

AB 1668 and SB 606 establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards, which must be in place by 2022. The two bills strengthen the state's water resiliency in the face of future droughts.

Solid Waste

California Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle; formerly the California Integrated Waste Management Board) oversees, manages, and monitors waste generated in California. It provides limited grants and loans to help California cities, counties, businesses, and organizations meet the State waste reduction, reuse, and recycling goals. CalRecycle develops, manages, and enforces waste disposal and recycling regulations, including AB 939 and SB 1016 (CalRecycle 2020).

Assembly Bill 939

AB 939 (PRC 41780) requires cities and counties to prepare Integrated Waste Management Plans (IWMP) and to divert 50 percent of solid waste from landfills beginning in calendar year 2000 and each year thereafter. AB 939 also requires cities and counties to prepare Source Reduction and Recycling Elements (SRRE) as part of their IWMPs. These Elements are designed to develop recycling services to achieve diversion goals, stimulate local recycling in manufacturing, and stimulate the purchase of recycled products.

Senate Bill 1016

SB 1016 requires that the 50 percent solid waste diversion requirement established by AB 939 be expressed in pounds per person per day. SB 1016 also changed the CalRecycle review process for each municipalities IWMP. The CalRecycle Board reviews a jurisdiction's compliance with diversion rate targets in accordance with a specified schedule.

4.19.2.2 Local

Sutter County

The following goals and policies of the Sutter County 2030 General Plan (Sutter County 2011) are applicable to the Project:

I 4.1: *Reduced Waste Stream. Implement, as appropriate, the reduction measures in the Climate Action Plan targeted to reduce the County's waste stream. Such measures may include reducing solid waste, diverting construction waste, and educating the public on solid waste reduction and recycling.*

ER 6.3: *Groundwater Sustainability. Protect the sustainability of groundwater resources.*

6.5 *Regional Coordination on Groundwater Use. Coordinate with local and regional jurisdictions and water agencies on groundwater use to minimize overdraft conditions of aquifers.*

ER 6.6 *Groundwater Protection. Regulate stormwater collection and conveyance, as necessary, to protect groundwater supplies from contamination.*

4.19.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts related to utilities and service systems that could result from the Project. This Section also recommends mitigation measures as needed to reduce potentially significant impacts.

4.19.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items XIX (a) through (e), implementation of the Project would result in a significant impact related to utilities and service systems if it would:

(a) require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects;

(b) not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;

(c) result in a determination by the wastewater treatment provider which serves or may serve the Project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

(d) generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or

(e) fail to comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.

In addition, based on the CEQA Guidelines, Appendix G: X (b) and X (e), implementation of the Project would have a significant impact on groundwater resources if it would:

(b) substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; or

(e) conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.19.3.2 Project Impacts and Mitigation Measures

Impact 4.19-1: Implementation of the Proposed Project would require or result in the relocation or construction of new or expanded utilities facilities which would cause significant environmental effects. Impact Determination: *no impact*.

Threshold:	*Would require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects.*

Project operation would not require the use of existing municipal water or wastewater services. Most of the construction equipment would operate on diesel fuel. Any use of electricity would be minimal and short-term in nature during Project construction. Therefore, the Project would not result in the need to increase or expand any infrastructure or facilities for utilities or service systems. There would be no impact.

Mitigation Measures

None required.

Impact 4.19-2: Implementation of the Proposed Project would not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Impact Determination: *less than significant*.

Threshold:	*Would not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.*

Project operation would not require the use of an existing municipal water service. A potable water supply would be utilized for Project activities (e.g., for dust control and workers). The Project would have a minimal demand for water occurring over a short duration. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.19-3: Implementation of the Proposed Project would result in a determination by the wastewater treatment provider which serves or may serve the Project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Impact Determination: *no impact*.

Threshold:	*Would result in a determination by the wastewater treatment provider which serves or may serve the Project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.*

The Project would not require the use of new or existing municipal wastewater services. Portable toilets would be utilized for construction workers. Project operation would have no impact on long-term wastewater services.

Mitigation Measures

None required.

Impact 4.19-4 Implementation of the Proposed Project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Impact Determination: *less than significant*.

Threshold:	*Would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.*

Prior to the start of construction, the levee and work areas would be cleared and grubbed to remove debris, rubble, trash and other deleterious items. Material obtained from the clearing and grubbing operations would be removed from the site and taken to commercial waste or recycling facilities as appropriate and disposed of or recycled in compliance with county regulations. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.19-5 Implementation of the Proposed Project would fail to comply with Federal, State, and local management and reduction statutes and regulations related to solid waste. Impact Determination: *less than significant*.

