PUBLIC REVIEW DRAFT

INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

FOR THE

LODI LAKE SHORELINE RESTORATION PROJECT

Lodi, CA

April 2020

Prepared for:

City of Lodi
Public Works Department
221 W. Pine Street
Lodi, CA 95240
(209) 333-6706

Prepared by:

BaseCamp Environmental, Inc.
115 S. School Street, Suite 14
Lodi, CA 95240
209-224-8213

BaseCamp Environmental

CITY OF LODI

NOTICE OF INTENT TO ADOPT MITIGATED NEGATIVE DECLARATION

LODI LAKE SHORELINE RESTORATION PROJECT

Notice is hereby given that City of Lodi Department of Public Works has prepared an Initial Study (IS) of environmental effects and intends to adopt a Mitigated Negative Declaration (MND) for the Lodi Lake Shoreline Restoration Project (project). The project is located within Lodi Lake Park in the City of Lodi, San Joaquin County, California. The purpose of the project is to address riverbank areas that have been eroded, causing loss of recreational land, oversteepening of the banks, and loss of wetland and riparian habitats.

The project proposes to place rock slope protection (RSP, also called "riprap") at two locations totaling 1,600 linear feet along the Mokelumne River to reduce erosion of the riverbank. Fill soil would be placed behind portions of the RSP placement for planting of vegetation. Grass turf would be planted in the eastern portion of the project; native aquatic vegetation would be planted in the western portion. Existing concrete rubble at both locations would be removed. The project would require site plan approval from the City and permits for work within the Mokelumne River from the U.S. Army Corps of Engineers (Corps), the Central Valley Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW).

The IS/MND has analyzed the potential environmental effects of the project as required by the California Environmental Quality Act (CEQA) and the CEQA Guidelines. Based on this analysis, the IS/MND finds that the project would not involve any significant environmental effects, provided that the mitigation measures described in the IS/MND are implemented. The City of Lodi Department of Public Works, the project proponent, has agreed to implement the mitigation measures.

Copies of the IS/MND are available for public review at the City of Lodi Public Works office located at 221 W Pine St, Lodi, CA 95240 or can be viewed at https://www.lodi.gov/187/Planning-Division. The City of Lodi will accept public and agency comments on the IS/MND during a 30-day review period that will begin on April 29, 2020 and end on May 28, 2020. Comments may be sent to the City of Lodi Public Works, 221 W Pine St, Lodi, CA 95240, or by e-mail to Lyman Chang at lchang@lodi.gov.

Lyman Chang

City of Lodi Department of Public Works

Deputy Public Works Director, City Engineer

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LIST OF ACRONYMS AND ABBREVIATIONS USED IN THIS DOCUMENT

AB	Assembly Bill
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BMP	Best Management Practice
CAP	Climate Action Plan
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO_2e	carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
dB	decibel
dBA	A-weighted decibel
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas
IS/MND	Initial Study/Mitigated Negative Declaration
kWh	kilowatt-hour
LOS	Level of Service
MRZ	Mineral Resource Zone
NCPA	Northern California Power Agency
NO_x	nitrogen oxide
OHWM	ordinary high-water mark
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter 10 micrometers or less in diameter
$PM_{2.5}$	particulate matter 2.5 micrometers or less in diameter
RCEM	Road Construction Emissions Model
ROG	reactive organic gas
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Open Space and Habitat Conservation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
VMT	vehicle miles traveled
WID	Woodbridge Irrigation District

NEGATIVE DECLARATION

A. General Project Information

Project Title:	Lodi Lake Shoreline Restoration Project
Lead Agency Name and Address:	City of Lodi Public Works Department 221 W. Pine Street Lodi, CA 95240
Contact Person and Phone Number:	Lyman Chang, Deputy Director Lodi Department of Public Works 209-333-6706
Project Location:	Lodi Lake Park, City of Lodi
Project Sponsor Name and Address:	City of Lodi Public Works Department 221 W. Pine Street Lodi, CA 95240
General Plan Designation:	Open Space
Zoning:	Open Space
Project Description:	The project proposes to place rock slope protection (RSP) at two locations along the Mokelumne River north of Lodi Lake to stabilize the riverbank and restore wetlands. The RSP would be placed with long-reach excavators and would be stabilized and secured by bucket tamping and pressing by the excavator. Fill soil would be placed behind portions of the RSP placement for planting of vegetation. Grass turf would be planted at the eastern location of the project; native aquatic vegetation would be planted at the western location. Existing concrete rubble at these locations would be removed. Project work would occur above and below the ordinary high-water mark of the Mokelumne River. Construction is anticipated to occur in February 2021, at a time when the river would be lowered, and the lake would be drained. Length of construction work would be one month.

Surrounding Land Uses and Setting:	The project site is adjacent to the Mokelumne River in Lodi Lake Park, a municipal park and recreation area centered on Lodi Lake. The park itself is in a mixed-use area that includes industrial, residential, and utility development. Residential development is east, south, and northwest of the park. A power generation station and City water treatment facility is southwest of the park, as is an industrial area formerly occupied by General Mills. The Lodi Lake Nature Area is northeast of the park, and vacant land with riparian forest is across the Mokelumne River to the north.
Other Public Agencies Whose Approval is Required:	Permits from the U.S. Army Corps of Engineers (Section 10 and Section 404), the California Department of Fish and Wildlife (Streambed Alteration Agreement), and the Central Valley Flood Protection Board (encroachment permit). Section 401 Water Quality Certification from the Regional Water Quality Control Board is required in conjunction with Section 404 approval.
Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?	Tribes have been contacted and have requested monitoring of construction work.

B. Environmental Factors Potentially Affected

The environmental factors checked below may be significantly affected by this project, involving at least one impact that is a "Potentially Significant Impact" prior to mitigation. Mitigation measures that would avoid potential effects or reduce them to a less than significant level have been prescribed for each of these effects, as described in the checklist and narrative on the following pages, and in the Summary Table at the end of Chapter 1.0.

	Aesthetics		Agriculture/Forestry Resources		Air Quality
✓	Biological Resources	✓	Cultural Resources		Energy
✓	Geology/Soils		Greenhouse Gas Emissions		Hazards/Hazardous Materials
✓	Hydrology/Water Quality		Land Use		Mineral Resources
✓	Noise		Population/Housing		Public Services
	Recreation		Transportation	✓	Tribal Cultural Resources
	Utilities/Service Systems		Wildfire	✓	Mandatory Findings of Significance

C. Lead Agency Determination

On the basis of this initial evaluation:

□ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

✓ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project and/or mitigation measures that would reduce potential effects to a less than significant level have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

□ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

□ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CITY OF LODI
PUBLIC WORKS DEPARTMENT

4/22/2020

Lyman Chang, Deputy Director

Date

1.0 INTRODUCTION

1.1 PROJECT BRIEF

This document is an Initial Study/Mitigated Negative Declaration (IS/MND) for the Lodi Lake Shoreline Restoration Project (project). The project is located within Lodi Lake Park in the City of Lodi, San Joaquin County, California (Figures 1-1 through 1-4). The City of Lodi (City) is the project proponent. The IS/MND has been prepared in compliance with the requirements of the California Environmental Quality Act (CEQA). For the purposes of this CEQA analysis, the City is the Lead Agency for the project.

The project proposes to place rock slope protection (RSP, also called "riprap") at two locations along the Mokelumne River north of Lodi Lake to reduce erosion of the riverbank, totaling 1,600 linear feet. Fill soil would be placed behind portions of the RSP placement for planting of vegetation. Grass turf would be planted at the eastern location of the project; native aquatic vegetation would be planted at the western location. Existing concrete rubble at these locations would be removed. The project would require site plan approval from the City. It also would require permits for work within the Mokelumne River from the U.S. Army Corps of Engineers (Corps), the Central Valley Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW).

1.2 PURPOSE OF INITIAL STUDY

CEQA requires that public agencies document and consider the potential environmental effects of the agency's actions that meet CEQA's definition of a "project." Briefly summarized, a "project" is an action that has the potential to result in direct or indirect physical changes in the environment. A project includes the agency's direct activities as well as activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3).

Provided that a project is not exempt from CEQA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Initial Study. The purpose of an Initial Study is to determine whether the project would involve "significant" environmental effects, as defined by CEQA, and to describe feasible mitigation measures that would avoid significant effects or reduce them to a level that is less than significant. If the Initial Study does not identify significant effects, then the agency ordinarily prepares a Negative Declaration. If the Initial Study notes significant effects but also identifies mitigation measures that would reduce these significant effects to a level that is less than significant, then the agency ordinarily prepares a Mitigated Negative Declaration. If a project would involve significant effects that cannot be readily mitigated, then the agency must prepare an Environmental Impact Report. The agency

may also decide to proceed directly with the preparation of an Environmental Impact Report without first preparing an Initial Study.

The proposed project is a "project" as defined by CEQA and is not exempt from CEQA consideration. The City has determined that the project may potentially have significant environmental effects and therefore requires preparation of an Initial Study. This Initial Study describes the proposed project and its environmental setting, discusses the potential environmental effects of the project, and identifies feasible mitigation measures that would eliminate any potentially significant environmental effects of the project or reduce them to a level that would be less than significant. The Initial Study considers the project's potential for significant environmental effects in the following subject areas:

- Aesthetics
- Agricultural 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/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance (including Cumulative Impacts)

This Initial Study concludes that the project would have potentially significant environmental effects but that all these effects would be avoided or reduced to a level that would be less than significant with identified mitigation measures. The project applicant has accepted the obligation to implement all the mitigation measures. As a result, the City has prepared a Mitigated Negative Declaration and has issued a Notice of Intent to adopt the IS/MND for the project. The Notice of Intent located just inside the cover of this document, shows the time available for public comment on the IS/MND.

1.3 PROJECT BACKGROUND

The project site is along the Mokelumne River in northern Lodi. The Mokelumne River is approximately 95 miles in length and flows west from its headwaters in the Sierra Nevada to the eastern Sacramento-San Joaquin Delta. The river provides water to Lodi Lake, a reservoir formed by the Woodbridge Diversion Dam. The project site is on a peninsula along the northern shore of Lodi Lake.

Lodi Lake is the centerpiece of Lodi Lake Park, an approximately 43-acre park owned and operated by the City through its Parks, Recreation and Cultural Services Department. Lodi Lake Park offers a variety of recreational activities, including fishing, swimming (at a designated beach), kayaking, walking, bicycling, and recreational vehicle camping. Several areas within the park provide picnicking and barbecue facilities. Lodi Lake Park is accessed by an entrance off Turner Road, adjacent to and south of the park. A paved road extends from the park entrance around the eastern shoreline of the lake to recreational facilities near the northern shoreline.

One of the recreational areas along the northern shoreline is the Rotary Area. The Rotary Area is the first park area encountered in the northern portion of Lodi Lake along the road from the park entrance. It has a large picnic shelter and picnic tables, a large barbecue pit and barbecue grill, a horseshoe pit, and benches. This facility is available for recreational vehicle camping with reservations, and it has electricity and water. Paved parking spaces have been installed off the park road at the entrance to the Rotary Area. The eastern location of the project is adjacent to the Rotary Area.

The Ron Williamson Youth Activity Area is at the end of the park road. It also offers a picnic shelter and picnic tables, a horseshoe pit, and benches, along with two large barbecue grills, a sink counter, and an outdoor amphitheater. Electricity and water services are available. A large paved parking area is south of the Youth Activity Area. Nearby are a boat launch, the Parson's Point picnic facility, and a restroom building. The western location of the project is adjacent to the Youth Activity Area and along most of the riverbank between the Youth Activity Area and the Rotary Area.

The Mokelumne River serves as the northern boundary for these two Lodi Lake recreational areas. Over the years, the riverbank at these recreational areas has continually eroded back into the recreational landscape, exposing irrigation lines and tree roots and causing the collapse of concrete retaining wall structures. Fallen trees have been observed in the river, another apparent result of this erosion. The purposes of the project are to stabilize the riverbank, restore wetlands and near-shore habitats, and to avoid further loss of woody riparian vegetation.

1.4 ENVIRONMENTAL EVALUATION CHECKLIST TERMINOLOGY

The project's potential environmental effects are evaluated in the Environmental Evaluation Checklist presented in Chapter 3.0 of this IS/MND. The checklist includes a list of environmental considerations against which the project is evaluated. For each question, the City determines whether the project would involve 1) a Potentially

Significant Impact, 2) a Less Than Significant Impact with Mitigation Incorporated, 3) a Less Than Significant Impact, or 4) No Impact.

A Potentially Significant Impact occurs when there is substantial evidence that the project would involve a substantial adverse change to the physical environment, i.e., the environmental effect may be significant, and mitigation measures have not been defined that would reduce the impact to a level that would be less than significant. If there is a Potentially Significant Impact entry in the Initial Study, then an EIR is required. No Potentially Significant Impacts are identified in this Initial Study.

An environmental effect that is Less Than Significant with Mitigation Incorporated is a Potentially Significant Impact that can be avoided or reduced to a level that is less than significant with the application of defined mitigation measures. This Initial Study identifies several impacts that are Less than Significant with Mitigation Incorporated.

A Less Than Significant Impact occurs when the project would involve an environmental impact, but the impact would not cause a substantial adverse change to the physical environment that would require mitigation. This Initial Study identifies several impacts that are considered Less than Significant.

A determination of No Impact is self-explanatory. This Initial Study identifies several areas of environmental concern in which the project would have No Impact.

This IS/MND identifies certain potentially significant environmental effects that would be mitigated by implementation of existing provisions of law and standards of practice related to land use planning and environmental protection. Such provisions are identified and considered in the environmental impact analysis, and the degree to which they would reduce potential environmental effects is discussed. These protections are considered part of the existing regulatory environment and are assumed to counter the potential environmental effects of the project as discussed. The need for additional mitigation measures described in this Initial Study when existing environmental protections are not adequate to avoid potential environmental effects or to reduce them to a level that is less than significant.

1.5 SUMMARY OF ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Table 1-1, which follows Figures 1-1 through 1-5, summarizes the results of the Environmental Evaluation Checklist and associated narrative discussion in Chapter 3.0 of this IS/MND. The potential environmental impacts of the proposed project are listed in the left-most column of this table. The level of significance of each impact is indicated in the second column. Feasible mitigation measures that are considered necessary to avoid or minimize the impacts are shown in the third column, and the significance of the impact after mitigation measures are applied is shown in the fourth column.

As previously noted, all potentially significant environmental effects identified in the IS/MND would be avoided or reduced to a level that would be less than significant with

existing environmental protection measures or mitigation measures recommended in this Initial Study. For other issues, the project would have no impact or would have impacts that are less than significant.

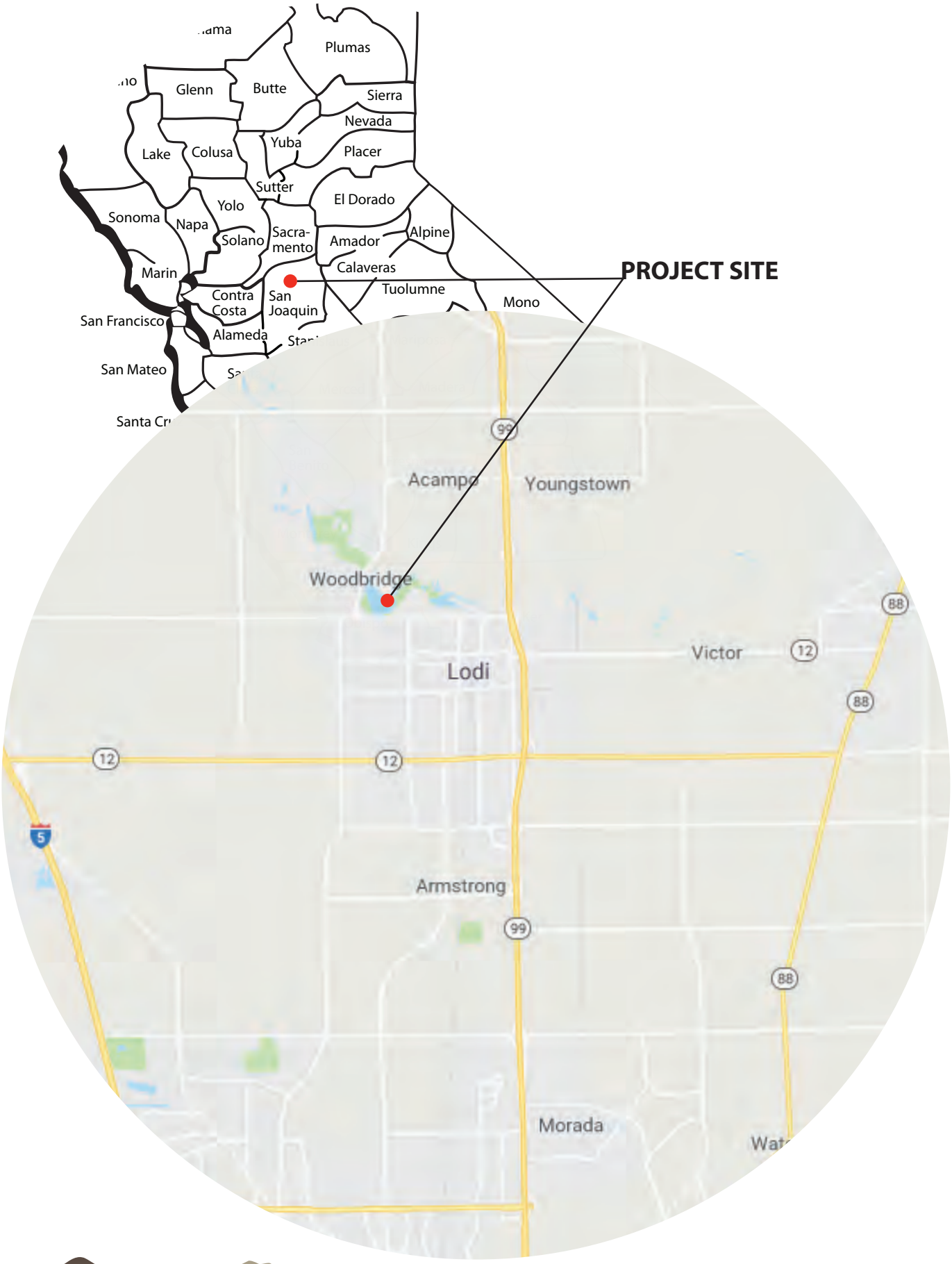

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Figure 1-1
REGIONAL LOCATION

SOURCE: Google Maps

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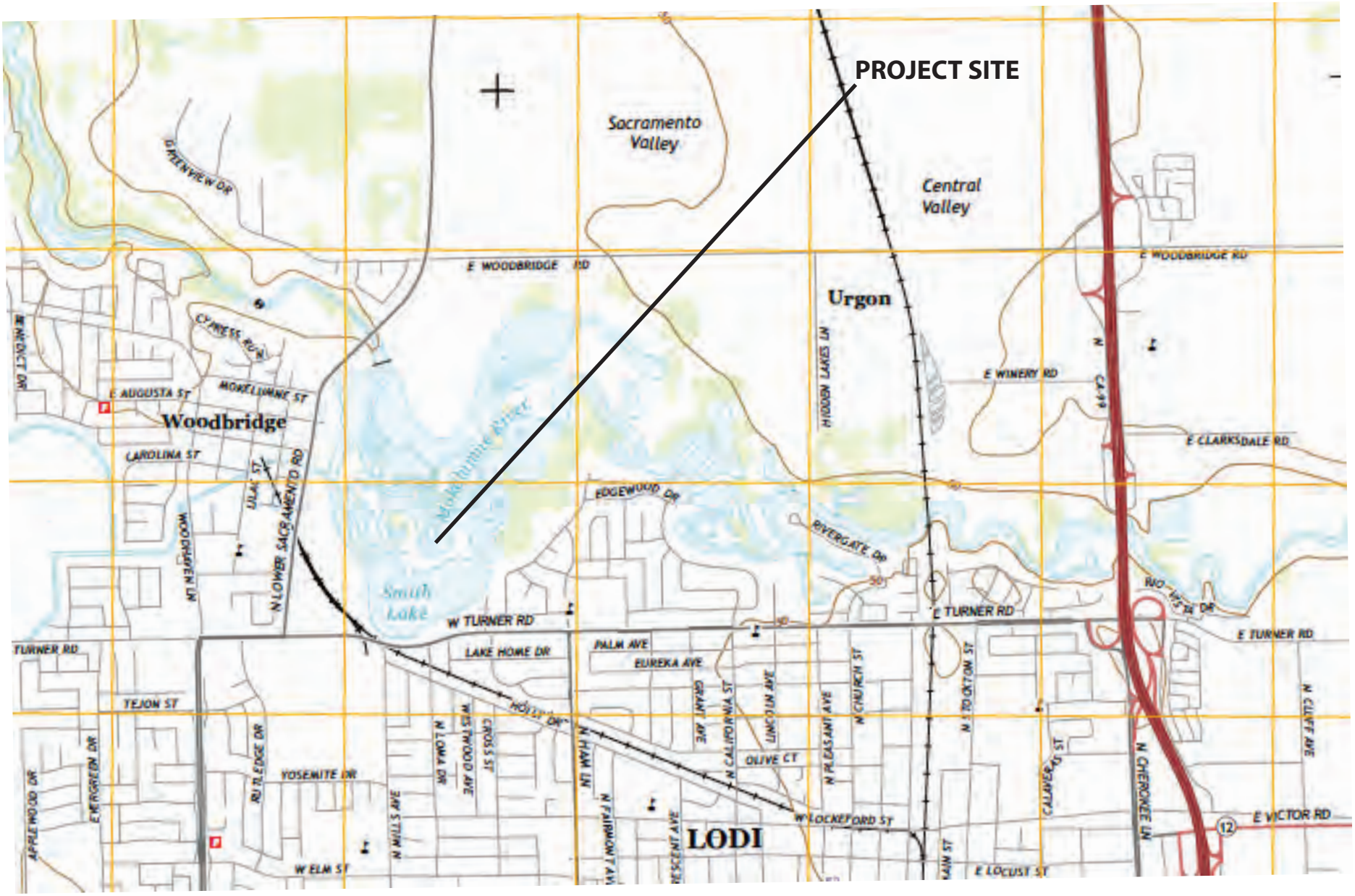
Figure 1-2
STREET MAP



SOURCE: Lodi North USGS Quadrangle Map, 7.5 Minute Series, 2015.

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Figure 1-3
USGS MAP

SOURCE: Google Earth

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Figure 1-4
AERIAL PHOTO

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.1 AESTHETICS			
a) Scenic Vistas	NI	None required	-
b) Scenic Resources	LS	None required	-
c) Visual Quality of Public Views	LS	None required	-
d) Light and Glare	NI	None required	-
3.2 AGRICULTURE AND FORESTRY RESOURCES			
a) Agricultural Land Conversion	NI	None required	-
b) Agricultural Zoning and Williamson Act	NI	None required	-
c, d) Forest Lands	NI	None required	-
e) Indirect Conversion of Farmland or Forest Land	NI	None required	-
3.3 AIR QUALITY			
a) Air Quality Plan Consistency	LS	None required	-
b) Cumulative Emissions	NI	None required	-
d) Exposure of Sensitive Receptors	LS	None required	-
e) Odors and Other Emissions	LS	None required	-
3.4 BIOLOGICAL RESOURCES			
a) Special-Status Species	PS	BIO-1: Since the project is participating in the SJMSCP, standard Incidental Take Minimization Measures (ITMMs) outlined in the SJMSCP for nesting burrowing owl will be required. The ITMMs will include pre-construction surveys	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		for nesting burrowing owls. If active nests are found, temporal restrictions on construction will be required. BIO-2: Any vegetation removal during the general avian nesting season (February 1 through August 31) shall be immediately preceded by a survey. If active nests are found, adequate marking of the nest site shall be provided and vegetation removal in the vicinity of the nest shall be delayed until the young fledge. BIO-3: If a western pond turtle is observed in the project area, it should be allowed to move out of the area on its own. BIO-4: A biological worker awareness training program shall be implemented to educate the construction crews of the biological diversity within the project area. The worker awareness program shall include a presentation on the life history and legal status of potentially occurring special-status species and distribution of informational packages to each worker.	
b) Riparian and Sensitive Habitats	LS	None required	-
c) State and Federally Protected Wetlands	LS	None required	-
d) Fish and Wildlife Movement	LS	None required	-
e) Local Biological Requirements	NI	None required	-
f) Habitat Conservation Plans	LS	None required	-
3.5 CULTURAL RESOURCES			
a) Historic Resources	NI	None required	-
b) Archaeological Resources	PS	CULT-1: A Native American representative shall monitor all ground disturbing activities associated with the project. If	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		any subsurface archaeological resources are encountered during construction, all construction activities shall be halted within a 50-foot radius of the encounter until a qualified archaeologist can examine the materials, make a determination of their significance and, if significant, recommend further measures that would reduce potential effects of the project on the resources to a level that is less than significant, consistent with the requirements of CEQA Guidelines Section 15064.5. The Lodi Community Development Department shall be notified in the event of a discovery, The contractor shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in written reports to the Lodi Community Development Department, consistent with the requirements of the CEQA Guidelines. CULT-2: Grading and excavation personnel shall receive brief "tailgate" training by a qualified professional in the identification of archaeological resources, including human remains, and protocol for notification should such resources be discovered during construction work. A Native American representative shall be invited to this training to provide information on potential tribal cultural resources.	
c) Human Burials	PS	CULT-3: If evidence of human burial or scattered human remains is encountered, all construction activity in the vicinity of the encounter shall be immediately halted, and the County Coroner and the Lodi Community Development Department shall be immediately notified. The Community Development Department shall notify other federal and State agencies as required. The applicant will be responsible for compliance with the requirements of CEQA Guidelines Section 15064.5 as to the proper treatment of human remains as defined in CEQA	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		Guidelines Section 15064.5, with California Health and Safety Code Section 7050.5, and as directed by the County Coroner. If the human remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission, which will notify and appoint a Most Likely Descendant. The Most Likely Descendant will work with the archaeologist to decide the proper treatment of the human remains and any associated funerary objects, in accordance with California Public Resources Code Sections 5097.98 and 5097.991. Avoidance is the preferred means of disposition of the burial resources.	
3.6 ENERGY			
a) Project Energy Consumption	LS	None required	-
b) Consistency with Energy Plans	NI	None required	-
3.7 GEOLOGY AND SOILS			
a-i) Fault Rupture Hazards	NI	None required	-
a-ii, iii) Seismic Ground Shaking and Seismic-Related Ground Failure	LS	None required	-
a-iv) Landslides	NI	None required	-
b) Soil Erosion	PS	GEO-1: The City shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project in conjunction with obtaining the Construction General Permit from the State Water Resources Control Board (SWRCB). The City shall file a Notice of Intent with the SWRCB prior to commencement of construction activity and shall obtain the SWRCB Waste Discharger's Identification Number.	LS

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
c) Geologic Instability	LS	None required	-
d) Expansive Soils	LS	None required	-
e) Adequacy of Soils for Sewage Disposal	NI	None required	-
f) Paleontological Resources	PS	GEO-2: If any subsurface paleontological resources are encountered during construction, all construction activities shall be halted within a 50-foot radius of the encounter until a qualified paleontologist can examine the materials, make a determination of their significance and, if significant, recommend further measures that would reduce potential effects of the project on the resources to a level that is less than significant. The Lodi Community Development Department shall be notified in the event of a discovery. The contractor shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in written reports to the Lodi Community Development Department, consistent with the requirements of the CEQA Guidelines. Grading and excavation personnel shall receive brief "tailgate" training by a qualified professional in the identification of paleontological resources and protocol for notification should such resources be discovered during construction work.	LS
3.8 GREENHOUSE GAS EMISSIONS			
a) Project GHG Emissions	LS	None required	-
b) Consistency with GHG Reduction Plans	NI	None required	-
3.9 HAZARDS AND HAZARDOUS MATERIALS			
a) Hazardous Materials Transport, Use, and Storage	NI	None required	-
b) Upset and Accident Conditions	LS	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
c) Release of Hazardous Materials near Schools	NI	None required	-
d) Hazardous Materials Sites	NI	None required	-
e) Public Airports	NI	None required	-
f) Emergency Response and Evacuations	NI	None required	-
g) Wildland Fire Hazards	NI	None required	-
3.10 HYDROLOGY AND WATER QUALITY			
a) Water Quality	PS	Mitigation Measure GEO-1	LS
b) Groundwater Supplies and Recharge	NI	None required	-
c-i) Changes in Drainage Patterns	LS	None required	-
c-ii, iii) Drainage Patterns and Runoff	NI	None required	-
c-iv) Flooding Hazards	NI	None required	-
d) Release of Pollutants in Flood, Tsunami, or Seiche Zones	NI	None required	-
e) Conflicts with Water Quality or Groundwater Management Plans	NI	None required	-
3.11 LAND USE AND PLANNING			
a) Division of Established Community	NI	None required	-
b) Conflicts with Land Use Plans, Policies and Regulations	LS	None required	-
3.12 MINERAL RESOURCES			
a, b) Availability of Mineral Resources	NI	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.13 NOISE			
a) Generation of Noise Exceeding Local Standards	PS	NOISE-1: All equipment used on the construction site shall be fitted with mufflers in accordance with manufacturers' specifications. Mufflers shall be installed on the equipment at all times on the construction site.	LS
b) Exposure to Groundborne Vibrations	LS	None required	-
c) Public Airport and Private Airstrip Noise	NI	None required	-
3.14 POPULATION AND HOUSING			
a) Unplanned Population Growth	NI	None required	-
b) Displacement of Housing or People	NI	None required	-
3.15 PUBLIC SERVICES			
a-i) Fire Protection	NI	None required	-
a-ii) Police Protection	NI	None required	-
a-iii) Schools	NI	None required	-
a-iv) Parks	NI	None required	-
a-v) Other Public Facilities	NI	None required	-
3.16 RECREATION			
a) Increased Use of Existing Parks and Recreational Facilities	NI	None required	-
b) New or Expanded Recreational Facilities	LS	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.17 TRANSPORTATION			
a) Conflicts with Transportation Programs and Plans	NI	None required	-
b) Conflict with CEQA Guidelines Section 15064.3(b)	NI	None required	-
c) Transportation Hazards	NI	None required	-
d) Emergency Access	NI	None required	-
3.18 TRIBAL CULTURAL RESOURCES			
a, b) Tribal Cultural Resources	PS	TCR-1: If tribal cultural resources other than human remains and associated funerary objects are encountered, the Lodi Community Development Department shall be immediately notified of the find, and the Department in turn shall notify the appropriate Native American representatives. A qualified archaeologist and the Native American representative shall examine the materials and determine their "uniqueness" or significance as tribal cultural resources and shall recommend mitigation measures needed to reduce potential cultural resource effects to a level that is less than significant in a written report to the Community Development Department, with a copy to the Native American representatives involved with the resource. The Community Development Department will be responsible for implementing the report recommendations. Avoidance is the preferred means of disposition of tribal cultural resources.	LS
3.19 UTILITIES AND SERVICE SYSTEMS			
a) Relocation or Construction of Utility Facilities	NI	None required	-
b) Water System and Supplies	NI	None required	-

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
c) Wastewater Treatment Capacity	NI	None required	-
d) Solid Waste Services	NI	None required	-
e) Compliance with Solid Waste Regulations	LS	None required	-
3.20 WILDFIRE			
a) Emergency Response Plans and Emergency Evacuation Plans	NI	None required	-
b) Exposure of Project Occupants to Wildfire Hazards	NI	None required	-
c) Installation and Maintenance of Infrastructure	NI	None required	-
d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes	NI	None required	-
3.21 MANDATORY FINDINGS OF SIGNIFICANCE			
a) Findings on Biological and Cultural Resources	PS	Mitigation measures in Sections 3.4, 3.5, and 3.18 above.	LS
b) Findings on Cumulatively Considerable Impacts	LS	None required	-
c) Findings on Adverse Effects on Human Beings	LS	None required	-

Notes: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

2.0 PROJECT DESCRIPTION

2.1 Project Location

The proposed project is located along the south bank of the Mokelumne River within Lodi Lake Park, a municipal park in the northwestern portion of the City of Lodi in San Joaquin County (Figure 2-1). The project site is shown on the U.S. Geological Survey's Lodi North, California, 7.5-minute quadrangle map as within Section 35, Township 4 North, Range 6 East, Mt. Diablo Base and Meridian. The approximate latitude and longitude of the project site are 38º 08' 46" North and 121º 17' 46" West, respectively.

2.2 Project Details

The project proposes to construct approximately 1,600 linear feet of riverbank stabilization and habitat restoration in two work areas (Figure 2-2a, b, and c). The work areas consist of riverbank areas that have been eroded, causing loss of recreational land and oversteepening. More detailed plan view drawings of the project work are available in Appendix A of this IS/MND.

The project area totals 3.34 acres above and below the ordinary high-water mark (OHWM) of the Mokelumne River. The project would involve bank stabilization and wetland restoration in approximately 1.13 acres of riverbank located below the OHWM and 0.14 acres above the OHWM. Existing concrete debris, up to approximately two feet deep, would be removed from these areas, which would then be graded and protected from further erosion with a blanket of RSP.

Wetland habitat restoration would occur on approximately 0.29 acres of riverbank spanning the OHWM, between areas of riverbank stabilization and existing upland park areas. In these areas, soil would be placed and planted with emergent wetland species. A small fraction of the area above the OHWM (0.05 acres) would be restored to upland turf area, which would be returned to park use. Fill areas and material quantities associated with the project are shown in Table 2-1.

Of the total work area, the majority (2.07 acres) would consist of lands required for construction access. The majority of this area (1.67 acres) would be existing upland park area located above the OHWM. The "construction access" lands also include a strip approximately 10 feet in width located outside the proposed riverbank stabilization area that may require minor disturbance in conjunction with placement of RSP.

TABLE 2-1
QUANTITIES OF AREAS AFFECTED AND MATERIAL

Quantity (Area or Volume)	Uplands	Waters of The U.S.[1]	Total
Work Area (acres)	0.14	1.13	1.27
Temporary Disturbance (acres)	1.67	0.40	2.07
TOTAL ACRES	**1.81**	**1.53**	**3.34**
Excavation: Rubble (cubic yards)	13	569	582
Fill: Soil (cubic yards)	93	569	662
Fill: RSP (cubic yards)	115	4,166	4,281
TOTAL FILL (CUBIC YARDS)	**208**	**4,735**	**4,943**

[1] Includes 1.51+/- acres of open waters below the ordinary high water mark (OHWM, elevation = 42.0 feet) and 0.024+/- acres of wetlands spanning the OWHM.

[2] RSP = rock slope protection

RSP would consist of 18-inch minus quarry stone obtained from off-site commercial sources. RSP materials would be composed of various sizes and weights, primarily of rocks 12 to 18 inches in diameter, with smaller rock used to fill in the gaps between the larger rocks. As shown in Table 2-1, nearly all the RSP would be placed below the OHWM.

Construction of erosion protection in riverbank stabilization areas would begin with removal of existing concrete rubble along the riverbank at the project site with excavators and other construction equipment operating from the riverbank and disposed off-site. Rubble removal would be limited to the portion of the work areas above the water surface elevation while the lake is drained (i.e., elevation of approximately 34 feet) during the annual lake maintenance period in February. The underlying slopes would be regraded as required to establish a uniform bed for RSP, which would be placed with long-reach excavators. RSP would initially be placed at the lower limit of the protected area, then stacked working from the bottom back up to the top of the slope. The RSP would be stabilized and secured in place by bucket tamping and pressing by the excavator. Although some minor regrading of the slope would be required, no soil would be removed from the site.

Fill soil would be imported from off-site commercial sources and placed in specified areas above and below the OHWM in areas above proposed RSP placement. Most of this soil (569 cubic yards) would be placed in proposed emergent marsh restoration areas immediately below the OHWM. Small portions of the fill soil (93 cubic yards) would be placed areas planned to support installation of grass sod.

Access for construction equipment and vehicles would be provided from existing road along the northern shoreline of Lodi Lake. It is expected that project construction would

use a long-reach excavator, a front-end loader/backhoe, 2-3 pickups, and 6-10 double-bottom trailer haul trucks.

The project would involve the removal of approximately 25 non-native trees along the riverbank, along with the trimming of a few native trees. These trees would be replaced by native oaks and native riparian tree species, which would be planted along the bank in approximately the same locations as where the trees were removed.

Construction is anticipated to occur in February 2021 during the annual draining of the lake and river levels are at their lowest. Most of the construction work, including all grading and slope stabilization, is anticipated to take no longer than one month. Tree planting, installation of emergent wetland species in the habitat restoration areas, and installation of irrigation for the new trees are expected to occur within a few months of grading and slope stabilization.