Threshold:	*Would fail to comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.*

The California Integrated Waste Management (CIWM) Act requires every county to adopt an integrated waste management plan that describes county objectives, policies, and programs relative to waste disposal, management, sources reduction, and recycling. The Yuba-Sutter RWMA reviews and approves all new construction projects and requires submittal of a Construction and Demolition Solid Waste Management Plan that is consistent with the CIWM Act. The disposal of solid waste due to construction activities will comply with all federal, state, and local statues and regulations, including the requirements of AB 939 and the goals of the Yuba-Sutter RWMA to reduce solid waste disposal by 50 percent since AB 939 was passed. Impacts to solid waste statues and regulations will be less than significant.

Mitigation Measures

None required.

Impact 4.19-6: Implementation of the Proposed Project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impact Determination: *less than significant*.

Threshold:	*Would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.*

Operation of the Proposed Project would not require the use of an existing municipal water service, nor any public or private potable water wells. A potable water supply would be utilized for construction activities (e.g., for moisture control for delivered materials, dust control and for workers). Project construction would have a minimal demand for water and occur over a short-duration. Groundwater recharge would occur similar to the existing condition. Therefore, impacts to groundwater supply and recharge would be less than significant.

Mitigation Measures

None required.

Impact 4.19-7: Implementation of the Proposed Project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impact Determination: *less than significant*.

Threshold:	*Would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.*

Impacts on water quality are discussed in Section 4.10, Hydrology and Water Quality. The Project would neither require the use of an existing municipal water service, nor any public or private potable water wells, during operation. A potable water supply would be utilized for construction activities, moisture

control of delivered materials, dust control and for workers. The Project would have a minimal demand for water, and over a short duration. Therefore, impacts on groundwater supply would be less than significant.

Mitigation Measures

None required.

4.19.4 Cumulative Impacts

4.19.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project Site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. THE SBEL project is likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.19.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.19-8: Result in a considerable contribution to cumulative impacts on water and wastewater services. Impact Determination: *less than significant*.

Threshold:	*Would result in relocation or construction of new water or wastewater services in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

The Proposed Project and other known projects planned in the area would not require the use of existing municipal water or wastewater services during operation. Water would be required during construction of the Proposed Project, but this use would be short-term in nature. The Project would have a less than considerable contribution to overall cumulative impacts on utilities and service systems in the area.

Mitigation Measures

None required.

Impact 4.19-9: Result in a considerable contribution to cumulative impacts on solid waste generation. Impact Determination: *less than significant*.

Threshold:	*Would result significant generation of solid waste in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

The disposal of solid waste due to construction activities for identified projects would comply with all federal, state, and local statues and regulations. The Proposed Project would generate minimal solid waste during construction and would result in a less than significant cumulative impact on solid waste generation.

Mitigation Measures

None required.

Impact 4.19-10: Result in a considerable contribution to cumulative impacts on groundwater supply. Impact Determination: *less than significant*.

Threshold:	*Would substantially decrease groundwater supplies or interfere substantially with groundwater recharge, or conflict with a sustainable groundwater management plan, in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

The Project would not require the use of an existing municipal water during operation. Potable water supply would be utilized for construction of the Proposed Project. Therefore, the Project would have a less than considerable contribution to the overall cumulative impacts on utilities and service systems in the area, including groundwater supply.

Mitigation Measures

None required.

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4.20 WILDFIRE

This section of the EIR describes the existing conditions in the Project Area, the regulatory framework necessary to evaluate potential impacts on wildfire from the Project, and potential short-term, long-term, and cumulative impacts that could result from the Project. Impacts from the Project on the risk of wildfire and wildfire management in the area are discussed below.

4.20.1 Environmental Setting

The California Department of Forestry and Fire Protection (CAL FIRE) provides fire protection services for privately-owned wildlands as well as emergency services in 36 of the State's 58 counties via contracts with local governments (CAL FIRE 2022a).

CAL FIRE has established State Responsibility Areas (SRAs) or:

> "lands exclusive of cities and federal lands regardless of ownership, classified by the State Board of Forestry as areas in which the primary financial responsibility for preventing and suppressing fires is that of the State. These are lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, which protect the soil from erosion, retard runoff of water or accelerated percolation, and lands used principally for range or forage purpose" (CAL FIRE 2022a).