2.3 Avoidance and Minimization Measures

While the project has been designed to avoid and/or minimize potential environmental impacts, particularly on biological resources, further avoidance and minimization measures would be incorporated by the project. Proposed avoidance and minimization measures include the following:

- Construction access via adjacent existing developed parklands.
- Minimization of overall construction disturbance areas.
- Staging areas located in existing disturbed area.
- Minimize impacts to potentially jurisdictional Waters of the U.S. and wetlands by restricting all work to the project footprint and adjacent temporary construction areas, as proposed. Permits from the U.S. Army Corps of Engineers (Corps), the California Department of Fish and Wildlife, and the Central Valley Regional Water Quality Control Board shall be secured prior to the placement of any fill material within the jurisdictional Waters of the U.S. The City shall implement all permit conditions and mitigation measures related to the protection of sensitive habitats and species, including any conditions resulting from Corps Section 7 consultations with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, such as project scheduling and implementing appropriate construction Best Management Practices.
- Implement standard Best Management Practices for vegetation protection, including fencing of avoided valley oaks and other native tree species in or near construction area.
- Project construction shall be scheduled during February when the lake is drained to reduce the potential for sedimentation of the Mokelumne River, and associated impacts to aquatic resources including special-status fish. During the wintertime lake maintenance period, the upper approximate eight (8) feet of the bank

stabilization will be dry. Project construction outside the avian nesting season will also minimize potential impacts to nesting birds.

The collective implementation of these avoidance and minimization measures as a part of the project would assure the protection of sensitive habitat and species and the maintenance of biological functions and values.

2.4 Permits and Approvals

The project is consistent with the existing Lodi General Plan and zoning designations. As such, project approvals would be limited to site plan approvals by the City. Typically, work in river channels would require a Section 404 permit from the Corps; however, it is probable that the project would require a Nationwide Permit 27 (see Section 3.4, Biological Resources, for a more detailed discussion of Corps permits). As the Mokelumne River is a Designated Floodway, an encroachment permit from the Central Valley Flood Protection Board would be required. Other agencies from whom permits or approvals would be required include the CDFW (Streambed Alteration Agreement) and the Central Valley RWQCB (Section 401 Water Quality Certification).

SOURCE: Moore Biological Consultants

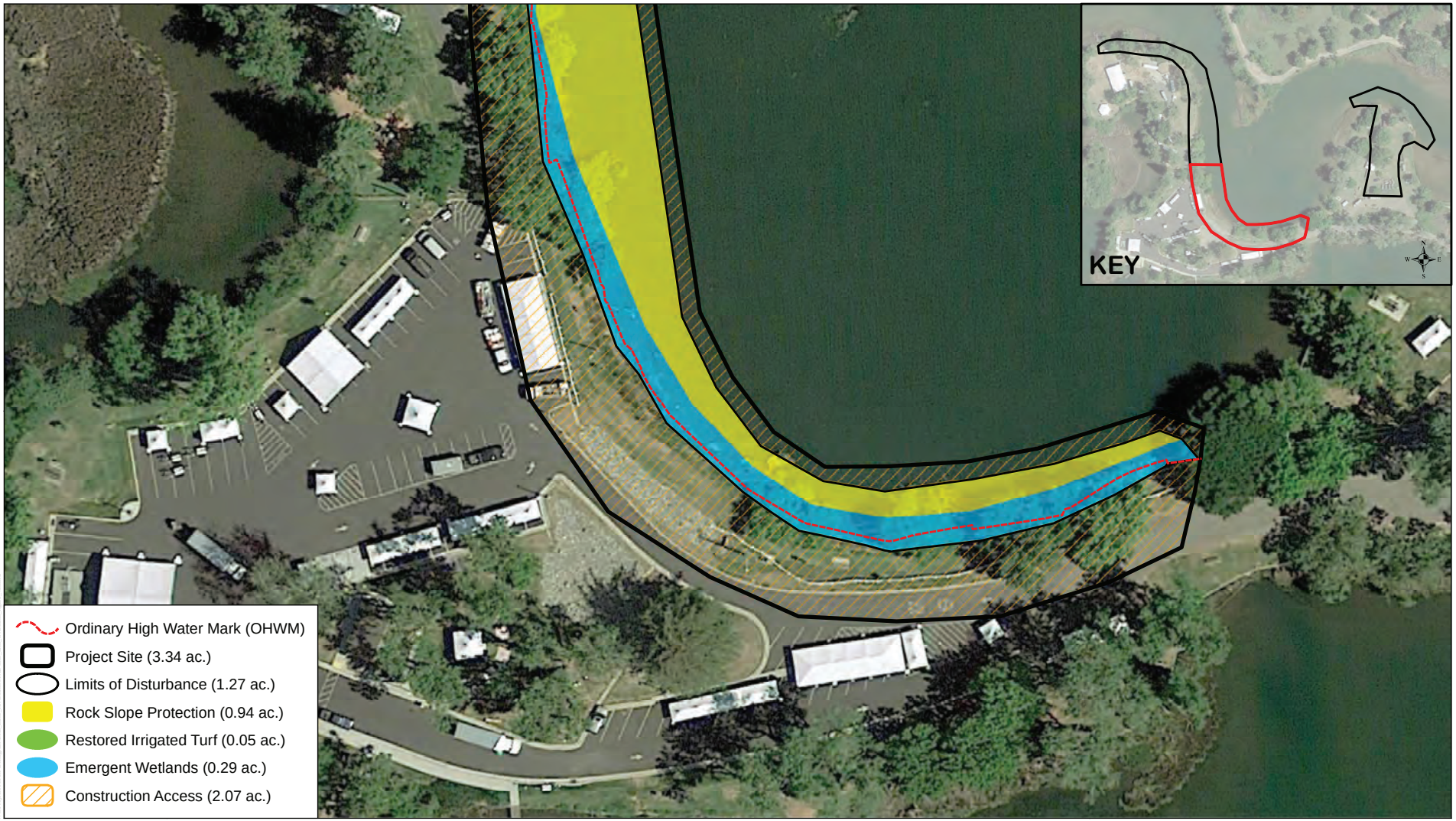
BaseCamp Environmental

Figure 2-1
PROJECT SITE

SOURCE: Moore Biological Consultants

BaseCamp Environmental

Figure 2-2A
PROJECT ELEMENTS-WEST PART



SOURCE: Moore Biological Consultants

BaseCamp Environmental

Figure 2-2B
PROJECT ELEMENTS-CENTRAL PART

SOURCE: Moore Biological Consultants

BaseCamp Environmental

Figure 2-2C
PROJECT ELEMENTS-EAST PART

3.0 ENVIRONMENTAL CHECKLIST FORM

3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			✓	
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?				✓

NARRATIVE DISCUSSION

Environmental Setting

Lodi Lake Park is a municipal park along the Mokelumne River. The park surrounds the lake and includes miles of river frontage. The lake, swimming beach, and picnic areas on the south shore of Lodi Lake are visible from Turner Road, a highly used public roadway, between Mills Avenue and Laurel Avenue.

The project site is along the bank of the Mokelumne River, with grassy areas interspersed with trees of various species and sizes, and reeds in the water areas. It is not visible from the main public roads in the area, except for portions that are visible from the northern end of Laurel Avenue, a residential street east of Lodi Lake Park. The Rotary Area and the Youth Activity Area, adjacent to the project site, have some developed recreational facilities and paved parking spaces, as described in Chapter 1.0, Introduction. Both recreational areas have lighting, but the project site itself has no lights.

Views from the project site and vicinity are of predominantly natural landscapes found along Lodi Lake and the Mokelumne River. Views of large buildings on the former General Mills facility south of Turner Road are available to the southwest from areas of

the lakeshore near the project site. Single-family residences are visible along the eastern shoreline of Lodi Lake.

The recently revised Appendix G of the CEQA Guidelines mentions California Public Resources Code Section 21099, which states that the aesthetic and parking impacts of residential, mixed-use residential, or employment center projects on an infill site within a transit priority area shall not be considered significant. Public Resources Code Section 21099 does not apply to the project, as it does not meet any of the criteria.

Environmental Impacts and Mitigation Measures

a) Scenic Vistas.

The project site is in a park setting, surrounded by view-obscuring trees along the Mokelumne River and near Lodi Lake. Because of this, there are no available distance views or scenic vistas from the project site itself. The project would not change this existing condition; therefore, the project would have no impact on scenic vistas.

b) Scenic Resources.

The project would require the removal of 25 non-native trees on the riverbank, mainly those close to the water. The overall visual character of the project site would not change significantly even with tree removal. The landscape would still be that of riparian woodland, with the addition of grass and aquatic vegetation consistent with the existing landscape. The removed trees would be replaced by native tree species, which when mature would improve the visual character of the riparian area. Since the project is intended to reduce erosion potential along the riverbank, it would reduce the likelihood of trees falling into the river, as is currently occurring, and would maintain the riparian landscape. Existing concrete rubble would be removed, further improving the appearance of the landscape.

No other scenic resources such as those named in this checklist are on the project site. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. There are only two officially designated state scenic highways within San Joaquin County: Interstate 5 (I-5) from the Stanislaus County Line to Interstate 580 (0.7 miles), and Interstate 580 from I-5 to the Alameda County Line (15.4 miles). Both are in southwestern San Joaquin County, away from the project site (Caltrans 2017). San Joaquin County has designated 26 local scenic highways; however, the nearest to the project site is Interstate 5 to the west (San Joaquin County 2016). Project impacts on scenic resources would be less than significant.

c) Visual Quality of Public Views.

As noted, the project site is not visible from the main public roads in the area. In addition, as noted in b) above, the overall visual character of the project site would not substantially change as a result of the project. The visual character may improve with the planting of native trees, including oaks, to replace removed trees.

Lodi Municipal Code Chapter 17.30 sets forth provisions for landscaping, in part to preserve and enhance the visual character of the community. However, this chapter applies to new or expanded urban development, not to parks. As noted, the project intends to maintain the riparian landscape on the project site, along with its visual quality. Project impacts on visual quality of public views would be less than significant.

d) Light and Glare.

The project does not propose to install any lighting. Existing lighting in the Rotary Area and the Youth Activity Area would not change as a result of the project. The project would add RSP and vegetation, neither of which would generate any glare. The project would have no impact related to light or glare.

3.2 AGRICULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✓
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
e) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?				✓

NARRATIVE DISCUSSION

Environmental Setting

The project site is within a park, which is not used for agricultural activities. The Important Farmland Maps, prepared by the California Department of Conservation as part of the Farmland Mapping and Monitoring Program, designate the viability of lands for farmland use, based on the physical and chemical properties of the soils. The maps categorize farmland, in decreasing order of soil quality, as "Prime Farmland," "Farmland

of Statewide Importance," "Unique Farmland," and "Farmland of Local Importance." The 2016 Important Farmland Map of San Joaquin County designates the project site as Urban and Built-Up Land (FMMP 2016).

Environmental Impacts and Mitigation Measures

a) Agricultural Land Conversion.

As noted, the project site is not in agricultural use; it is in a City park. The project site is classified as Urban and Built-Up Land; as such, it is not Farmland. The project would not convert Farmland, so the project would have no impact on agricultural land conversion.

b) Agricultural Zoning and Williamson Act.

The project site is designated as, and zoned for, Open Space. It is not zoned for agricultural use. The Williamson Act preserves agricultural land by means of a contract between the landowner and local government that keeps the contracted land in agricultural use in exchange for a lower property tax assessment. As the project site is not agricultural land, it is not under a Williamson Act contract. The project would have no impact on agricultural zoning or Williamson Act contracts.

c, d) Forest Lands.

The forest land of concern in this section is land that is primarily used for timber production. The trees in Lodi Lake Park, including the project site, are intended to be preserved rather than harvested for timber. No forest land has been designated in the City of Lodi or in San Joaquin County. As noted in a) above, the project site is zoned Open Space; no forest or timberland zoning has been applied. The project would have no impact on forest zoning or conversion of forest land.

e) Indirect Conversion of Farmland or Forest Land.

There is no agricultural land in the immediate vicinity of the project site; most of the surrounding area is undeveloped or has urban development. The project involves restoration of a riverbank in a park; it would not add infrastructure or undertake any other activity that would facilitate the conversion of agricultural land in the area to non-agricultural uses. The project would have no impact on indirect conversion of agricultural lands. As noted above, there is no designated forest land in the vicinity, so the project would have no impact on indirect conversion of forest land.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollutant control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan?			✓	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?				✓
c) Expose sensitive receptors to substantial pollutant concentrations?			✓	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			✓	

NARRATIVE DISCUSSION

Environmental Setting

The project area is within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD), which includes San Joaquin County, has jurisdiction over most air quality matters in the Air Basin. The SJVAPCD is tasked with implementing programs and regulations required by both the federal and California Clean Air Acts. Under their respective Clean Air Acts, both the State of California and the federal government have established ambient air quality standards for six criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. California has four additional criteria pollutants under its Clean Air Act. Table 3-1 shows the current attainment status of the Air Basin relative to the federal and State ambient air quality standards for criteria pollutants. Except for ozone and particulate matter, the Air Basin is in attainment of, or unclassified for, all federal and State ambient air quality standards.

Ozone is not emitted directly into the air but is formed when reactive organic gases (ROG) and nitrogen oxides (NO_x) react in the atmosphere in the presence of sunlight. The SJVAPCD currently has a 2007 Ozone Plan and a 2013 Plan for the Revoked 1-Hour Ozone Standard for the Air Basin to attain federal ambient air quality standards for ozone.

TABLE 3-1
SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS

	Designation/Classification	
Criteria Pollutant	**Federal Primary Standards**	**State Standards**
Ozone - One hour	No Federal Standard	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide (NO_x)	Attainment/Unclassified	Attainment
Sulfur Dioxide (SO_x)	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2020.

Particulate matter is a mixture of solid and liquid particles suspended in air, including dust, pollen, soot, smoke, and liquid droplets. In San Joaquin County, particulate matter is generated by a mix of rural and urban sources, including agricultural operations, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. Two types of particulate matter are monitored: particulate matter 10 micrometers or less in diameter (PM_{10}), and particulate matter 2.5 micrometers or less in diameter ($PM_{2.5}$, also called "fine particulate matter"). The SJVAPCD currently has a 2015 $PM_{2.5}$ Plan for the 1997 federal $PM_{2.5}$ standard, a 2012 $PM_{2.5}$ Plan for the 2006 federal $PM_{2.5}$ standard, a 2016 Moderate Area Plan for the 2012 federal $PM_{2.5}$ standard, and a 2007 PM_{10} Maintenance Plan to maintain the Air Basin's attainment status of the federal PM_{10} standard.

In addition to the criteria pollutants, the California Air Resources Board (ARB) has identified other air pollutants as toxic air contaminants (TACs) - pollutants that are carcinogenic (i.e., cause cancer) or that may cause other adverse short-term or long-term health effects. Diesel particulate matter, considered a carcinogen, is the most common TAC, as it is a product of combustion in diesel engines. Other TACs are less common and are typically associated with industrial operations.

The SJVAPCD has set forth rules and regulations that are intended to control pollutant emissions, thereby leading to attainment of air quality standards. Rules and regulations potentially applicable to the project are summarized below.

Regulation VIII (Fugitive Dust PM_{10} Prohibitions)

Rules 8011-8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

Rule 4101 (Visible Emissions)

This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

Environmental Impacts and Mitigation Measures

In 2015, the SJVAPCD adopted a revised Guide for Assessing and Mitigating Air Quality Impacts. The Guide defines an analysis methodology and thresholds of significance for the assessment of air quality impacts for projects within SJVAPCD's jurisdiction, along with potential mitigation measures to avoid or reduce adverse air quality impacts (SJVAPCD 2015). Table 3-2 shows the CEQA thresholds for significance for pollutant emissions within the SJVAPCD. The significance thresholds apply to emissions from both project construction and project operations.

TABLE 3-2
SJVAPCD SIGNIFICANCE THRESHOLDS
AND PROJECT CONSTRUCTION EMISSIONS

Pollutant	Significance Threshold (tons/year)	Construction Emissions (tons per construction period)
ROG	10	<0.01
NO_x	10	0.04
CO	100	0.06
SO_x	27	<0.01
PM_{10}	15	<0.01
$PM_{2.5}$	15	<0.01

Note: Construction period anticipated to be one month.
Sources: Road Construction Emissions Model, SJVAPCD 2015.

Air pollutant emissions associated with the project would be generated by construction activities; no emissions would be generated after construction work is completed. Construction work would involve the use of heavy equipment powered by diesel or other internal combustion engines. The Road Construction Emissions Model (RCEM) was used to estimate the pollutant emissions that would result from such equipment use. Originally developed for road projects, the RCEM has been adapted to provide emission estimates for projects that are generally linear in character. The RCEM run assumed the use of construction equipment and vehicles described in Chapter 2.0, Project Description. Appendix B of this IS/MND shows the RCEM results, and Table 3-2 presents a summary of the results.

a) Air Quality Plan Consistency.

As indicated in Table 3-2, project construction emissions would not exceed the SJVAPCD significance thresholds. Once construction work is completed, the project would not generate any ongoing air pollutant emissions. Because of this, the project would not interfere with attainment of the objectives of the air quality plans adopted by SJVAPCD.

While construction emissions would not be significant, the project still would be required to observe applicable SJVAPCD rules and regulations. As noted, SJVAPCD Regulation VIII contains measures to reduce fugitive dust emissions during construction. Dust emission control measures in Regulation VIII relevant to the project include the following:

- Air emissions related to the project shall be limited to 20% opacity (opaqueness, lack of transparency) or less, as defined in SJVAPCD Rule 8011. The dust control measures specified below shall be applied as required to maintain the Visible Dust Emissions standard.
- The contractor shall pre-water all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and phase earthmoving.
- The contractor shall restrict vehicular access to the disturbance area during periods of inactivity.
- When materials are transported off-site, the contractor shall stabilize and cover all materials to be transported and maintain six inches of freeboard space from the top of the container.
- The contractor shall remove carryout and trackout of soil materials on a daily basis unless it extends more than 50 feet from site; carryout and trackout extending more than 50 feet from the site shall be removed immediately. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden. If the project would involve more than 150 construction vehicle trips per day onto the public street, additional restrictions specified in Section 5.8 of SJVAPCD Rule 8041 would apply.

Dust control provisions are routinely included in site improvement plans and specifications, along with construction contracts. Implementation of the applicable rules and provisions would further reduce project emissions already considered less than significant.

b) Cumulative Emissions.

As noted in a) above, the project would not generate any operational emissions (i.e., emissions after construction work is completed). As such, the project would not make a cumulative contribution to any criteria pollutant for which the SJVAPCD is in nonattainment under applicable federal or State ambient air quality standards, which as noted above are ozone and particulate matter. The project would have no impact related to cumulative air pollutant emissions.

c) Exposure of Sensitive Receptors.

"Sensitive receptors" refer to those segments of the population most susceptible to poor air quality, mainly children, the elderly, and people with pre-existing serious health problems affected by air quality. Land uses where sensitive individuals are most likely to spend time also may be called sensitive receptors; these include schools and schoolyards, parks and playgrounds, day care centers, nursing homes, hospitals, and residential communities (SJVAPCD 2015).

Project construction would occur within a park, adjacent to picnic areas. Also, single-family residences are located along the eastern boundary of Lodi Lake Park. The nearest distance between the residential area and the Rotary Area portion of the project site is approximately 670 feet.

However, construction work is anticipated to occur during the month of February, when use of the adjacent recreational areas would be lower due to the weather that typically occurs in that month. Construction work would be limited to the one month, after which no emissions would be generated. Because of this and the distance between the nearest portion of the project site from the residential area to the east, exposure of sensitive receptors would be very limited during project construction and would be nonexistent after construction work is completed. Project impacts related to exposure of sensitive receptors would be less than significant.

d) Odors and Other Emissions.

The project may result in localized odors during construction activities, mainly from construction equipment emissions. However, as noted in c) above, these emissions would last only about a month, and potential sensitive receptors are unlikely to be exposed to such odors due to distance.

Emissions of diesel particulate matter, a TAC, would likely be generated by diesel engines in construction equipment and traffic to and from the project site. However, as discussed in c) above, there would be no sensitive receptors in the vicinity that would experience prolonged exposure to these emissions, which would cease once construction

work is completed. Project impacts related to odors and other emissions, including TACs, would be less than significant.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		✓		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game 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?				✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?			✓	

NARRATIVE DISCUSSION

Environmental Setting

Information for this section was primarily obtained from a biological assessment conducted for the project site by Moore Biological Consultants. Appendix C contains the biological assessment. The assessment included a search of the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Wildlife (CDFW), review of the IPaC Trust Report of Federally Threatened and Endangered Species by the U.S. Fish and Wildlife Service (USFWS), and field surveys

conducted on February 6, April 9, May 14, June 3, June 6, and July 31, 2019, and January 24, February 3, and February 6, 2020. As part of the biological assessment, West Coast Arborists conducted a site review on June 20, 2019 to assess trees on the project site for general health and public safety considerations and to provide recommendations for tree removal or trimming.

Additional information pertaining to fish species is provided by a report from FISHBIO. FISHBIO reviewed the UC Davis PISCES database and the IPaC and NOAA Fisheries websites and conducted a field survey of the project site on February 6, 2019. The FISHBIO report is also available in Appendix C.

Existing Conditions

The project site includes two areas of eroded riverbank along the south bank of the Mokelumne River within Lodi Lake Park. Elevations of the site range from approximately sea level to 45 feet above mean sea level. Much of the project area has eroded to sandy beaches and the river is now undercutting upland habitats, leading to the collapse of previously placed concrete rubble armoring due to cavitation. Erosion has exposed the rootballs of trees, and several trees are leaning or have fallen into the river.

Habitats within the site include landscaped areas associated with the park, a variety of natural volunteer and ornamental trees, the lakebed covered with rubble, and a small emergent wetland in a shallow water area along the bank. Lands just south of the project site include Lodi Lake and other landscaped areas of the park.

Vegetation

Vegetation communities on the project site include manicured lawn, ruderal grassland, degraded riparian forest and scrub, and emergent wetlands. Most of the project site is manicured lawn and open water devoid of vegetation. The bank of the Mokelumne River supports a discontinuous and narrow fringe of native riparian forest and riparian scrub species interspersed with numerous non-native and ornamental tree species. Dominant native trees along the shoreline include valley oak, coast live oak, Fremont's cottonwood, polished willow, and box elder. Dominant non-native and ornamental tree species include black locust, common privet, and cork oak. Himalayan blackberry, California wild grape, and Pacific poison oak are dominant shrubs and vines in areas where there is an understory.

Narrow strips of highly disturbed ruderal grassland vegetation are found between the manicured lawn areas and the river shoreline; dominant grassland species include ripgut brome, foxtail barley, Dallis grass, and Bermuda grass. Within the project site, there is a small patch of emergent wetland vegetation that is dominated by cattails. There are lesser amounts of curly dock, umbrella sedge, and other sedges.

Wildlife

Well-developed riparian wetlands and woodlands along the Mokelumne River in the greater project vicinity provide habitat for a variety of wildlife species. In addition to resident wildlife, the river corridor provides seasonal habitats for a migratory wildlife,

primarily waterfowl, other birds, and fish. In contrast, the manicured lawn areas are intensively maintained and do not provide high-quality foraging habitat for birds or other wildlife species. The small patch of emergent wetlands and the degraded riparian forest and scrub along the shoreline provide suitable habitat for nesting birds, although utilization may be limited by noise disturbance.

A variety of bird species were observed during the field surveys; all of these are common species found in riparian and urban areas of San Joaquin County. Mallard, great egret, turkey vulture, red-tailed hawk, Swainson's hawk, acorn woodpecker, California scrub jay, black phoebe, American robin, and red-winged blackbird are representative of the avian species observed in the site. There are several potential nest trees in and near the project site that are suitable for nesting raptors and other protected migratory birds. It is considered likely that numerous songbirds nest within trees, shrubs, and emergent wetland vegetation in or adjacent to the site each year.

A variety of mammals common to riparian and urban areas likely occur in the project site. Raccoon, muskrat, and western gray squirrel were the only mammals observed during the surveys. Mule (black-tail) deer, beaver, striped skunk, Virginia opossum, and California ground squirrel may also occur in the area on occasion. A number of species of small rodents, including mice and voles, also likely occur. Based on habitat types present, a variety of amphibians and reptiles may use habitats in and adjacent to the site. Western fence lizard was observed on the site; western pond turtle and red-eared slider were observed in other parts of Lodi Lake. Other species such as common garter snake, American bullfrog, Pacific chorus frog, and gopher snake are known to occur in the greater project vicinity and may occur in the site on occasion.

Native fish known to occur or were historically present near the project site include multiple runs of Chinook salmon, Central Valley steelhead, threespine stickleback, prickly sculpin, riffle sculpin, Sacramento blackfish, Sacramento hitch, Sacramento pikeminnow, speckled dace, Sacramento splittail, Sacramento sucker, and thicktail chub. Non-native species that may be present include black bullhead, black crappie, bluegill sunfish, brown bullhead, brown trout, channel catfish, common carp, golden shiner, goldfish, green sunfish, largemouth bass, redear sunfish, smallmouth bass, spotted bass, threadfin shad, white catfish, western mosquitofish, and white crappie. A CDFW hatchery for Chinook salmon and steelhead is operated approximately 23 miles upstream of the project site at the base of Camanche Dam.

Waters of the U.S. and Wetlands

The federal Clean Water Act provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 404 of the Clean Water Act established a permit program administered by the U.S. Army Corps of Engineers (Corps) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands.

In the vicinity of Lodi, the Mokelumne River is a Water of the U.S., subject to Section 404 of the Clean Water Act. The limit of federal jurisdiction is the OHWM, which has been determined to be at an elevation of approximately 42 feet above mean sea level at the project site. The project site contains approximately 1.51 acres of Waters of the U.S. below the OHWM. This 1.51-acre area is open waters devoid of vegetation that are best described as "other waters". In addition, there is a small patch (0.024 acre) of emergent wetland vegetation spanning the OHWM in the west work area that would be subject to Section 404 permitting. No other wetlands or Waters of the U.S. were observed on or near the project site.

The Mokelumne River also falls under the jurisdiction of the CDFW and the Regional Water Quality Control Board (RWQCB), Central Valley Region. The CDFW has a Streambed Alteration Agreement (California Fish and Game Code Section 1600 *et seq.*) that would apply to projects that alter stream beds and banks. The RWQCB is responsible for the Clean Water Act Section 401 Water Quality Certification that would be required along with the Section 404 permit.

Special-Status Species

Special-status species are plants and animals that are legally protected under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other regulations. Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat.

Table 3-3 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

TABLE 3-3
SPECIAL-STATUS SPECIES AND POTENTIAL FOR OCCURRENCE

Species	**Listing Status**	**Potential for Occurrence**
PLANTS		
Succulent owl's clover	Federal threatened, State endangered, CNPS 1B	Unlikely: there are no vernal pools or seasonal wetlands in the project site. The site is not in designated critical habitat for succulent owl's clover.
Legenere	CNPS 1B	Unlikely: there are no vernal pools or seasonal wetlands in the project site.
Mason's lilaeopsis	State rare, CNPS 1B	Unlikely: the small patch of emergent wetland

Species	Listing Status	Potential for Occurrence
		vegetation in the site provides low-quality habitat; this species is almost entirely restricted to tidal delta habitats.
Sanford's arrowhead	CNPS 1B	Unlikely: the small patch of emergent wetland vegetation in the site provides low-quality habitat for this species.
Suisun marsh aster	CNPS 1B	Unlikely: the small patch of emergent wetland vegetation in the site provides low quality habitat for Suisun marsh aster; this species is almost entirely restricted to tidal delta habitats.
WILDLIFE		
Birds		
Swainson's hawk	State threatened	Moderate: there are several potentially suitable nest trees in and adjacent to the project site. Swainson's hawks were observed nesting in a tree approximately 300 feet northeast of the project site during Spring 2019 surveys.
Tricolored blackbird	State threatened	Low: the small patch of emergent wetland vegetation in the site provides very low-quality nesting habitat for tricolored blackbird. More extensive patches of emergent wetland vegetation, blackberry brambles, and patches of wild rose along the shores of Lodi Lake may be suitable for nesting.
Burrowing owl	State Species of Special Concern	Unlikely: the manicured lawns do not provide suitable habitat for burrowing owls. No burrowing owls or burrows with evidence of past or current use by burrowing owls were observed in or near the site.
Western yellow-billed cuckoo	Federal threatened, State endangered	Unlikely: there is no well-developed riparian forest vegetation in the project site. Western yellow-billed cuckoo is not known from this part of the valley.
Song sparrow ("Modesto Population")	State Species of Special Concern	Unlikely: the small patch of emergent wetland vegetation in the site provides very low-quality nesting habitat for song sparrow. More extensive patches of emergent wetland vegetation, blackberry brambles, and patches of wild rose along the shores of Lodi Lake may be suitable.
Yellow warbler	State Species of Special Concern	Unlikely: the trees and shrubs along Lodi Lake and the Mokelumne River provide low-quality yet potentially suitable nesting habitat for this species.

Species	Listing Status	Potential for Occurrence
Mammals		
Riparian brush rabbit	Federal endangered, State endangered	Unlikely: the riparian forest habitat along the Mokelumne River and Lodi Lake is potentially suitable for this species. However, riparian brush rabbit is not known from this part of the valley.
Reptiles and Amphibians		
Giant garter snake	Federal threatened, State threatened	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable habitat for giant garter snake.
California red-legged frog	Federal threatened, State Species of Special Concern	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable habitat for California red-legged frog, which is presumed extinct on the floor of the Central Valley. The project site is not within designated critical habitat for California red-legged frog.
California tiger salamander	Federal threatened, State threatened	Unlikely: there are no potential breeding ponds for California tiger salamander in or adjacent to the site. California tiger salamander primarily occurs in the transitional band between the valley floor and foothills to the east and is not known to occur in the project vicinity. The project site is not within designated critical habitat for California tiger salamander.
Western pond turtle	State Species of Special Concern	Moderate: Lodi Lake and the Mokelumne River provide suitable aquatic habitat for this species. A western pond turtle was observed basking on a log in Lodi Lake east of project site during a Spring 2019 survey.
Foothill yellow-legged frog	State Species of Special Concern	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable aquatic habitat for this species. Foothill yellow-legged frog is not known to occur on the valley floor.
Invertebrates		
Vernal pool fairy shrimp	Federal threatened	Unlikely: there are no vernal pools in or adjacent to the site. The site is not within designated critical habitat for vernal pool fairy shrimp.
Vernal pool tadpole shrimp	Federal endangered	Unlikely: there are no vernal pools in or adjacent to the site. An occurrence of this species is mapped non-specifically in downtown Lodi, but the exact location of this historical population is not known. The site is not within designated critical habitat for vernal

Species	Listing Status	Potential for Occurrence
		pool tadpole shrimp.
Valley elderberry longhorn beetle	Federal threatened	Unlikely: there were no blue elderberry shrubs observed in or adjacent to the project site. The site is not within designated critical habitat for valley elderberry longhorn beetle.
Fish		
Central Valley steelhead	Federal threatened	Possible: project operations have the potential to impact both juveniles and adults. However, considering the predominant mid-channel habitat utilization of migrating adults and the poor quality habitat available for spawning and rearing within the project site, it can be assumed that any species use of the project site would be limited to as a migratory corridor.
Chinook salmon, Central Valley spring-run	Federal threatened, State threatened	Unlikely: the project area offers low habitat value for rearing and little potential spawning habitat for anadromous salmonids due to overall depth and substrate composition.
Chinook salmon, Sacramento River winter-run	Federal threatened, State endangered	Unlikely: the project area offers low habitat value for rearing and little potential spawning habitat for anadromous salmonids due to overall depth and substrate composition. Also, this species is primarily relegated to the Sacramento River system throughout the freshwater portion of their lifecycle.
Chinook salmon, Central Valley fall-run	State Species of Special Concern	Low: given the intended timing of the project, it is possible that juvenile fall-run Chinook salmon may be affected by the project. However, exposure may be limited, as the majority of migrating juveniles during this time period would consist of the sac-fry to fry life stage and may still be rearing further upstream away from the project site.
Green sturgeon, southern Distinct Population Segment	Federal threatened	Unlikely: little to no spawning occurs in the San Joaquin Basin. The project site is located well outside the primary Sacramento River migratory corridor.

Note: California Native Plant Society (CNPS) List 1B includes plant species that are rare, threatened, or endangered in California and elsewhere.
Sources: Moore Biological Consultants 2020, FISHBIO 2020.

Habitat Conservation Plans and Ordinances

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is a comprehensive program for assessing and mitigating the biological impacts of converting open space or biologically sensitive lands to urban development in San Joaquin County, including the City of Lodi. For the conversion of open space to non-open space uses that affect covered plant, fish, and wildlife species, the SJMSCP provides three compensation methods: preservation of existing sensitive lands, creation of new comparable habitat on the project site, or payment of fees that would be used to secure preserve lands outside the project site. In addition to fee payments, the SJMSCP identifies and requires the applicants to abide by Incidental Take Minimization Measures, which are protection measures that avoid direct impacts of development on special-status species (SJCOG 2000). The San Joaquin Council of Governments (SJCOG) implements the SJMSCP on a project-by-project basis.

Environmental Impacts and Mitigation Measures

a) Special-Status Species.

As indicated by Table 3-3, the likelihood of occurrence of listed, candidate, and other special-status species in the project site is generally low. The special-status plants generally occur in relatively undisturbed areas and are largely found within unique vegetation communities such as vernal pools, chenopod scrub, chaparral, marshes and swamps, and areas with unique soils. The project site does not provide highly suitable habitat for any of the plant species listed in Table 3-3 and is entirely unsuitable for most of the plants.

The potential for intensive use of habitats within the project site by special-status wildlife species listed in Table 3-3 is generally low. While the project site may have provided habitat for several special-status wildlife species at some time in the past, the construction of the dam creating Lodi Lake and associated development of the park have modified the natural habitats and their potential to support special-status wildlife species. Regarding special-status fish species, the FISHBIO report indicates that only two species could potentially experience impacts from the project. Juvenile fall-run Chinook salmon are not considered likely to be in the project area, as their development would likely keep them upstream during project construction. Central Valley steelhead could be affected, but their use of the project area would be as a migratory corridor, and the fish can avoid areas affected by erosion repair. The relative footprint of the project should have negligible impacts on habitat available for Central Valley steelhead.

Of the wildlife species in Table 3-3, Swainson's hawk, tricolored blackbird, and western pond turtle are the only wildlife species with the potential to occur in the site on more than a transitory or very occasional basis. These species are discussed below.

> *Swainson's Hawk*: The Swainson's hawk is a migratory hawk listed by the State of California as a threatened species. The Migratory Bird Treaty Act and California Fish and Game Code protect Swainson's hawks year-round, as well as their nests during the nesting season (March 1 through September 15). Swainson's

hawks are found in the Central Valley primarily during their breeding season; a population is known to winter in the San Joaquin Valley. As noted in Table 3-3, field surveys found Swainson's hawks nesting in a tree approximately 300 feet northeast of the project site.

Tricolored Blackbird: The tricolored blackbird is a State of California threatened species and is also protected by the Migratory Bird Treaty Act and the Fish and Game Code. The nearest occurrence of tricolored blackbird recorded in the CNDDB is approximately 1.5 miles southwest of the project site. Within the project site, nesting habitat is limited to the small patch of emergent wetland vegetation. However, expansive patches of tules and cattails in other emergent wetland vegetation to the north of the site, along the north bank of the Mokelumne River, provide highly suitable nesting habitat for tricolored blackbird.

Western Pond Turtle: The Western pond turtle is a State Species of Special Concern but is not a listed species at the state or federal level. The nearest occurrence of Western pond turtle recorded in the CNDDB is approximately 5.5 miles southwest of the project site. However, as noted in Table 3-3, field surveys observed a western pond turtle basking on a log in Lodi Lake east of the project site.

The biological assessment noted that the presence on the project site of other special-status species listed in Table 3-3 is unlikely, mainly because of lack of suitable habitat. Other special-status birds may fly over or forage in the area on occasion, but they are not expected to nest in the project site. The FISHBIO report identified minimal potential for sensitive fish species to be affected by the project during the proposed work window, and it found that any effects resulting from the project would likely be less than significant to listed fish populations and their habitat in the immediate term. The project may prove to be beneficial in the long-term due to the habitat enhancement component of the project. However, project impacts on the three special-status species described above are considered potentially significant.

The project would participate in the SJMSCP. The SJMSCP specifies Incidental Take Minimization Measures for Swainson's hawk, colonial nesting birds such as tricolored blackbird, and pond turtles. Implementation of these measures would minimize impacts on these species and their habitats. Avoidance and minimization measures incorporated by the project would further reduce impacts on special-status species (see Chapter 2.0, Project Description). These include minimizing construction disturbance areas and project footprint in Waters of the U.S., and scheduling project construction during February when the lake is drained to reduce impacts to aquatic resources, including special-status fish. In addition, the biological assessment recommends mitigation measures specific to impacts on special-status species, which are described below. Implementation of all these measures would reduce project impacts on special-status species to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

BIO-1: Since the project is participating in the SJMSCP, standard Incidental Take Minimization Measures (ITMMs) outlined in the SJMSCP for nesting burrowing owl will be required. The ITMMs will include pre-construction surveys for nesting burrowing owls. If active nests are found, temporal restrictions on construction will be required.

BIO-2: Any vegetation removal during the general avian nesting season (February 1 through August 31) shall be immediately preceded by a survey. If active nests are found, adequate marking of the nest site shall be provided and vegetation removal in the vicinity of the nest shall be delayed until the young fledge.

BIO-3: If a western pond turtle is observed in the project area, it should be allowed to move out of the area on its own.