CAL FIRE has also established Fire Hazard Severity Zones (FHSZ) in SRAs which are mapped areas that designate zones (based on factors such as fuel, slope, and fire weather) with varying degrees of fire hazard (i.e., moderate, high, and very high). FHSZ maps evaluate wildfire hazards, which are physical conditions that create a likelihood that an area will burn over a 30- to 50-year period (CAL FIRE 2022b). Moderate, high, and very high FHSZs are found in areas where the State has financial responsibility for fire protection and prevention (SRA). In addition, Very High FHSZs have been established in Local Responsibility Areas (LRAs).

CAL FIRE does not designate any areas within Sutter County as SRAs (CAL FIRE 2022b). In addition, there are no LRA FHSZs in or adjacent to the Project Area. The nearest FHSZs are located in the foothills of the Sierra Nevada more than 10 miles from the Project Site (CAL FIRE 2022b).

4.20.2 Regulatory Setting

Relevant federal, state, and local laws and regulations pertaining to wildfire are discussed below.

4.20.2.1 State

California Fire Code (Title 24, Part 9, California Code of Regulations)

The California Fire Code incorporates the Uniform Fire Code with necessary California amendments. The CBC requires that new buildings located in any FHSZ within SRAs, any local agency in a Very-High FHSZ, or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted, comply with all sections of the California Fire Code.

4.20.2.2 Local

Sutter County

The following goals and policies of the 2019 Sutter County General Plan (Sutter County 2011) are applicable to the Project:

GOAL PS 3: Minimize risk to life and property resulting from wildland fire hazards.

4.20.3 Environmental Impacts and Mitigation Measures

This Section describes potential impacts on the risk of wildfire and wildfire management that could result from implementation of the Project and recommends mitigation measures as needed to reduce significant impacts.

4.20.3.1 Thresholds of Significance

Based on the CEQA Guidelines, Appendix G: Items IX (f) and (g), and XX (a) through (d), implementation of the Project would have a significant impact related to the risk of fire and wildland fire management if it would:

Hazards (Item IX):

(f) impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan (see also Appendix G: Items XX [a]); or
(g) expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

In addition, for areas located in or near SRAs or lands classified as very high FHSZs, based on the CEQA Guidelines, Appendix G: Items XX (b) through (d), implementation of the Project would also have a significant impact related to wildland fire management if it would:

Wildland Fire (Items XX):

(a) Substantially impair an adopted emergency response plan or emergency evacuation plan;
(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

4.20.3.2 Project Impacts and Mitigation Measures

Impact 4.20-1: Implementation of the Proposed Project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Impact Determination: *less than significant*.

Threshold:	*Would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.*

The proposed truck routes for the Project, including SR 99, serve as evacuation routes for the residents of Yuba City and Marysville during an emergency (Sutter County 2013). However, Mitigation Measure TRANS-1 would require Project construction to stop and truck traffic to cease in the case of an emergency evacuation event. In addition, truck hauling activity associated with construction of the Proposed Project would be short-term in nature. Therefore, the Project would have a less than significant impact on emergency response and evacuations.

Mitigation Measures

None required.

Impact 4.20-2: Implementation of the Proposed Project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Impact Determination: *less than significant*.

Threshold:	*Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.*

The Project is not located in or near an SRA or lands classified as a Very High FHSZ. In addition, construction of the Proposed Project would not involve welding, grinding, or other construction activities that would have a high risk of starting a fire. Consequently, the Project would result in minimal risk of exposure to, or generation of, wildland fires. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.20-3: Implementation of the Proposed Project would expose project occupants to pollutant concentrations from a wildfire or exacerbate wildfire risks and the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors. Impact Determination: *less than significant*.

Threshold:	*Expose project occupants to pollutant concentrations from a wildfire or exacerbate wildfire risks and the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.*

As described under Impact 4.20-2, the Project would not involve welding, grinding, or other construction activities that would have a high risk of starting a fire. In addition, the Project would not involve the

construction of habitable structures. Therefore, the Project would result in a minimal risk of exposure to, or generation of, wildland fires. Impacts would be less than significant.

Mitigation Measures

None required.

Impact 4.20-4: Implementation of the Proposed Project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Impact Determination: *no impact*.

Threshold:	*Would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.*

The Proposed Project would not require the installation of any infrastructure that may exacerbate wildfire risk. There would be no impact.

Mitigation Measures

None required.