BIO-4: A biological worker awareness training program shall be implemented to educate the construction crews of the biological diversity within the project area. The worker awareness program shall include a presentation on the life history and legal status of potentially occurring special-status species and distribution of informational packages to each worker.

Significance After Mitigation: Less than significant

b) Riparian and Other Sensitive Habitats.

The project would potentially affect the existing riparian area along the Mokelumne River. Tree removal would directly affect existing riparian conditions. As noted, the project would participate in the SJMSCP, which includes a fee program requiring payment of fees for impacts on designated lands. The fees, in turn, are used to support conservation and preservation activities related to the lands covered by the SJMSCP. The uplands parts of the site are mapped as urban land that is exempt from fees. Areas below the OWHM appear to be mapped as "Natural Lands", for which the per-acre fee is currently $12,822.

As noted in Chapter 2.0, Project Description, removed trees are non-native to the area, and they would be replaced by native oaks and other trees native to the area. To protect existing native trees during removal and construction, an avoidance and minimization measure is included that would implement standard Best Management Practices for vegetation protection, including fencing of avoided valley oaks and other native tree species in or near construction area. Implementation of this measure, along with the actions described above, would minimize project impacts on the riparian lands within the project site, making impacts less than significant.

c) State and Federally Protected Wetlands

As noted, the project site contains approximately 1.50 acres of Waters of the U.S. below the OHWM, along with 0.024 acres of emergent wetland vegetation spanning the OHWM in the west work area. Both waters would be subject to Section 404 permitting process of the Corps; as such, impacts on these waters would be potentially significant. No state-protected wetlands were identified by the biological assessment.

Avoidance and minimization measures to be incorporated by the project would reduce impacts on wetlands and Waters of the U.S. These include minimizing construction disturbance areas and project footprint in Waters of the U.S., locating staging areas in existing disturbed parklands, and conducting project construction work during February. Implementation of these avoidance and minimization measures would reduce project impacts on federally protected wetlands and Waters of the U.S. to a level that would be less than significant. It should be noted that, as discussed in Chapter 2.0, Project Description, the project would restore wetland habitat.

d) Fish and Wildlife Movement.

The biological assessment noted that trees and shrubs within the work area could be used by birds protected by the Migratory Bird Treaty Act of 1918. The adjacent grasslands may be used by ground-nesting species. In addition, several Central Valley drainages, including the Mokelumne River, are designated critical habitat for federally listed anadromous salmonids. The project site is located within designated critical habitat for Central Valley California steelhead, which the FISHBIO report identified as having a migratory corridor on the Mokelumne River. Also, fall-run Chinook salmon utilize the Mokelumne River for spawning and rearing, as evidenced by the presence of the hatchery upstream in Clements. Project work within the Mokelumne River and adjacent lands could affect migratory species.

Required permits from jurisdictional agencies over Waters of the U.S. and wetlands, as described in c) above, typically contain conditions that reduce impacts on waters receiving fill. Also, the avoidance and minimization measures described in Chapter 2.0, Project Description, would minimize impacts on waters and lands migratory species may use. Implementation of these measures would reduce project impacts on fish and wildlife movement to a level that would be less than significant.

e) Local Biological Resource Requirements.

The City of Lodi has no biological resource ordinances or regulations that are applicable to this project. The project would have no impact related to local biological resource requirements.

f) Conflict with Habitat Conservation Plans.

As noted, the project would participate in the SJMSCP and comply with all applicable provisions and procedures. The project would not conflict with the SJMSCP. No other habitat conservation plans apply to this project. The project would have no impact related to conflict with habitat conservation plans.

3.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				✓
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?		✓		
c) Disturb any human remains, including those interred outside of formal cemeteries?		✓		

NARRATIVE DISCUSSION

Environmental Setting

Information for this section comes primarily from a cultural resource technical memorandum and subsequent inventory report prepared by Solano Archaeological Services. Appendix D contains the reports, which were prepared based upon background research, archaeological surveys, and a Native American community outreach program. Background research included a record search of the California Historical Resources Information System, conducted by the Central California Information Center at California State University Stanislaus, and additional archival research focused on historic mapping and federal land transfer records. A field survey was conducted on December 3, 2019 along the project shoreline accessible above mean river height. Areas below the water level at the time of the December 2019 fieldwork were surveyed on February 3, 2020. In addition, eight shovel probes were conducted on February 10-11, 2020 within the project site below mean river height.

As this project would affect Waters of the U.S. (see Section 3.4, Biological Resources), it will also undergo a future review with the Corps under a separate National Environmental Policy Act (NEPA) process. The fieldwork in February 2020 was conducted in part to satisfy the requirements of this process, consistent with Section 106 of the National Historic Preservation Act.

<u>Pre-Contact Era</u>

Due to the plentiful resources and temperate climate, the Central Valley was well-populated in pre-contact times and served as the location for some of the more substantial village sites known in California. The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo-Indian Period (10,000–6000 B.C.). Few archaeological sites have been found in the San Joaquin Valley that date to the Paleo-Indian or the Lower Archaic (6000–3000 B.C.) time periods; however, archaeologists have recovered a great deal of data from sites occupied by the Middle Archaic period (3000–1000 B.C.). Later periods up to the historic era marked several

technological and social changes, including greater reliance on acorn use, increased trade activities, and a well-defined ceramic technology.

The project site is situated in the transitional ethnographic territory of the Northern Valley Yokuts and the Northern Sierra Miwok tribes. Section 3.18, Tribal Cultural Resources, discusses the two tribes in more detail, along with potential cultural resource issues pertaining to these tribes.

Historic Era

Various Spanish explorers, searching for sites for inland missions, visited the Central Valley and the present-day San Joaquin County area in the late 18th and early 19th centuries. These explorers were followed by trappers of the Hudson's Bay Company in the late 1820s and 1830s. However, little in the way of lasting settlement occurred in the Lodi region until the Gold Rush. When one group of families in the vicinity of what would become Lodi decided to establish a school in 1859, they settled on a site near present-day Cherokee Lane and Turner Road, thereby essentially marking the beginnings of a new town.

In 1869, the Central Pacific Railroad was in the process of creating a new route, and pioneer Lodi settlers Ezekiel Lawrence, Reuben Wardrobe, A.C. Ayers and John Magley offered a townsite of 160 acres to the railroad as an incentive to build a station there. The railroad received a "railroad reserve" of 12 acres in the middle of the nascent town, and surveyors began laying out streets in the area between Washington and Church Streets and between Locust and Walnut Street. The new settlement was initially Mokelumne; however, to avoid confusion with the previously established towns of Mokelumne Hills and Mokelumne City, the townspeople changed the name to Lodi in 1874, probably because some of the earliest settlers of the town originally came from Lodi, Illinois. In 1906, the City of Lodi was incorporated with a population of 1,946 (Lodi Historical Society 2018).

Lodi continued to grow in the early 20th century primarily due to agriculture. The grape and wine industry were the predominant industry that caused an increase in residential and infrastructure development. By 1940, the population of the City was 11,000 residents and increased to 20,000 following World War II (City of Lodi 2010a). By the 1990s, the population was more than 50,000 residents.

The adjacent town of Woodbridge established its first permanent settlements in 1850 when George W. Emerson, Ross C., and J.P. Sargent moved from New England. A ferry was established across the Mokelumne River in 1852 by Jeremiah H. Woods and Alexander McQueen. allowing for roads that connected Stockton and Sacramento via Woods' Ferry. In 1858, at the site of the ferry, Woods built Woods' Bridge, from which the town of Woodbridge took its name in 1859.

Local irrigation with water rights for the Mokelumne River began in 1888 with the formation of Mokelumne Ditch and Irrigation Company. The first wooden dam was constructed across the Mokelumne River in 1891 and the first concrete dam, to replace previous wooden dams, was constructed in 1910. The Woodbridge Irrigation District

(WID) officially formed in 1924 and now controls the Woodbridge Dam, diversion canals, and fish screen. The original construction of the Woodbridge Dam created a shallow seasonal lake in a previously swampy area south of the dam. The concrete dam and the need for more water storage would cause the lake to be deepened an to become what is now Lodi Lake.

Lodi Lake originally formed as a result of dams constructed on the Mokelumne River in 1889 and 1891; it further expanded with the construction of the concrete Woodbridge Dam in 1910. The lake formed on property owned by Charles Edward Smith; thus, the lake was originally named Smith's Lake. The lake remained in private hands until 1934, when the City of Lodi purchased it and renamed it Lodi Lake. In the same year, Lodi Lake Park (at first called Lake Park) was dedicated by the City. The park was expanded by donations of private land in 1936, 1937, and 1943 (Lea and Kennedy 2006). In 1967, Lodi Lake Park expanded to its current size and the adjacent Nature Area was acquired. In 1998, the City installed the current front entrance to Lodi Lake Park (City of Lodi 2019).

Environmental Impacts and Mitigation Measures

a) Historical Resources.

As part of its research, Solano Archaeological Services asked the Central California Information Center to conduct a records search for historical resources within the project site and a one-half-mile radius. The results of the search found just one resource located at the project site – a series of structures and features designed to collect and distribute waters of the Mokelumne River, including the Woodbridge Dam. In addition, 14 formally recorded and four informally recorded sites were previously documented within a half-mile radius of the project site. Most of these are in the community of Woodbridge; however, a pre-contact habitation burial and occupation site and pre-contact habitation debris also have been recorded. Section 3.18, Tribal Cultural Resources, discusses potential impacts on these resources.

The WID features are historic-era cultural resources, but their primary features were clearly outside the project site. None of these structural features were located on the project site; therefore, no observed updates or condition assessments were made for the resource. The features were determined to remain ineligible for inclusion in the National Register of Historic Places. The project was determined to have no impact on this resource.

One new historic-era resource was identified and recorded – the approximately 1,450 feet of bank stabilization features (i.e., retaining walls and riprap) associated with the historic-era development of Lodi Lake Park. Many shoreline stabilization features are visible on a 1967 aerial photograph. There have been, and continue to be, multiple bank stabilization efforts to fix destroyed retaining walls. At the time of recordation, retaining walls within the project site were fully destroyed from river erosion. Solano Archaeological Services determined that this resource failed to meet all criteria for inclusion on the California Register of Historical Resources. As such, project impacts on this resource are considered less than significant.

Solano Archaeological Services evaluated the potential historical value of Lodi Lake Park. The lake, park acreage, and associated recreational buildings and features are not associated with the initial settlement of the region or other significant themes, and they are not related to the introduction or support of any unique economic or cultural enterprise. In addition, archival research does not suggest that any historically significant persons are associated with the conception, construction, or operation of Lodi Lake Park. Consequently, Lodi Lake Park was determined to be not eligible for listing in the National Register of Historic Places. Project impacts on the historical value of Lodi Lake Park are considered less than significant.

No other historic features or artifacts were present on the project site. Overall, project impacts on historic resources would be less than significant.

b) Archaeological Resources.

As noted, two pre-contact sites have been recorded within a half-mile radius of the project site. Additionally, field surveys identified and recorded five new pre-contact resources, all isolates. Given the duration and intensity of early Native American occupation in the region and particularly along significant waterways such as the Mokelumne River, such isolates are likely to be encountered virtually anywhere in similar settings. As isolated artifacts, these materials lack specific historical associations, data potential, integrity, and context. As a result, these isolates were not considered eligible for listing in the National Register of Historic Places.

During Native American outreach (see Section 3.18, Tribal Cultural Resources), two tribes indicated that the project site was archaeologically or culturally sensitive. Because of this, Solano Archaeological Services conducted shovel probes within the project site, the results of all of which were negative. However, the shovel probes were limited to certain areas, and full testing for cultural resources was not considered feasible. Because of this, and based upon comments from the tribes, the project site is considered archaeologically sensitive for potentially buried pre-contact deposits. It is possible that such deposits could be encountered during project construction, which would be a potentially significant impact. Mitigation measures described below would reduce impacts on any archaeological resources encountered during construction, thereby reducing potential impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

CULT-1: A Native American representative shall monitor all ground disturbing activities associated with the project. If any subsurface archaeological resources are encountered during construction, all construction activities shall be halted within a 50-foot radius of the encounter until a qualified archaeologist can examine the materials, make a determination of their significance and, if significant, recommend further measures that would reduce potential effects of the project on the resources to a level that is less than significant, consistent with the

requirements of CEQA Guidelines Section 15064.5. The Lodi Community Development Department shall be notified in the event of a discovery, The contractor shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in written reports to the Lodi Community Development Department, consistent with the requirements of the CEQA Guidelines.

CULT-2: Grading and excavation personnel shall receive brief "tailgate" training by a qualified professional in the identification of archaeological resources, including human remains, and protocol for notification should such resources be discovered during construction work. A Native American representative shall be invited to this training to provide information on potential tribal cultural resources.

Significance After Mitigation: Less than significant

c) Human Burials.

Given the location of the project site in and along the river, it is unlikely that any intact human burials would be encountered. CEQA Guidelines Section 15064(e) sets forth procedures to be followed should any human remains be uncovered, with special requirements for burials determined to be Native American. Compliance with the provisions of CEQA Guidelines Section 15064.5(e) would be ensured by implementation of the mitigation measure below, which would reduce impacts related to human burials to a level that would be less than significant. Also, refer to Section 3.18, Tribal Cultural Resources, for a discussion of potential impacts on Native American burials.

Level of Significance: Potentially significant

Mitigation Measure:

CULT-3: If evidence of human burial or scattered human remains is encountered, all construction activity in the vicinity of the encounter shall be immediately halted, and the County Coroner and the Lodi Community Development Department shall be immediately notified. The Community Development Department shall notify other federal and State agencies as required.

The applicant will be responsible for compliance with the requirements of CEQA Guidelines Section 15064.5 as to the proper treatment of human remains as defined in CEQA Guidelines Section 15064.5, with California Health and Safety Code Section 7050.5, and as directed by the County Coroner. If the human remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission, which will notify and appoint a Most Likely Descendant. The Most Likely Descendant will work with the archaeologist to decide the proper treatment of the human remains and any associated funerary objects, in accordance

with California Public Resources Code Sections 5097.98 and 5097.991. Avoidance is the preferred means of disposition of the burial resources.

Significance After Mitigation: Less than significant

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?			✓	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✓

NARRATIVE DISCUSSION

Environmental Setting

Electricity is a major energy source for residences and businesses in California. In San Joaquin County, electricity consumption in 2016 totaled approximately 5,457 million kilowatt-hours (kWh), of which approximately 3,698 million kWh were consumed by non-residential uses and the remainder by residential uses (CEC 2018a). In 2016, natural gas consumption in San Joaquin County totaled approximately 195 million therms, of which approximately 115 million therms were consumed by non-residential uses and the remainder by residential uses (CEC 2018b). Motor vehicle use also accounts for substantial energy usage. The SJCOG estimated countywide vehicle miles traveled (VMT) daily was 17,868,785 miles in 2015, which led to the daily consumption of approximately 511 million gallons of gasoline and diesel fuel (SJCOG 2018).

The State of California has adopted comprehensive energy efficiency standards as part of its Building Standards Code, California Code of Regulations, Title 24. Part 6 of Title 24 is referred to as the California Energy Code. In 2009, the California Building Standards Commission adopted a voluntary Green Building Standards Code, which became mandatory in 2011. The Green Building Standards Code sets forth mandatory measures, applicable to new residential and nonresidential structures as well as additions and alterations, on water efficiency and conservation, building material conservation, interior environmental quality, and energy efficiency. The City has adopted the 2016 version of the Green Building Standards Code.

Environmental Impacts and Mitigation Measures

a) Project Energy Consumption.

Energy consumption associated with the project would occur with construction activities; no energy consumption would occur once construction work is completed. Project construction would involve fuel consumption and use of other non-renewable resources. Construction equipment used for such improvements typically runs on diesel fuel or gasoline. The same fuels typically are used for vehicles that transport material and workers to and from a construction site. However, construction-related fuel consumption would be finite, short-term, and consistent with construction activities of a similar character in the area. This energy use is not considered wasteful, inefficient or unnecessary. Project impacts related to energy consumption would be less than significant.

b) Consistency with Energy Plans.

As noted in a) above, the project would not consume energy once construction work is completed. As such, the project would not conflict with applicable State or local energy efficiency plans, nor would the project affect renewable energy plans. The project would have no impact regarding consistency with energy plans.

3.7 GEOLOGY AND SOILS

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)				✓
ii) Strong seismic ground shaking?			✓	
iii) Seismic-related ground failure, including liquefaction?			✓	
iv) Landslides?				✓
b) Result in substantial soil erosion or the loss of topsoil?		✓		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			✓	

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial 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?				✓
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		

NARRATIVE DISCUSSION

Environmental Setting

Geological Conditions and Soils

The project site is in the San Joaquin Valley in central California near the Sacramento-San Joaquin River Delta. The San Joaquin Valley is in the southern portion of the Great Valley Geomorphic Province. The Valley is filled with thick sedimentary rock sequences that were deposited as much as 130 million years ago. Large alluvial fans have developed on each side of the Valley. The Geologic Map of the Sacramento Quadrangle (Wagner et al. 1981) designates the underlying geology of the project site as the Modesto Formation, consisting of Quaternary sediments.

Most of the soils in the San Joaquin Valley consist of sand, silt, loamy clay alluvium, peat, and other organic sediments. Sand and gravel are found along waterways and the San Joaquin River, and fine-grained clays, silts, and peat deposits are present in the Delta. A custom soil survey indicates there are two types of soil on the project site (SCS 1992, NRCS 2019):

- Columbia fine sandy loam, channeled, partially drained, 0-2 percent slopes (132 on Figure 3-2). Very deep, somewhat poorly drained, nearly level soil. Permeability moderately rapid. Runoff slow. Moderate water erosion hazard and slight wind erosion hazard.

- Egbert silty clay loam, partially drained, 0-2 percent slopes (153 on Figure 3-2). Very deep, poorly drained, nearly level soil. Permeability slow. Runoff slow. Slight water erosion hazard and moderate wind erosion hazard. Predominant soil type on the project site.

Seismic Hazards

There are no active or potentially active faults located in the Lodi vicinity (City of Lodi 2009). However, the project site, along with the rest of Lodi, is subject to seismic shaking from active and potentially active fault features located east and west of the County, including the Green Valley-Concord, Calaveras, San Andreas, and Marsh Creek Faults within 25 miles of the project site (San Joaquin County 2016). In the Lodi area, ground

shaking equivalent to an intensity of VIII or IX on the Modified Mercalli Scale may occur. Intensity VIII earthquakes can cause structure damage that ranges from “slight” in specially designed structures to “great” in poorly built structures. (Alfors et al. 1973).