Impact 4.20-5: Implementation of the Proposed Project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impact Determination: *less than significant*.

Threshold:	*Would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.*

The Project would reduce flood risk in the area. Impacts would be less than significant.

Mitigation Measures

None required.

4.20.4 Cumulative Impacts

4.20.4.1 Cumulative Setting

Other known upcoming projects within the vicinity of the Proposed Project are identified below. The Yuba City Boat Ramp Sediment Removal Project Phase 2, which proposes dredging by SBFCA to remove sediment that has accumulated in portions of the Feather River near the confluence of the Feather and Yuba rivers in Yuba City several miles upstream of the Project Site, will move forward when the project receives funding. The SBEL Critical Repairs, located several miles north of the TFRRP site along the Sutter Bypass, will consist of critical levee repairs to approximately 5.2 miles of the SBEL. THE SBEL project is

likely to be implemented in 2026, ideally after the conclusion of the Proposed Project. In addition, the Lower Sutter Bypass Anadromous Fish Habitat Restoration is an ongoing planning effort that seeks to identify floodplain habitat restoration options that improve rearing conditions for juvenile salmonids and engage the local community in their protection. No construction activity would occur during the timeline of the Proposed Project.

4.20.4.2 Cumulative Impacts and Mitigation Measures

Impact 4.20-3: Result in a considerable contribution to cumulative impacts on wildfire management. Impact Determination: *less than significant*.

Threshold:	*Would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires in combination with existing, approved, proposed, and reasonably foreseeable development in nearby areas.*

None of the other projects planned in the area would involve welding, grinding, or other construction activities that would have a high risk of starting a fire. Truck traffic associated with the identified projects would occur farther north than the proposed Project and therefore would not utilize the same haul routes other than SR 99. Construction of projects would be required to stop and truck traffic would cease in the event of an emergency event or evacuation order. Therefore, the combined planned projects in the area are not likely to increase the likelihood of wildfire in the area or disrupt public services along haul routes. The Project would have a less than considerable contribution to cumulative impacts on the risk of wildfire and wildfire management in the area.

Mitigation Measures

None required.

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SECTION 5 OTHER CEQA ANALYSES

This Chapter evaluates potential growth-inducing effects, significant unavoidable impacts, and irreversible environmental changes. Section 15128 of the CEQA Guidelines requires that the EIR "contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR." This EIR evaluates all environmental topic areas and questions included in CEQA Guidelines Appendix G (Environmental Checklist Form). No possible significant effects of the Project were excluded from analysis in this EIR.

5.1 Growth-Inducing Impacts

CEQA Guidelines Section 15126.2(d) requires that the EIR discuss "...the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Implementation of the Project would not result in construction of new structures, increase in long-term employment, or result in a net increase of the population of the area. Construction of the Project is anticipated to require up to 50 construction workers, who are expected to commute from local areas. Therefore, no substantial, detrimental, growth-inducing effect is expected under the Proposed Project.

5.2 Significant Unavoidable Impacts

CEQA Guidelines Section 15126.2(b) requires that an EIR discuss "significant environmental effects which cannot be avoided if the proposed project is implemented."

Impacts can be identified in an EIR as significant and unavoidable for any of the following four reasons:

1. No potentially feasible mitigation has been identified;
2. Potential mitigation has been identified but may be found by the Lead Agency to be infeasible;
3. With implementation of feasible mitigation, the impact still would not, or might not, be reduced to a less than significant level; or
4. Implementation of the mitigation measure would require approval of another jurisdictional agency, whose approval will be pursued by the Lead Agency but cannot be guaranteed as of the publication of this EIR.

Construction and operation of the TFRRP would not result in a significant and unavoidable impact in any technical area.

5.3 Irreversible Environmental Changes

CEQA Guidelines Section 15126.2(c) requires that the EIR discuss "significant irreversible environmental changes which would be caused by the proposed project should it be implemented." The effects on the environment and public health and safety from implementation of the Proposed Project would be less than significant and temporary in nature, and therefore, would result only in short-term impacts and no

irreversible environmental changes, except for the beneficial effects of reducing flood risk on the Feather River. Implementation of the Proposed Project would not result in an irreversible commitment of energy resources such as fossil fuels, including fuel oil, natural gas, and gasoline or diesel fuel. The Proposed Project would also not involve consumption or destruction of other non-renewable or slowly renewable resources such as lumber, concrete, sand, gravel, asphalt, masonry, metals, and water, nor would it consume any of those resources wastefully, inefficiently, or unnecessarily.