Soil compaction and settlement can result from seismic ground shaking. If the sediments that compact during an earthquake are saturated, soils may lose strength and become fluid – a process called liquefaction. Based on known information, areas of the County with groundwater less than 50 feet from ground surface in unconsolidated sediment are susceptible to liquefaction, including lands near river courses (San Joaquin County 2016). According to the Lodi General Plan, the probability of soil liquefaction taking place in the Planning Area is considered to be a low to moderate hazard, due to the substantial distance from the active Hayward and Calaveras Fault zones and the type of ground shaking expected from those faults (City of Lodi 2010a).

Paleontological Resources

Paleontological resources are fossils or groups of fossils that are unique, unusual, rare, uncommon or important, and those that add to an existing body of knowledge in specific areas. Surface examination of a study or project area often does not reveal whether paleontological resources are present. Most of the Lodi area is located on the historic floodplain of the Mokelumne River on the sediments of the Modesto Formation. The Modesto Formation has yielded paleontological resources in San Joaquin County, but occurrences, if any, are likely to be encountered below the upper five to ten feet of sediment (San Joaquin County 2016). There are no known existing paleontological resources on the project site.

Environmental Impacts and Mitigation Measures

a-i) Fault Rupture Hazards.

As noted, there are no active or potentially active faults in the Lodi vicinity; the closest active or potentially active fault is approximately 25 miles away. Both the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act direct the State Geologist to delineate regulatory "Zones of Required Investigation" for possible earthquake faulting, landslides, and liquefaction. The zones are delineated to reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-triggered ground failures. The project site is not located within any Zones of Required Investigation or in an Alquist-Priolo Earthquake Fault Zone (California Geological Survey 2017). The project would have no impact related to fault rupture.

a-ii, iii) Seismic Ground Shaking and Seismic-Related Ground Failure.

As noted, the project site is subject to seismic shaking from fault features. Since the project is a regrading of the riverbank and placement of RSP and vegetation, it would not be affected by seismic shaking or other seismic hazards such that damage to structures or risks to human life would occur. Liquefaction may possibly occur on the project site as a result of an earthquake, given its proximity to water, but no structures would be constructed on the site, so liquefaction would do no significant damage. Also, as noted,

the probability of liquefaction occurring in the Lodi area is low. Project impacts related to seismic hazards are less than significant.

a-iv) Landslides.

The project site is in an area that is topographically flat. The only feature with significant slopes is the riverbank, and the project is designed to prevent further erosion and sliding of the bank. The project would have no impact related to landslides.

b) Soil Erosion.

The construction and grading associated with site preparation and construction of the project would temporarily increase the exposure of soils on the project site to water and wind erosion. Dust control measures noted in Section 3.3, Air Quality, would reduce potential wind erosion impacts of the project.

In addition, since construction activities would disturb more than an acre of land area, the project would need to obtain a Construction General Permit from the State Water Resources Control Board (SWRCB). The Construction General Permit requires preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to address potential water quality impacts of soil erosion resulting from construction activities. These requirements are discussed in more detail in Section 3.10, Hydrology and Water Quality. Mitigation presented below would require the project to obtain a Construction General Permit and to prepare a SWPPP to address erosion issues. Implementation of this mitigation would reduce potential soil erosion impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measure:

GEO-1: The City shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project in conjunction with obtaining the Construction General Permit from the State Water Resources Control Board (SWRCB). The City shall file a Notice of Intent with the SWRCB prior to commencement of construction activity and shall obtain the SWRCB Waste Discharger's Identification Number.

Significance After Mitigation: Less than significant

c) Geologic Instability.

The soil underlying the project site has not been identified as inherently unstable or prone to failure. The project site would be regraded, but the regrading is not expected to induce any type of instability; in fact, the project is intended to stop further erosion of the riverbank, which if left alone would increase instability along the bank. Project impacts related to geologic instability are considered less than significant.

d) Expansive Soils.

Expansive soils have the potential to damage building foundations and infrastructure. The Columbia soil on the project site has a low shrink-swell potential, but the Egbert soil has a moderate to high potential (SCS 1992). However, the project is the placement of RSP and vegetation; as such, expansion and contraction of soils are unlikely to do significant damage to the project. Project impacts related to expansive soils would be less than significant.

e) Adequacy of Soils for Sewage Disposal.

The project would not use, and does not propose to install, any septic systems or other alternative wastewater disposal systems. Therefore, adequacy of soils for such systems is not an issue. The project would have no impact concerning soils and sewage disposal.

f) Paleontological Resources.

As noted, although there is no record of paleontological resources on the project site, these resources have been found in the Modesto Formation underlying the site. It is possible that paleontological resources could be encountered during project construction, which would be a potentially significant impact. Mitigation measures described below would reduce impacts on any paleontological resources encountered during construction, thereby reducing potential impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

GEO-2: If any subsurface paleontological resources are encountered during construction, all construction activities shall be halted within a 50-foot radius of the encounter until a qualified paleontologist can examine the materials, make a determination of their significance and, if significant, recommend further measures that would reduce potential effects of the project on the resources to a level that is less than significant. The Lodi Community Development Department shall be notified in the event of a discovery. The contractor shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in written reports to the Lodi Community Development Department, consistent with the requirements of the CEQA Guidelines. Grading and excavation personnel shall receive brief "tailgate" training by a qualified professional in the identification of paleontological resources and protocol for notification should such resources be discovered during construction work.

Significance After Mitigation: Less than significant

3.8 GREENHOUSE GAS EMISSIONS

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

NARRATIVE DISCUSSION

Environmental Setting

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. GHGs are both naturally occurring and are emitted by human activity. GHGs include carbon dioxide, the most abundant GHG, as well as methane, nitrous oxide and other gases. GHG emissions in California in 2016 were estimated at approximately 429 million metric tons carbon dioxide equivalent (CO_2e) – a decrease of approximately 13.0% from the peak level in 2004. Transportation was the largest contributor to GHG emissions in California, with approximately 41% of total emissions. Other significant sources include industrial activities, with 21% of total emissions, and electric power generation, both in-state and imported, with 16.0% of total emissions (ARB 2018).

Increased atmospheric concentrations of GHGs are considered a primary contributor to global climate change, which is a subject of concern for the State of California. Potential impacts of global climate change in California include reduced Sierra Nevada snowpack, increased wildfire hazards, greater number of hot days with associated decreases in air quality, and potential decreases in agricultural production (Climate Action Team 2010).

The State of California has implemented GHG emission reduction strategies through AB 32, the Global Warming Solutions Act of 2006, which requires total statewide GHG emissions to reach 1990 levels by 2020, or an approximately 29% reduction from 2004 levels. In compliance with AB 32, the State adopted the Climate Change Scoping Plan in 2008 and updated the plan in 2014. Primary strategies addressed in the original Scoping Plan included new industrial and emission control technologies; alternative energy generation technologies; advanced energy conservation in lighting, heating, cooling and ventilation; fuels with reduced carbon content; hybrid and electric vehicles; and methods for improving vehicle mileage (ARB 2008). The 2014 update highlighted California's progress toward meeting the 2020 GHG emission reduction goal of the original Scoping Plan, and it established a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050 (ARB 2014). The 2016 state GHG

emissions, which are the most recent available, were approximately two million metric tons CO_2e below the 2020 target established by AB 32 (ARB 2018).

In 2016, Senate Bill (SB) 32 became law. SB 32 extends the GHG reduction objectives of AB 32 by mandating statewide reductions in GHG emissions to levels that are 40% below 1990 levels by the year 2030. The State has adopted an updated Scoping Plan that sets forth strategies for achieving the SB 32 target, which is 260 million metric tons CO_2e. The updated Scoping Plan continues many of the programs that were part of the previous Scoping Plans, including the cap-and-trade program, low-carbon fuel standards, renewable energy, and methane reduction strategies, along with a proposed 20% reduction in GHG emissions from refineries. It also addresses for the first time GHG emissions from the natural and working lands of California, including the agriculture and forestry sectors (ARB 2017).

California also has adopted a Renewables Portfolio Standard, the intent of which in part is to reduce the use of fossil fuels, a main source of GHG emissions. The Renewables Portfolio Standard requires electricity retailers in the state to generate 33% of electricity they sell from renewable energy sources (i.e., solar, wind, geothermal, hydroelectric from small generators, etc.) by the end of 2020. In 2018, SB 100 was signed into law, which increased the electricity generation requirement from renewable sources to 60% by 2030 and requires all the state's electricity to come from carbon-free resources by 2045.

The SJVAPCD adopted a Climate Change Action Plan in 2008 and issued guidance for development project compliance with the plan in 2009. The guidance adopted an approach that relies on the use of Best Performance Standards to reduce GHG emissions. Projects implementing Best Performance Standards would be determined to have a less than cumulatively significant impact. For projects not implementing Best Performance Standards, demonstration of a 29% reduction in project-specific (i.e., operational) GHG emissions from business-as-usual conditions is required to determine that a project would have an impact that is not cumulatively significant (SJVAPCD 2009).

The City of Lodi adopted a Climate Action Plan (CAP) in 2014. The CAP defines the local strategies that will be implemented by the City to achieve its goal of reducing GHG emissions by 15% from their 2008 level by 2020, and 37% by 2030. The largest GHG emission reductions (43%) would come from energy efficiency improvements and increased use of renewable energy. Transportation strategies, such as promotion of transit and greater travel efficiencies, would provide 37% of reductions. Waste reduction and management strategies would make up the remaining 20% of reductions (City of Lodi 2014).

Environmental Impacts and Mitigation Measures

a) Project GHG Emissions

Based on results from the RCEM run (see Appendix B), estimated CO_2 emissions from project construction would be 8.81 tons (approximately 7.99 metric tons) for the entire construction period. Construction emissions would be limited to one month and would cease once work is completed. Upon completion, the project would not generate any

GHG emissions, either directly or indirectly. Project impacts related to GHG emissions would be less than significant.

b) Consistency with GHG Reduction Plans

As noted, the project would not generate any GHG emissions, either directly or indirectly. As a result, the project would have no impact related to attainment of the GHG reduction objectives of the State's Climate Change Scoping Plan, the SJVAPCD's Climate Change Action Plan, and the Lodi CAP. The project would have no impact related to GHG reduction plans.

3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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, would it 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				✓
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✓
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✓

NARRATIVE DISCUSSION

Environmental Setting

Hazardous material sites are recorded in the GeoTracker database, maintained by the SWRCB, and the EnviroStor database, maintained by the Department of Toxic Substances Control. The results of the GeoTracker and EnviroStor database searches found no record of active hazardous material sites in Lodi Lake Park, including the project site (SWRCB 2019, DTSC 2019).

There are five airports in the Lodi vicinity. The closest airport to the project site with commercial passenger service is the Stockton Metropolitan Airport, approximately 17.5 miles to the south. The closest public use airport to the project site is the Lodi Airport, approximately four miles to the northeast. The San Joaquin County Airport Land Use Compatibility Plan establishes land use compatibility zones within the Airport Influence Areas of public use airports in San Joaquin County except for Stockton Metropolitan Airport, which has its own plan.

Environmental Impacts and Mitigation Measures

a) Hazardous Material Transportation, Use, and Storage.

Once completed, the project would not require the use of any hazardous materials. As such, no hazardous materials would be transported or stored on the project site. The project would have no impact related to hazardous material transportation, use, and storage.

b) Upset and Accident Conditions.

Construction activities on the project site may involve the use of hazardous materials such as fuels and solvents, and thus create a potential for hazardous material spills. The proximity to the Mokelumne River makes this an issue of more concern. Construction and maintenance vehicles would transport and use fuels in ordinary quantities. Fuel spills, if any occur, would be minimal and would not typically have significant adverse effects. In accordance with SWPPP requirements (see Section 3.7, Geology and Soils), contractors have absorbent materials at construction sites to clean up minor spills. In addition, measures would be in place to minimize adverse impacts on water quality of the river (see Section 3.10, Hydrology and Water Quality). Impacts related to upset and accident conditions would be less than significant.

c) Release of Hazardous Materials near Schools.

The nearest schools to the project site are Woodbridge Elementary School to the west and Lakewood Elementary School to the east. Both schools are approximately 0.40 miles from the project site. As discussed in a) above, the project would not use hazardous materials when completed; therefore, it would not release hazardous materials that would affect these schools. The project would have no impact related to the release of hazardous materials near schools.

d) Hazardous Material Sites.

As noted, no hazardous material sites were recorded on the project site or in Lodi Lake Park. The project would not be in contact with any sites recorded as having hazardous materials or as being contaminated by hazardous materials. The project would have no impact regarding hazardous material sites.

e) Public Airports.

As noted, the closest public use airport to the project site is the Lodi Airpark, approximately 4.2 miles to the south. The project site is not within two miles of an existing airport or within an Airport Influence Area established by the County's Airport Land Use Compatibility Plan (Coffman Associates 2009). The project would have no impact related to potential safety hazards near public airports.

f) Emergency Response and Evacuations.

The project would not obstruct the road around the eastern and northern shoreline of Lodi Lake – the only road to the project site and vicinity. Emergency vehicles would be able to use this road during construction, and the road would be open for evacuations if necessary. The project would have no impact on the road itself, and thus would have no impact related to emergency vehicle responses or evacuations.

g) Wildland Fire Hazards.

The project is within an urban park adjacent to the Mokelumne River. While there are trees and other vegetation in the area, the proximity to water would keep most of the vegetation green, making a wildfire unlikely to occur. As further discussed in Section 3.20, Wildfire, the project site is not in an area designated as having a high fire hazard. Moreover, given the character of the project, it would be unaffected by any wildland fires that may occur in the area. The project would have no impact related to wildland fire hazards.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?		✓		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				✓
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river runoff or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site?			✓	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				✓
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				✓
iv) Impede or redirect flood flows?				✓
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

NARRATIVE DISCUSSION

Environmental Setting

Surface Waters

The project site is adjacent to the Mokelumne River, which is part of the Lower Cosumnes-Lower Mokelumne River watershed, which encompasses approximately 660 square miles. The Mokelumne River is approximately 95 miles in length and flows west from its headwaters in the Sierra Nevada to its confluence with the Cosumnes River in the Sacramento-San Joaquin Delta. Camanche Dam, owned by the East Bay Municipal Utility District and approximately 20 miles east of Lodi, regulates Mokelumne River

flows for water supply, flood control, and fisheries habitat management. Peak sustained flows in the lower Mokelumne River typically occur from April through June.

Lodi Lake, south of the project site, is hydrologically connected to the Mokelumne River. The Woodbridge Irrigation District (WID) diverts water from the river at the Woodbridge Diversion Dam, which formed Lodi Lake. The dam was originally constructed of wood in the late 1800s, was replaced with a concrete structure in 1924, and reconstructed in 2003. The WID system consists of approximately 100 miles of canals and pipelines with a maximum delivery capability of 414.4 cubic feet per second for agricultural and domestic use (Woodbridge Irrigation District 2016).

Impacts to water quality result from runoff during wet weather events, direct discharge associated with industrial/commercial activities, leaking sewer infrastructure, and illicit dumping. Additional pollutant sources within the Lodi area include past waste disposal practices, agricultural chemicals, and chemicals and fertilizers applied to landscaping. Typical contaminants may include sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash (City of Lodi 2009). The RWQCB has prepared a list under Clean Water Act Section 303(d) that identifies surface waters in California considered impaired in water quality, along with the pollutants responsible for the impairment. The lower Mokelumne River, in the eastern portion of the Delta, is listed as having impaired water quality from zinc, dissolved oxygen, chlorpyrifos (a pesticide), mercury, copper, and unknown toxicity (RWQCB 2014).

Groundwater

The project site overlies the Eastern San Joaquin Subbasin of the San Joaquin Valley Groundwater Basin. The Eastern San Joaquin Subbasin has experienced decreasing groundwater levels from increased agricultural and municipal pumping over the years. Decreases in groundwater levels were estimated at approximately 0.40 feet per year (City of Lodi 2016a). Groundwater levels may also fluctuate over time depending on precipitation, aquifer recharge, and pumping demands. Due to the continued overdraft of groundwater within the Subbasin, significant groundwater level depressions are present east of Lodi. The Subbasin is classified as a “critically overdrafted” basin under the Sustainable Groundwater Management Act, enacted in 2014.

As the primary source of water supply for the City of Lodi, any potential groundwater quality issues can seriously threaten the City’s water supply. Several of the City’s wells are equipped with chlorination equipment intended to release controlled amounts of chlorine to help purify the water supply. It is not necessary to constantly chlorinate the City’s water and, thus, chlorine is only released into the water in the event of an emergency (City of Lodi 2009).

The City is involved with other local agencies in groundwater management activities, including agencies required by the Sustainable Groundwater Management Act. In 2016, the City became a member of the Eastern San Joaquin Groundwater Authority, a Groundwater Sustainability Agency established for the Subbasin in accordance with the Sustainable Groundwater Management Act. The City now manages the portion of the Subbasin that lies beneath the City limits. The Groundwater Authority is currently active

in the preparation of a Groundwater Sustainability Plan for the Subbasin, which must be adopted by January 31, 2020. A draft Groundwater Sustainability Plan was released for public review, with the comment period closing on August 25, 2019.

Flood Hazards

The risks of flooding hazards in San Joaquin County are related to Mokelumne River 100-year flood events, 200-year flooding addressed by SB 5, and flooding that could result from failure of upstream dams. Based on a map prepared by the Federal Emergency Management Agency (FEMA), the project site is located within Zone AE (FEMA 2019). Zone AE designates areas that are subject to inundation by a flood with a chance of occurring on average once every 100 years (the "100-year flood") and for which base flood elevations have been determined.

In addition, the FEMA map indicates that the project site is within a designated Regulatory Floodway (FEMA 2019). A Regulatory Floodway is the channel of the river and the adjacent land that must remain free from obstruction so that the 100-year flood can be conveyed downstream without raising the elevation of the water surface.

In 2007, the State of California approved SB 5 and a series of related Senate and Assembly bills intended to set new flood protection standards for urban areas. SB 5 establishes the State standard for flood protection in Central Valley urban areas as protection from a flood with a chance of occurring on average once every 200 years (the "200-year flood"). Under SB 5, urban and urbanizing areas in the Central Valley must be provided with 200-year flood protection no later than 2025. According to preliminary mapping conducted by the California Department of Water Resources, there are no 200-year floodplains on the project site (DWR 2019).

Dams in San Joaquin County are regulated by the California Division of Safety of Dams which provides oversight to the design, construction, and maintenance of dams to ensure safety. The Division requires dam owners to submit inundation maps to the State Office of Emergency Services and the Department of Water Resources for dams whose failure could result in loss of life or injury. The City of Lodi, along with all other cities in San Joaquin County, is located within an area potentially subject to flooding from dam failure. Camanche Dam has the potential to flood a large area in the event of a dam failure, including the City of Lodi. The San Joaquin County Department of Emergency Services has created a Dam Failure Plan to address emergencies and evacuation if dam failure occurs (San Joaquin County OES 2019a, 2019b).