SECTION 6 ALTERNATIVES

The alternatives analysis consists of the following components: an overview of CEQA requirements for alternatives analysis, descriptions of the alternatives evaluated, a comparison between the anticipated environmental effects of the alternatives and those of the Proposed Project, and identification of an environmentally superior alternative.

6.1 Introduction

6.1.1 CEQA Requirements for Alternatives

Section 15126.6 of the CEQA Guidelines requires an EIR to:

> "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."

Section 15126.6 of the CEQA Guidelines also states that the discussion of alternatives shall focus on alternatives to the Project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if those alternatives would impede to some degree the attainment of the basic Project objectives or would be more costly.

Pursuant to Section 15126.6, this Section describes alternatives to the Project and compares their impacts to the Project. Pursuant to the CEQA Guidelines, the ability of the alternatives to meet the basic Project objectives is also described, and the *environmentally superior* alternative is identified. Section 15126.6(d) also requires that, if an alternative would cause one or more significant effects in addition to those caused by the Proposed Project, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. One of the alternatives analyzed must be the *No Project* alternative (CEQA Guidelines Section 15126.6(e)). The EIR must also identify alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and should briefly explain the reasons underlying the lead agency's determination (CEQA Guidelines Section 15126.6(c)). In accordance with CEQA Guidelines Section 15126.6(a), this EIR does not evaluate every conceivable alternative. A reasonable range of feasible alternatives that will allow decision-makers to make a reasoned choice and that meet most of the Project objectives has been evaluated.

This Project's objective is to improve this segment of levee to meet FEMA requirements, address issues identified during USACE and State MA3 levee inspections, and to bring the levee into compliance with applicable design criteria. Levee remedial measures for the Project include construction of a cutoff wall, berm tie-ins into the Sutter Bypass East Levee, the previously repaired levee upstream of the Project, and/or to the SR 99 embankment, pipe penetration improvements, and surficial geometry corrections. Improvement measures were developed based on the 100-year DWSE provided in Design Water Surface Profiles for the Feather River West Levee Project, Addendum #2, dated December 2013 and prepared by Peterson Brustad, Inc. Additionally, issues have been identified during the USACE and MA3 levee inspections and the levee is not in compliance with applicable design criteria.

6.2 Development of Project Alternatives

This section discusses the reasoning for selecting and rejecting alternatives. This section also summarizes the assumptions identified for the alternatives. The range of alternatives included for analysis in an EIR is governed by the *rule of reason*." The primary objective is formulating potential alternatives and choosing which ones to analyze to ensure that the selection and discussion of alternatives fosters informed decision-making and informed public participation. This is accomplished by providing sufficient information to enable readers to reach conclusions themselves about such alternatives. This approach avoids assessing an unmanageable number of alternatives or analyzing alternatives that differ too little to provide additional meaningful insights about their environmental effects. The alternatives addressed in this Draft EIR were selected in consideration of one or more of the following factors:

- The extent to which the alternative would avoid or reduce any of the identified significant effects of the Project and yet would accomplish most of the basic objectives of the Project.
- The feasibility of the alternative, taking into account site suitability and surrounding existing land uses, and consistency with applicable public plans, policies, and regulations.
- The appropriateness of the alternative in contributing to a reasonable range of alternatives necessary to permit a reasoned choice.

The alternatives analyzed in this Draft EIR were ultimately chosen based on each alternative's ability to feasibly attain the basic project objectives while avoiding or reducing one or more of the Project's significant effects. The analysis provides readers with adequate information to compare the effectiveness of identified mitigation or significant adverse impacts and to enable readers to make decisions about the project. CEQA requires environmental impact reports to address a reasonable range of reasonable alternatives, but not all potential alternatives.

Further, in considering possible alternatives to the Proposed Project, SBFCA established and applied seven criteria to qualitatively evaluate measures and alternatives for levee repair projects and eliminate those that did not adequately meet the criteria. The criteria are below, along with the options for evaluation.

Meet the project objectives to reduce risk. The objective of the Project is to address flood management deficiencies of through- and under-seepage, erosion, and slope stability on the levee to make a substantial contribution toward achieving 100-year protection for the entire assessment district and 200-year protection for the populated areas. This criterion is essentially a pass-or-fail evaluation; a failing alternative would be eliminated from further consideration.

Geography and jurisdictional authority. This criterion eliminates those measures that are outside the control of SBFCA as a sponsor to implement, operate, and/or maintain. This criterion is essentially a pass-or-fail evaluation; a failing alternative would be eliminated from further consideration.

Avoidance of hydraulic effects. An alternative must not measurably and substantially increase or transfer flood risk within or outside the affected area (upstream, adjacent, or downstream). This criterion is essentially a pass-or-fail evaluation; a failing alternative would be eliminated from further consideration.

Land use compatibility. The current and planned land use of the affected area should be taken into consideration. If known projects exist or have been locally approved, alternatives should be evaluated with consideration of the degree to which they disrupt or interfere with such land uses. Alternatives that do not require modification to existing land use plans are favored; specifically, alternatives consistent with facilitating continued agriculture and sustainable smart growth and economic development. This criterion would be evaluated as a relative scale, such as less, moderately, or more favorable.

Avoidance, minimization, and mitigation of environmental effects. This is an important criterion to ensure an alternative does not have onerous environmental effects relative to other alternatives, and, moreover, that alternatives are selected to avoid, minimize, and mitigate environmental effects (in that order of precedence). The purpose is to ensure that a proposed project minimizes effects on the environment as well as avoiding permitting process which may delay the project or increase cost. This criterion would be evaluated as a relative scale, such as less, moderately, or more favorable.

Facilitation of multi-use objectives. While the TFRRP is focused on flood management only, it should not preclude opportunities for future recreation and ecosystem restoration, consistent with the Feasibility Study goals and the State's criteria. Alternatives that facilitate or do not preclude realization of other objectives within the Project Area are favored. This criterion would be evaluated as a relative scale, such as less, moderately, or more favorable.

Cost. Costs for construction, operations, and maintenance are considered and compared relative to one another and means of applicable local, state, and federal programs. This criterion would be evaluated as a relative scale, such as less, moderately, or more favorable.

6.3 Alternatives Considered But Rejected

6.3.1 Demolish Existing Levee and Construct New Levee on or Adjacent to Existing Site

This Alternative would involve demolition of the existing levee and construction of an entirely new levee within the Project Study Area. All materials from the existing levee would be removed and evaluated for reuse in the new construction, and new materials would be delivered to the Project Area as needed for construction of the new levee.

All Project objectives would be met under this alternative. However, because installing a new bentonite cutoff wall into the existing levee would resolve the seepage through the levee, complete demolition of the existing levee and construction of a new levee on or adjacent to the existing levee site would not offer additional benefit compared to the Proposed Project. In addition, this Alternative would significantly expand the area of disturbance created by the Project because of the need to stockpile and ultimately dispose of the spoils created by demolition that could not be reused, and would increase the need for use of heavy equipment to remove, stockpile and dispose of existing levee materials. If not constructed on the exact site of the existing levee, this Alternative would also have potential for creating additional impacts to biological and cultural resources compared to the Proposed Project. Demolishing the existing levee and constructing a new one would also be considerably more expensive than the Proposed Project, which would remove only the top 30 percent of the existing levee and install a new cutoff wall. Therefore, this

Alternative is considered infeasible, would increase the potential for impact to the environment, and is not considered further in this EIR.

6.4 Alternatives Carried Forward For Analysis

6.4.1 Alternative 1: No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate the specific alternative of "*No* Project" along with its impact. As stated in this section of the CEQA Guidelines, the purpose of describing and analyzing a No Project alternative is to allow decision makers to compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project. As specified in Section 15126.6(e)(3)(B) of the CEQA Guidelines, the No Project alternative for a development project consists of the circumstance under which a proposed project does not proceed. Section 15126.6(e)(3)(B) further states that "in certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained."

In general, the No Project Alternative consists of continuation of current conditions and O&M practices that reasonably would be expected to occur in the foreseeable future if the TFRRP was not implemented. A more detailed discussion of the No Project Alternative is below.

6.4.1.1 Project Objectives

This Project's objective is to improve this segment of levee to meet FEMA requirements (100-year DWSE), address issues identified during USACE and MA3 levee inspections, and bring the levee into compliance with applicable design criteria. Under the No Project Alternative, none of the Project objectives would be met.

6.4.1.2 Comparison of Impacts

Under the No Project Alternative, no environmental impacts related to Project construction would occur as no construction would occur. However, because SBFCA would not implement the flood risk-reduction measures of the Proposed Project, the No Project Alternative has potential for creating significant impacts under CEQA or contributing to ongoing cumulative impacts.