Environmental Impacts and Mitigation Measures

a) Water Quality.

The project, once construction work is completed, would not affect the water quality of the Mokelumne River. In fact, the project would help maintain water quality of the river by reducing erosion of the riverbank, thereby reducing the amount of sediments in the

river. The project would not contribute any contaminants that could reach local aquifers; therefore, groundwater quality would not be affected.

Project construction activities, such as the placement of RSP, could potentially generate sediments that would be released in the Mokelumne River, thereby adversely affecting its water quality. The principal control on water quality related to construction activities is the preparation and implementation of a SWPPP, which is required under the Construction General Permit for any development project exceeding one acre in size (see Section 3.7, Geology and Soils). The SWPPP identifies potential construction pollution sources and needed construction BMPs, and it specifies maintenance and monitoring activities needed to ensure compliance with applicable water quality standards. These activities typically include the implementation of Best Management Practices (BMPs) for erosion control that are specified in the SWPPP. Mitigation Measure GEO-1 (see Section 3.7, Geology and Soils) requires preparation of a SWPPP that is designed to control erosion that may result from project construction activities.

As discussed in Section 3.4, Biological Resources, work within stream channels would be required to obtain several permits, including a Corps permit, a Section 401 Water Quality Certification from RWQCB, and a CDFW Lake and Streambed Alteration Agreement. These permits typically have conditions attached that are designed to avoid or minimize impacts on the water quality of the streams in which work would be conducted. The project applicant proposes to use a silt curtain that would prevent release of sediments outside the work area in the river. These actions would reduce potential water quality impacts to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measure: Implementation of Mitigation Measure GEO-1.

Significance After Mitigation: Less than significant

b) Groundwater Supplies and Recharge.

The project would not use groundwater. No impervious surfaces would be added by the project, so it would not affect the existing recharge capacity of the project site. The project would have no impact on groundwater.

c-i) Changes in Drainage Patterns.

The project would not alter the existing drainage pattern on the project site, in which precipitation runs off into the Mokelumne River, such that it would increase erosion and siltation. The purpose of the project is to reduce erosion of the riverbank; as such, it would have a positive impact related to erosion and siltation. As discussed in Section 3.9, Hazards and Hazardous Materials, some sedimentation could occur during project construction. However, as noted in a) above, various actions would be taken to reduce potential adverse impacts. Project impacts would be less than significant.

c-ii, iii) Runoff.

As noted in b) above, the project would not add impervious surfaces. The amount of runoff from the project site would not change after project completion. The project also is not expected to contribute polluted runoff, as only rocks and vegetation would be placed. The project would have no impact on runoff.

c-iv) Flooding Hazards.

The project site is within FEMA Zone AE and a Regulatory Floodway. However, the project proposes only the placement of RSP and soil and the planting of vegetation. It does not propose to install any structures that would be used by people or would impede or redirect flood flows caused by excessive precipitation and runoff or by potential dam failure. The project would have no impact on flooding hazards.

d) Release of Pollutants in Flood, Tsunami, or Seiche Zones.

As discussed in Section 3.9, Hazards and Hazardous Materials, the project would not require the use of hazardous materials. As such, any flooding that may occur on the project site would not lead to the release of any pollutants. The project would have no impact on the release of pollutants during floods.

e) Conflicts with Water Quality or Groundwater Management Plans.

As noted, the project would have no impact on water quality after project completion. Therefore, it would have no impact on water quality plans applicable to the Mokelumne River or to the Eastern San Joaquin Groundwater Subbasin. As noted in b) above, the project would have no impact on groundwater; thus, it would have no impact on any groundwater management plans that would apply to the Subbasin. The project would have no impact on water plans.

3.11 LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				✓
b) 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?			✓	

NARRATIVE DISCUSSION

Environmental Setting

As noted in Chapter 1.0, Introduction, the project site is in Lodi Lake Park, a municipal park in the northwest corner of the City. Both the Lodi General Plan designation and zoning for the project site, as with all of Lodi Lake Park, is Open Space.

Adjacent to and northeast of Lodi Lake Park is the Lodi Lake Nature Area, a generally undeveloped open space area. Single-family residences are adjacent to and east of the park. Turner Road is along the southern boundary of Lodi Lake Park, and across Turner Park is a mix of residential and commercial development. Adjacent to and southwest of the park is the Northern California Power Agency (NCPA) power generation station, the Lodi Surface Water Treatment Plant, a Lodi Electric Utility substation, and a railroad spur that is inactive. Across Turner Road from these facilities is the former General Mills industrial site. The unincorporated community of Woodbridge is west of the park. Across the Mokelumne River from the project site is open space area owned by the WID.

Environmental Impacts and Mitigation Measures

a) Division of Established Community.

A common definition of "community" is a group of people living in the same area. By this definition, the "division of an established community" is a division of an existing residential area. The project would be built within a City park, which does not have existing or planned residential communities within its boundaries. The project would have no impact related to the division of an established community.

b) Conflicts with Land Use Plans, Policies, and Regulations.

Lodi Lake Park is designated by the Lodi General Plan as Open Space. The project would be consistent with the land uses allowed under the Open Space designation, which include improved parks. The project could have potential impacts that could conflict with other regulations on issues such as biological resources and water quality. These conflicts are analyzed in the appropriate technical sections of this IS/MND, and no significant impacts would occur once mitigation measures are implemented, or the project complies with required permits or approvals. Project impacts related to conflicts with land use plans, policies, and regulations would be less than significant.

3.12 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				✓

NARRATIVE DISCUSSION

Environmental Setting

The California Surface Mining and Reclamation Act of 1975 requires the State Geologist to classify land based on the known or inferred mineral resource potential of that land. The Mineral Land Classification process identifies lands that contain economically significant mineral deposits to ensure that the mineral resource potential of lands is considered in land-use planning. These lands are classified into Mineral Resource Zones (MRZs). Based on review of the Mineral Land Classification map, the project site is located within MRZ-1, which indicates that no significant mineral deposits are present, or in an area where there is little likelihood of their presence (California Geological Survey 2012).

Oil, gas and geothermal resource development are regulated by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources. There are no oil or natural gas fields in the project vicinity (DOGGR 2001).

Environmental Impacts and Mitigation Measures

a, b) Availability of Mineral Resources.

Significant mineral, oil and gas, or geothermal resources are not located on the project site. Therefore, construction and operation of the project would not interfere with development of any known mineral, oil and gas, or geothermal resources. The project would have no impact on mineral resources.

3.13 NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		✓		
b) Generation of excessive groundborne vibration or groundborne noise levels?			✓	
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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				✓

NARRATIVE DISCUSSION

Environmental Setting

Background

Noise is often described as unwanted sound. Sound is any pressure variation in the air that the human ear can detect. Since measuring sound by pressure would require a large and awkward range of numbers, the decibel (dB) scale was devised. This scale is typically adjusted for human perception of loudness by the standardized A-weighting network, which provides a strong correlation between A-weighted sound levels, expressed as dBA, and community noise.

Community noise is described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state dBA sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} shows very good correlation with community response to noise, and it is the basis for other noise descriptors such as the Community Noise Equivalent Level (CNEL), a common noise descriptor used in land use planning. The CNEL represents an average sound exposure over a 24-hour period, with noise occurring between 10:00 p.m. and 7:00 a.m. weighted an additional 10 dB and noise occurring between 7:00 p.m. and 10:00 p.m. an additional 5 dB, to account for people's increased sensitivity to noise during those times.

The City's noise standards are established in the Noise Element of the Lodi General Plan. These standards protect community members and sensitive uses from noise hazards and establish criteria to define and mitigate for noise-generating development. Table 3-4

presents the City's noise standards, which are adapted from the California Office of Noise Control guidelines for setting local standards and preparing general plan noise elements.

Existing Noise Sources

Major noise sources generally fall into six source categories: traffic, railroad, airport, industrial, construction, and equipment. The primary noise source in the project vicinity is motor vehicle traffic. Noise sources closest to the project site include vehicle traffic along Lower Sacramento Road and Turner Road. Two railroad spurs are in the area of the NCPA station; however, they are inactive.

TABLE 3-4
ALLOWABLE NOISE EXPOSURE LEVELS

Land Use	Outdoor Activity Areas (dB CNEL)	Interior Areas (dB CNEL)
Residential	60	45
Motels/Hotels	60	45
Public/Semi-Public	65	45
Recreational	65	50
Commercial	65	50
Industrial	70	65

Source: City of Lodi 2010a.

Among non-transportation noise sources, the NCPA station, southwest of the project site across Lodi Lake, is a significant noise source when it is in operation. The station typically operates at intervals lasting approximately one to two hours at a time. Operation times depend upon demand and other marketplace factors in the California power industry. The former General Mills industrial facility, across Turner Road from the NCPA station, is not a substantial noise contributor at this time, as little of this facility is currently being used.

Groundborne Vibrations

While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the application of energy to a structure or surface. Vibration involves a source, a transmission path, and a receiver. As with noise, vibration consists of an amplitude and frequency. Vibration can be measured in terms of acceleration, velocity, or displacement. A person's perception to vibration depends on their individual sensitivity to vibration, the amplitude and frequency of the vibration source, and the response of the system which is vibrating. Human and structural response to different vibration levels is influenced by several

factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events.

The City of Lodi does not have standards pertaining to vibration levels. However, vibration levels associated with construction activities and project operations are addressed as potential noise impacts associated with project implementation. Based on factors developed by Caltrans, the threshold for vibration damage to structures from continuous sources ranges from 0.08 to 0.5 inches per second peak particle velocity, depending on condition. The general threshold at which groundborne vibrations from continuous sources are distinctly perceptible by humans has been identified as 0.04 inches per second peak particle velocity (Caltrans 2013).

Environmental Impacts and Mitigation Measures

a) Generation of Noise Exceeding Local Standards.

The project is the installation of RSP and soil and the planting of vegetation. It would not generate any noise once construction work is completed. However, temporary noise impacts would occur with project construction, mainly from construction equipment and from worker vehicle traffic.

As noted in Section 3.3, Air Quality, the closest sensitive receptor to the project site is a residential area approximately 670 feet from the eastern portion of the site. Chapter 2.0, Project Description, noted that construction equipment to be used would include an excavator and a front-end loader/backhoe. According to information from the Federal Highway Administration, an excavator generates 81 dB of noise at 50 feet, while a backhoe generates 78 dB of noise at that distance (FHWA 2006).

The noise level at a given distance from a source can be estimated using the Inverse Square Law of Noise Propagation, which states that noise decreases by 6 dBA with every doubling of distance from a source (Harris 1991). Using this law and the information on construction equipment, it is estimated that the noise level at the nearest residential area generated by the excavator (the louder of the equipment) would be approximately 60 dB - the maximum outdoor noise level allowed at residences by the Lodi General Plan.

It should be noted that 1) noise levels would be further reduced when work moves to the western portion of the project site, and 2) construction work would last only one month, so the nearby residential area would not experience prolonged exposure to construction noise. In addition, the project site plans state that construction shall be restricted to Monday through Friday between the hours of 6:00 a.m. and 7:00 p.m., which limits noise generated on weekdays and avoids noise on weekends. A mitigation measure presented below would further ensure that project construction noise does not exceed City standards for residential areas. Implementation of the mitigation measure would reduce project impacts on noise levels to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

NOISE-1: All equipment used on the construction site shall be fitted with mufflers in accordance with manufacturers' specifications. Mufflers shall be installed on the equipment at all times on the construction site.

Significance After Mitigation: Less than significant

b) Exposure to Groundborne Vibrations.

The project may generate groundborne vibrations from construction equipment use. As noted, the project is within an industrial area, which is less sensitive to groundborne vibrations. Groundborne vibrations from project construction would cease once work is completed. The project would not generate any groundborne vibration or noise once construction work is completed. Project impacts related to groundborne vibrations would be less than significant.

c) Public Airport and Private Airstrip Noise.

As noted in Section 3.9, Hazards and Hazardous Materials, the project site is not within two miles of a public airport or within the area of an Airport Land Use Compatibility Plan. There are no private airstrips within two miles of the project site. The project would have no impact related to airport or airstrip noise.

3.14 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✓
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

NARRATIVE DISCUSSION

Environmental Setting

The City of Lodi had an estimated population of 68,272 in 2019, an increase from its 2020 population of 62,134 in 2010 (California Department of Finance 2019). It is projected that the City's population will grow by 1-1.5% annually over the next several decades (City of Lodi 2016b). The City had an estimated 24,570 housing units as of

January 1, 2019. Single-family detached units accounted for approximately 63.2% of the City's total housing units, with multi-family units accounting for approximately 29.0% (California Department of Finance 2019).

Environmental Impacts and Mitigation Measures

a) Unplanned Population Growth.

The project proposes the placement of RSP and soil and the planting of vegetation. It does not propose the construction of residential units, commercial development, or industrial development that could potentially attract residents or employees outside the Lodi area. The project would not affect the City's population and would not induce unplanned population growth. The project would have no impact on population.

b) Displacement of Housing or People.

The project is being constructed along the banks of the Mokelumne River within a City park. There are no houses or other residential units and no permanent residents within the project area. The project would not displace housing or people, and therefore would have no impact.

3.15 PUBLIC SERVICES

Would the project:

a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?				✓
ii) Police protection?				✓
iii) Schools?				✓
iv) Parks?				✓
v) Other public facilities?				✓

NARRATIVE DISCUSSION

Environmental Setting

Public services to the project site and vicinity are provided primarily by City departments, including the Fire Department, Police Department, and the Recreation and

Cultural Resources Department, among others. School services are provided by the Lodi Unified School District.

The Lodi Fire Department provides fire protection services for the project vicinity. In the event of an incidental hazardous materials release, the Fire Department and first responders are trained in emergency response in accordance with the regulations set by the Occupational Safety and Health Administration. The Fire Department has approximately 50 staff personnel and four stations in the City. The closest station to the project site is Station 4, located at 180 North Lower Sacramento Road approximately one mile southwest of the project site. The station is equipped with one engine and one reserve truck. All public fire protection agencies in San Joaquin County operate under a master mutual aid agreement, under which other fire agencies may be called upon to assist should the resources of one agency be exhausted (San Joaquin County 2016).

The Lodi Police Department provides law enforcement services for the project area. The main station is located at 215 West Elm Street, approximately 1.4 miles southeast of the project site. It is the Police Department's policy to respond to all emergency calls within a five-minute time period. The Police Department has no adopted service levels. The project site is within the Police Department's Sunset District.

The project site is within the boundaries of the Lodi Unified School District, which provides school services from kindergarten to 12th grade. Lodi High School is at 3 South Pacific Avenue, approximately 1.25 miles south of the project site. The closest middle school is Millswood Middle School, at 233 North Mills Avenue approximately 0.75 miles to the south. The closest elementary school is Lakewood Elementary School, at the corner of Turner Road and Ham Lane approximately 0.35 miles from the project site.

The Lodi Parks, Recreation and Cultural Services Department maintains 23 developed and seven undeveloped parks and open spaces throughout Lodi that offer a wide variety of recreational programs and activities. The project site is within Lodi Lake Park, a developed City park. Additional information related to parks and recreation, including Lodi Lake Park, is provided in Section 3.16, Recreation.

Other public services available in the City include library and courthouse services. The Lodi Public Library is part of the Stockton/San Joaquin County Library system. The library is at 201 West Locust Street. The Superior Court of California, County of San Joaquin has its main courthouse in Stockton. The Lodi Branch of the Superior Court is in two buildings – one on 217 West Elm Street (second floor), and the other at 315 West Elm Street.

Environmental Impacts and Mitigation Measures

a-i) Fire Protection Services.

The project is the placement of RSP and fill soil and the planting of vegetation. It does not propose any structures that would house people. As noted in Section 3.14, Population and Housing, the project would have no impact on the City's population. Given the character of the project and its location, it is unlikely to generate a demand for fire

protection services such that new or expanded facilities would be required. The project would have no impact on fire protection services or facilities.

a-ii) Police Protection Services.

The project would have no impact on the City's population, and no housing would be constructed. Therefore, the project would not generate a demand for police protection services such that new or expanded facilities would be required. The project would have no impact on police protection services or facilities.

a-iii) Schools.

The project would have no impact on the City's population, and no housing would be constructed. Therefore, the project would not generate a demand for school services such that new or expanded facilities would be required. The project would have no impact on school services or facilities.

a-iv) Parks.

The project would have no impact on the City's population, and no housing would be constructed. Therefore, the project would not generate a demand for park services such that new or expanded facilities would be required. The project would have no impact on park services or facilities. Refer to Section 3.16, Recreation, for a discussion of other potential impacts related to parks and recreational facilities.

a-v) Other Public Facilities.

The project would have no impact on the City's population, and no housing would be constructed. Therefore, the project would not generate a demand for other public services, such as libraries and courthouses, that would require new or expanded facilities. The project would have no impact on other public services or facilities.

3.16 RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?				✓
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?			✓	

NARRATIVE DISCUSSION

Environmental Setting

The approximately 43-acre Lodi Lake Park is a municipal park within Lodi's City limits. While Lodi Lake Park is a City park, it attracts both existing residents and visitors beyond the boundaries of Lodi. According to the Lodi Parks, Recreation, and Cultural Services Department Strategic Action Plan, Lodi Lake Park is the most highly visited park in the City (City of Lodi 2015). The park includes a swimming beach, toddler pool, visitor center, boat house, two boat docks, and group picnic areas. Popular recreation activities include fishing, kayaking, canoeing, paddle boarding, and swimming. The park also offers nature programs and hosts various community events.

The Lodi Lake Nature Area, adjacent to and northeast of Lodi Lake Park, is the only designated natural open space within City limits. Natural open space is undeveloped land primarily left in its natural environment, with recreation uses as a secondary objective. The intent of the Nature Area is to preserve the riparian and natural open space along the Mokelumne River. It encompasses 58 acres, including 25 acres of lake area. The Nature Area provides 2.3 miles of paved and unpaved trails (City of Lodi 2010a).

A Class I paved pedestrian and bicycle pathway, which is used for recreational as well as transportation purposes, starts from the east side of Lower Sacramento Road and traverses the west side of Lodi Lake, providing direct access to the park. The pathway ends at the intersection of Turner Road and Mills Avenue (City of Lodi 2012a).

Environmental Impacts and Mitigation Measures

a) Increased Use of Existing Parks and Recreational Facilities.

The project is the placement of RSP and soil and the planting of vegetation. It does not propose any structures that would house people. As noted in Section 3.14, Population and Housing, the project would have no impact on the City's population. Therefore, the project would not generate a demand on existing parks and recreational facilities such that deterioration of these facilities would occur. The project would have no impact on existing parks or recreational facilities.

b) New or Expanded Recreational Facilities.