The levee protecting the Project Area would continue to require risk-reduction measures to meet current levee standards, FEMA's minimum acceptable level of flood protection, and the State requirements for 100-year floods for rural areas. In addition, the associated risk to human health and safety, property, and the adverse economic effects that serious flooding could cause would continue, and the risk of a catastrophic flood would remain high. Again, however, regular O&M of the levee system would continue as presently executed by the local maintaining entities.

Because of uncertainties in local, state, and federal funding; future state and federal authorization; and other approvals, predicting construction of levee improvements within a reasonable timeframe is not possible (see below for further discussion). Therefore, for the purpose of evaluating effects under the No

Project Alternative, the EIR assumes no levee repair or strengthening would be implemented, the purpose and objectives would not be met, and the current level of flood risk would continue.

6.4.1.3 Future State or Federal Action

Because the existing levee has known deficiencies, even if SBFCA were not pursuing improvements, it is likely that USACE and/or the State of California would repair the levee at some time in the future in order to meet federal and/or state flood protection obligations associated with the federal flood control system. This could be accomplished through an action similar to the 2014 Sutter Basin Project Feasibility Study, a federal action that determined the extent of federal interest in reducing flood risk in the Sutter Basin while exploring opportunities to increase recreation and restore the ecosystem along the Feather River and tributaries.

However, federal funding for USACE projects has been on a downward trend, and the outlook for subsequent funding appropriation if a project were to be authorized is highly uncertain. Other federal programs have implemented repairs on the levees in the Sutter Basin; however, these programs were targeted at dynamically shifting site-specific emergent conditions (most typically erosion) across a geographic scope widely ranging far beyond the TFRRP area. Therefore, any future repairs under these programs, even if they were to occur in the Project Area, would not comprehensively address the deficiencies affecting flood risk and level of protection in the planning area. Further, future authorization and appropriation of these programs is uncertain, making them unreliable from a flood-risk-management planning perspective.

At the state level, regional flood management plans are being developed under the CVFPP, including the Study Area. However, construction of projects under the CVFPP is presently unfunded for comprehensive and complete implementation.

Despite the possibility of eventual state- or federally led implementation of repairs, for the purpose of evaluating effects under the No Project Alternative, the EIR assumes that flood risk-reduction measures would not occur and the current level of flood risk would continue. This assumption provides the most conservative approach for disclosure and comparison of potential effects.

6.4.1.4 Consequences of Levee Failure

Assuming that no levee repair or strengthening would occur under the No Project Alternative, the levee would remain susceptible to failure as a result of identified deficiencies such as seepage. These conditions could cause portions of the levee system to fail, triggering widespread flooding, extensive damage to the planning area's existing residential, commercial, agricultural, and industrial structures, and potential loss of life and property. Extensive damage to utilities, roadways, major transportation corridors, and other infrastructure systems could occur. Water supply and sewage facilities could fail. Floodwaters would become contaminated by chemicals released from inundated vehicles, homes, industrial and agricultural facilities, businesses, and equipment. The magnitude of the flood damage would depend upon the severity of the storm, and river flows at the time of a potential levee failure.

As of 2020, 99,633 people were living in both the incorporated and unincorporated areas of Sutter County. Nearly two-thirds of these residents live in the cities of Yuba City and Live Oak. As of April 2020 there were 34,639 housing units within Sutter County (U.S. Census Bureau 2023). Though the Project planning area affects only a portion Sutter County, in a flood event, far more would be affected than just the people and residences in the planning area.

Many of these residents could be displaced by a catastrophic flood event and residences damaged or destroyed. As of 2020, Sutter County was home to 23,073 wage and salary jobs (US Census Bureau 2023), and as of 2010 it had 328,208 acres of farmland, 1,171 acres of commercial and industrial zoned land, and 44,919 acres of open space, golf courses, and parks (Sutter County 2011). These lands could all be affected by a flood event. Agricultural resources could also sustain major damage in a flood event considering roughly 86 percent of Sutter County's land is used to support that industry. A catastrophic flood event would result in the loss of hundreds of thousands of dollars in agricultural lands, employment centers, homes and other structures.

A flood event could cause severe public health hazards as well. Flooding could upset and spread stored hazardous materials, creating hazardous conditions for the public and the environment. Flood damage to homes and other structures could render them dangerous due to structural damage as well as contamination. Additionally, the floodwaters and ponds left behind could provide a wide breeding ground for mosquitoes and other disease vectors. Effects to the water supply system could be particularly severe in a flood event, and could leave residents and businesses without a reliable water supply for a significant amount of time. A major flood event could also result in substantial stress or disruption to the region's emergency response capacity, hospital services, and other critical lifelines.

During the recovery period after a flood event, area residents would require temporary housing, and displacement of many or all occupants would occur while levees, buildings, and other infrastructure were repaired. Businesses, social services, and other employers occupying affected structures would be forced to relocate. The potential number of displaced residents and lost businesses resulting in demand for temporary quarters would likely exceed the available supply of vacant buildings surrounding the Project Area. Thus, many displaced residents and businesses may be forced to relocate to areas a considerable distance from affected area communities, resulting in substantial intermediate- and long-term economic effects on the area and its people. These effects include changes in employment numbers and patterns, business and personal incomes, tax revenues, and regional economic activity.

A flood event in the affected area could also disrupt highway and rail traffic, causing long-term effects on the region's and the state's economy and ability to move people and goods. Flooding of this transportation and distribution infrastructure would cut off major statewide and interstate transportation corridors.

6.4.1.5 Relationship of FEMA Risk MAP to No Project

Further complicating the future No Project scenario is the FEMA Risk MAP process, a national effort to revise FIRMs. FEMA is in the process of reevaluating the level of flood protection provided by the levee system protecting the planning area. FEMA has not yet revised the FIRM for the Project Area, which

currently shows it is within Zone A *No Base Flood Elevations Determined*. When FEMA initiates a new flood risk project to apply new protocols, flood hazard data within the subject area could be significantly revised. This may result in floodplain boundary changes, one-percent annual chance flood elevation changes, and/or changes to flood hazard zone designations.

6.4.1.6 Levee Vegetation Policy and No Project

Compliance with USACE levee vegetation policy in the Sacramento Valley is complex due to the overlays of flood management objectives, protected fish and wildlife habitat, environmental regulations, overlapping jurisdictional authorities, and recreation and other social values.

In light of these circumstances, the No Project Alternative reflects multiple possible future scenarios. It is currently considered too speculative to adopt and consider a single one of these future scenarios as the sole or most likely outcome. Therefore, this document acknowledges and analyzes the following conditions in regard to the USACE levee vegetation policy as it relates to the No Project Alternative for the actions under consideration.

Full application of USACE levee vegetation policy, as detailed in Engineering Technical Letter (ETL) 1110-2-583, mandates prohibition and removal of woody vegetation within the levee prism or within 15 feet of the landside or waterside levee toes (USACE 2014). The ETL expired in 2019 and a update is in progress, and until updated the ETL is still in effect through Engineer Pamphlet (EP) 1110-2-18.

The No Project Alternative analysis ass umes the continued existence into the future of the vegetation conditions at the time of the analysis. This may include future application of a variance or application of CVFPP concepts for management of woody vegetation, meaning trimming and thinning to allow visibility and accessibility, selective retention and removal based on engineering inspection and evaluation, and life-cycle management (as described under encroachment removal and vegetation policy compliance). A System-Wide Improvement Framework (SWIF) may also be a component of future compliance.

6.4.1.7 Comparison of Impacts

Because the Project would not be constructed under the No Project Alternative, there would be no direct effects on public safety and the environment from Project construction. However, because flood risk could increase without construction of the Project, impacts related to possible flooding in the area could increase and could be severe, both directly from the flooding and indirectly from the construction of repairs and rebuilding of structures. These would include impacts associated with the following technical areas: Aesthetics, Agriculture and Forestry Resources, Air Quality, Biological Resources, Cultural Resource, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Wildfire.

6.4.2 Other Alternatives

No other alternative is examined in this EIR because none would accomplish the goals and objectives of the Project while reducing impacts or cost compared to the Proposed Project.

6.5 Environmentally Superior Alternative

The CEQA Guidelines (Section 15126[e][2]) stipulate, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." Alternative 1 (No Project Alternative) would result in the least direct environmental impacts because no construction would occur, but it could result in severe indirect impacts due to an increased risk for flooding in the area. The No Project Alternative also would not meet any of the Project objectives.

Alternative 2 (Proposed Project) would meet all of SBFCA's seven screening criteria, would meet all Project objectives, and would result in reduced ground disturbance and therefore lower impacts on biological resources, cultural resources, geology and soils, and hydrology and water quality compared to the alternative considered but rejected. Therefore, the Proposed Project is the Environmentally Superior Alternative.

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