The project would involve improvements to Lodi Lake Park. These improvements are intended to reduce erosion along the banks of the Mokelumne River and to re-establish vegetation in the area. The project would not add new or expanded recreational facilities to Lodi Lake Park. As noted in a) above, the project would have no impact on the City's population. Therefore, the project would not generate a demand for parks and recreational facilities such that new or expanded facilities would be required. Project impacts on recreational facilities would be less than significant.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?				✓
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				✓
c) Substantially increase hazards to a geometric design feature (e g., sharp curves or dangerous intersections) or incompatible uses (e g, farm equipment)?				✓
d) Result in inadequate emergency access?				✓

NARRATIVE DISCUSSION

Environmental Setting

Streets and Roads

Lodi Lake Park contains facilities for motor vehicles. A paved road along the east side of the lake allows motor vehicle, bicycle, and pedestrian access to the project site. This road connects several parking areas and recreational facilities from the entrance to Lodi Lake Park to its terminus west of the project site.

Access to Lodi Lake Park is provided by Turner Road, an east-west roadway located along the southern boundary of the park. The roadway is designated a minor arterial in the Lodi General Plan (City of Lodi 2010a). Near the project site, Turner Road has two travel lanes in each direction. Exclusive left-turn lanes and a center-two-way left-turn lane are present along portions of the roadway. Turner Road has access to both Interstate 5 and State Route 99 via freeway interchanges. The current average daily volume on Turner Road near its intersection with Lower Sacramento Road is approximately 18,000 vehicles per day (KD Anderson and Associates 2018).

Other significant roadways in the project vicinity include Lower Sacramento Road and Mills Avenue. Lower Sacramento Road is a north-south roadway west of the project site that has one travel lane in each direction. The portion of Lower Sacramento Road north of Turner Road is designated a minor arterial road in the Lodi General Plan (City of Lodi 2010a). Mills Avenue, designated a collector road in the Lodi General Plan, is a north-south roadway that intersects Turner Road south of Lodi Lake (City of Lodi 2010a). Near this intersection, Mills Avenue has one travel lane in each direction. Adjacent to the southeastern boundary of Lodi Lake Park is Laurel Avenue, a cul-de-sac street that serves adjacent single-family residences.

Public Transportation

Transit services in the City of Lodi are operated by Lodi Transit (Grapeline). Grapeline provides local bus service with approximately 30 vehicles in the fleet. All vehicles are wheelchair accessible. There are five weekday and four weekend fixed routes; each starts and ends at the Lodi Transit Center off Sacramento Street in downtown Lodi. The center allows for connection to San Joaquin Regional Transit District bus lines to Manteca, Lathrop, Tracy, and Stockton, and to South County Transit bus lines to Galt, Elk Grove and Sacramento. Grapeline Route 1 provides service in the project vicinity, with a bus stop at the entrance to Lodi Lake Park.

Bicycle and Pedestrian Circulation

Bicycle lanes are provided on several streets in Lodi, with more bicycle lanes and routes proposed in the Lodi Bicycle Master Plan. In the project vicinity, an existing Class I bike lane is along the western shore of Lodi Lake (see Section 3.16, Recreation), a Class II bike lane is along Mills Avenue south of Turner Road, and a Class III bike route is located along Lower Sacramento Road north of Turner Road. The Bicycle Master Plan proposes a Class III bike route along Turner Road from Lower Sacramento Road to east of State Route 99, and a Class II bike lane along North Loma Drive south of Lodi Lake (City of Lodi 2012a).

Existing sidewalk is present along the Turner Road frontage of Lodi Lake Park. Bikeways and roads within Lodi Lake Park are available for pedestrian use. As noted in Section 3.16, Recreation, paved and unpaved trails are in the Lodi Lake Nature Area, which is accessible from Lodi Lake Park.

Transportation Impact Assessment

Analysis of traffic impacts has been based typically on Level of Service (LOS), which measures the quality of traffic movement on roadways and through intersections. LOS is represented by letter designations from A to F, with A representing the best movement conditions and F representing the worst. The minimum acceptable LOS for City roads and intersections are defined under Lodi General Plan Policies T-P11 and T-P12. Under Policy T-P12, a standard of LOS E during peak hour conditions is applied on all streets in the City's jurisdiction for purposes of design review and environmental assessment. Policy T-P11 makes an exception for Routes of Regional Significance, for which the LOS standards of SJCOG's Regional Congestion Management Program would apply (City of Lodi 2010a).

The State of California has recently added Section 15064.3 to the CEQA Guidelines. Section 15064.3 states that "vehicle miles traveled" (VMT) is the preferred method for evaluating transportation impacts, rather than LOS. VMT measures the total miles traveled by vehicles as a result of a given project. Unlike LOS, VMT accounts for the total environmental impact of transportation associated with a project, including use of non-vehicle travel modes. Section 15064.3(b) sets forth the criteria for analyzing transportation impacts using the preferred VMT metric. While a quantitative analysis of VMT is preferred, a qualitative analysis may be used if existing models or methods are

not available to estimate VMT for the project being considered (OPR 2018). The City of Lodi currently does not have traffic impact standards based on VMT, but it is required under SB 743 to establish such standards by July 1, 2020.

Environmental Impacts and Mitigation Measures

a) Conflicts with Transportation Programs and Plans.

The project is the placement of RSP and soil and the planting of vegetation. It does not propose any urban development that would generate traffic of any type - vehicle, bicycle, or pedestrian. As such, the project would not conflict with the objectives of adopted transportation plans, both vehicle and non-vehicle, that apply to the City of Lodi or to San Joaquin County. The project would have no impact on transportation plans.

b) Conflict with CEQA Guidelines Section 15064.3(b).

As noted in a) above, the project would not generate traffic, so it would not generate any VMT. The project would have no impact related to VMT.

c) Transportation Hazards.

The project would be confined to the banks of the Mokelumne River. It would not affect any roads or other transportation facilities. As such, it would not create any hazards associated with these facilities. The project would have no impact on transportation hazards.

d) Emergency Access.

As noted in Section 3.9, Hazards and Hazardous Materials, the project would not obstruct the road around the eastern and northern shoreline of Lodi Lake – the only road to the project site and vicinity. Emergency vehicles would be able to use this road during construction. The project would have no impact on the road itself, and thus would have no impact on emergency access.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, 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, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or			✓	

b) 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 Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		✓		

NARRATIVE DISCUSSION

Environmental Setting

As noted in Section 3.5, Cultural Resources, is situated in the transitional ethnographic territory of the Northern Valley Yokuts and the Northern Sierra Miwok tribes.

Northern Valley Yokuts

The Northern Valley Yokuts territory lay on both sides of the San Joaquin River from the Delta to south of Mendota, inhabiting lands as far north as the southern banks of the Mokelumne River. The Northern Valley Yokuts were organized into at least 11 small political units or tribes. Each tribe had a population of approximately 300 people, most of who lived within one principal settlement that usually had the same name as the political unit. Within the villages, structures included sweathouses, ceremonial chambers, and oval single-family dwellings made of tule. Northern Valley Yokuts material culture included a wide range of implements, including acorn mortars and pestles; snares, bows and spears used in hunting; tule boats; and a wide variety of basketry.

The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California. However, the Northern Valley Yokuts are generally not well documented in the ethnographic record because of their rapid decimation as a result of disease, missionization, and Euro-American settlement.

Northern Sierra Miwok

The Northern Sierra Miwok once inhabited the lower regions of the Mokelumne and Cosumnes Rivers to as far as the Sacramento River to the west. The main political unit for the Miwok was the tribelet, which consisted of a primary village and several satellite villages settled around drainages. Tribelets consisted of people who held a sense of unity and local autonomy and believed in using and owning land within a specific, lineage-based territory. The Miwok typically lived in brush or tule shelters conical in shape, but sweat houses, acorn granaries, dance houses, and communal earth-covered houses were also common structures in village life. Similar to the Northern Valley Yokuts, the material culture of the Northern Sierra Miwok included a range of implements, including acorn mortars and pestles, nets and decoys used in hunting, and baskets for storage.

AB 52

In 2014, the California Legislature enacted AB 52, which requires CEQA consultation with Native American tribes on projects that could potentially affect resources of value to the tribes. The intent of this consultation is to avoid or mitigate potential impacts on "tribal cultural resources," which are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe as defined in the checklist questions above. The tribal cultural resource must be a tangible resource for CEQA purposes, but the meaning or value attributed to that resource may be intangible.

Only tribes that request to be on a CEQA lead agency's notice list shall be consulted on a project under AB 52. The project must be within the geographic area that is traditionally and culturally affiliated with the tribes. Consultation with tribes on a notice list shall be initiated prior to the release of the CEQA document for public review. The lead agency must provide the tribe with notice of a proposed project within 14 days either of a project application being deemed complete or when the lead agency decides to undertake the project if it is the agency's own project. The tribe has 30 days from receipt of the notification letter to respond in writing. If the tribe requests consultation, then the lead agency has up to 30 days after receiving the tribe's request to initiate formal consultation. Potential subjects of AB 52 consultation include the type of CEQA environmental review necessary, the significance of tribal cultural resources, and project alternatives or appropriate measures for preservation or mitigation of tribal cultural resources that the tribe may recommend to the lead agency.

The AB 52 consultation process ends either (1) when the resource in question is not considered significant, (2) when the parties agree to mitigate or avoid a significant effect on a tribal cultural resource, or (3) when a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. Regardless of the outcome, a lead agency is still obligated under CEQA to mitigate for any significant environmental effects.

In accordance with AB 52 and on behalf of the City, the lead agency on the project, Solano Archaeological Services mailed letters to the following Native American tribes or their representatives that may have an interest in the project, as identified by the NAHC:

- Rhonda Morningstar Pope, Chairperson, Buena Vista Rancheria of Me-Wuk Indians
- Corrina Gould, Chairperson, The Confederated Villages of Lisjan
- Sara Dutschke Setchwaelo, Chairperson, Ione Band of Miwok Indians
- Katherine Erolinda Perez, Chairperson, Northern Valley Yokuts Tribe
- Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria (UAIC)
- Raymond Hitchcock, Chairperson, Wilton Rancheria
- California Valley Miwok Tribe
- Sheep Rancheria of Me-Wuk Indians of CA (California Valley Miwok Tribe)

Environmental Impacts and Mitigation Measures

a, b) Tribal Cultural Resources.

The project site is considered a potential area where tribal cultural resources may be encountered, with its location next to the Mokelumne River. As noted in Section 3.5, Cultural Resources, two pre-contact sites have been recorded within a half-mile radius of the project site.

As part of preparation of the cultural resource memorandum, Solano Archaeological Services sent a request to the NAHC to search its Sacred Lands File. The NAHC responded that there was no record of the project site in its Sacred Lands File.

In accordance with AB 52, eight letters were sent to local tribes or their representative inviting them to consult on the project. Responses were generated by three of these letters:

- Solano Archaeological Services received a voicemail from Anna Starky, representing UAIC, stating that the project area is culturally sensitive. In a follow-up phone call by Solano Archaeological Services, Ms. Starky stated that the UAIC declines consultation on this project.

- Solano Archaeological Services received an electronic mail from the Sheep Rancheria of Me-Wuk Indians expressing their interest in the project and requesting to be kept informed.

- Solano Archaeological Services received a telephone call from Katherine Perez of the Northern Valley Yokuts, who expressed her concerns about the project. Ms. Perez stated that the project location is archaeologically sensitive and lies in the vicinity of known unrecorded and recorded pre-contact resources. Ms. Perez requested consultation and supplied a list of mitigation measures, which are provided in Attachment F of the Solano Archaeological Services memorandum.

In addition, two other tribes – the Buena Vista Rancheria and the Wilton Rancheria – have indicated they will request formal consultation with the Corps related to its NEPA procedures.

Ms. Perez accompanied field archaeologists during the field survey of the project site on December 3, 2019. As noted in Section 3.5, Cultural Resources, five previously unrecorded pre-contact isolates were identified and recorded. On February 25, 2020, Solano Archaeological Service met with Ms. Perez and with Buena Vista Rancheria Tribal Historic Preservation Officer Mr. Richard Hawkins at the project site.

Based upon information provided by the tribes and the findings of Solano Archaeological Services, project construction could potentially affect tribal cultural resources, which would be a potentially significant impact. Mitigation Measures CULT-1 and CULT-2, described in Section 3.5, would be applied to any cultural resources encountered during project construction. Mitigation Measure CULT-3, also described in Section 3.5, shall be applied to human remains and associated funerary objects of potential Native American

origin that may be encountered. If tribal cultural resources other than human remains and associated funerary objects are encountered during project construction, mitigation described below shall be applied. Implementation of this mitigation measure, along with those in Section 3.5, would reduce potential impacts on tribal cultural resources to a level that would be less than significant.

Level of Significance: Potentially significant

Mitigation Measures:

TCR-1: If tribal cultural resources other than human remains and associated funerary objects are encountered, the Lodi Community Development Department shall be immediately notified of the find, and the Department in turn shall notify the appropriate Native American representatives. A qualified archaeologist and the Native American representative shall examine the materials and determine their "uniqueness" or significance as tribal cultural resources and shall recommend mitigation measures needed to reduce potential cultural resource effects to a level that is less than significant in a written report to the Community Development Department, with a copy to the Native American representatives involved with the resource. The Community Development Department will be responsible for implementing the report recommendations. Avoidance is the preferred means of disposition of tribal cultural resources.

Significance After Mitigation: Less than significant

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 could cause significant environmental effects?				✓
b) 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 that would serve the project that it has 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?			
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?		✓	

NARRATIVE DISCUSSION

Environmental Setting

Potable water service to the project vicinity is provided by the City from existing surface and ground water sources. Surface water supplies approximately 58% of the City's existing potable water usage; groundwater wells supply approximately 42% (City of Lodi 2016a). Surface water supplies are obtained from a 2003 agreement with the WID, allowing the City to purchase an initial 6,000 acre-feet of water per year through 2047. Surface water is diverted from the Mokelumne River to the Lodi Surface Water Treatment Plant, across Lodi Lake southwest of the project site. The City has 28 groundwater wells distributed throughout the City, which have a combined capacity of 62,000 acre-feet per year (City of Lodi 2016a). The closest municipal groundwater well to the project site is at the intersection of Turner Road and Mills Avenue.

The City's municipal wastewater collection and treatment system consists of approximately 191 miles of collection pipelines ranging in size from 4 to 42 inches in diameter, along with includes force mains, gravity mains, and pump stations. The closest wastewater collection line to the project site is along Turner Road. These facilities convey wastewater to a 42-inch sewer trunk line which flows southwest to the City's White Slough Water Pollution Control Facility, located approximately six miles southwest of Lodi. The White Slough facility has a municipal treatment capacity of 8.5 million gallons per day and a peak flow capacity of 16 million gallons per day (City of Lodi 2012b).

The City of Lodi storm drainage system is a gravity-based system built around storm water detention basins scattered throughout the City; many of these are maintained as parks and recreational facilities during non-runoff periods. The City maintains 124 miles of storm water collection and conveyance piping ranging from 4 to 72 inches in diameter. The system includes 18 storm outlets to the Mokelumne River, Lodi Lake, or the WID Canal (City of Lodi 2012c). Storm water in the developed portions of the project vicinity is conveyed via a 30-inch diameter gravity storm drain along Lower Sacramento Road and a 42-inch diameter storm gravity pipeline along Turner Road to the Turner Road pump station at the City's Surface Water Treatment Plant. Two outfalls at the pump station discharge the collected stormwater to Lodi Lake. Lodi Lake Park has no significant drainage facilities; most precipitation either enters nearby waters or percolates into the ground.

Solid non-hazardous waste generated in Lodi is collected by Waste Management, a private company under contract with the City, and is hauled to the North County Recycling Center and Sanitary Landfill, owned and operated by San Joaquin County. The landfill receives 541 tons of waste per day and is permitted to accept 1,200 tons per day.

On average, the recycling center diverts more than 1,400 tons of materials from the landfill per month. The North County landfill is expected to have adequate capacity to accept solid waste through 2035 (San Joaquin County 2016).

Electrical service in Lodi is provided by Lodi Electric Utility, which is managed by the City. Electrical supplies are obtained cooperatively with the other municipal members of the NCPA and distributed to the City via Lodi Electric Utility backbone and distribution lines. A NCPA station and a Lodi Electric Utility substation are located across Lodi Lake southwest of the project site. Electrical service is available in Lodi Lake Park, including at the recreational areas adjacent to the project site.

Natural gas service in Lodi is provided by Pacific Gas and Electric Company (PG&E). An existing PG&E natural gas pipeline, four inches in diameter, is located within Turner Road. An existing cellular communications tower, owned and operated by AT&T, is west of Lodi Lake. Underground communication lines are along the east side of Lower Sacramento Road, and overhead lines are along the south side of Turner Road.

Environmental Impacts and Mitigation Measures

a) Relocation or Construction of Utility Facilities.

The project site has no existing utility facilities, other than irrigation lines that have been exposed by erosion. It is expected that the project would cover these irrigation lines, so no facilities would be relocated. No new or expanded utility facilities would be installed on the project site. The project would have no impact on utility facilities.

b) Water System and Supplies.

No water lines or facilities would be installed as part of the project. As noted in Section 3.15, Public Services, the project would not generate any population growth nor construct any structures that would house people. As such, the project would not generate a demand for water. The project would have no impact on water supplies.

c) Wastewater Treatment Capacity.

No wastewater lines or facilities would be installed as part of the project. The project would not generate a demand for wastewater treatment. The project would have no impact on wastewater treatment capacity.

d) Solid Waste Services.

Once construction work is completed, the project would not generate any solid waste that would require collection (see e) below for construction waste). As such, the project would not generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, including capacity of the landfill used to dispose of solid waste collected in the City. The project would have no impact on solid waste collection.

e) Compliance with Solid Waste Regulations.

The project would involve the removal of existing concrete debris on the project site, along with the generation of construction waste. The debris and waste would be disposed of in accordance with Lodi Municipal Code Chapter 13.16, which addresses solid waste matters such as construction and demolition waste. As noted in d) above, the project by itself would generate no solid waste once construction work is completed. Therefore, the project would not conflict with federal, state, or local solid waste management statutes or regulations. Project impacts on solid waste regulations would be less than significant.

3.20 WILDFIRE

If located in or near State Responsibility Areas or lands classified as Very High Fire Hazard Severity Zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				✓
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?				✓

NARRATIVE DISCUSSION

Environmental Setting

The Environmental Checklist in CEQA Guidelines Appendix G has been revised to include a section addressing the potential impacts of a project as it relates to wildfire. Wildland fires are an annual hazard in San Joaquin County. Wildland fires burn natural vegetation on undeveloped lands and include rangeland, brush, and grass fires. Long, hot, and dry summers with temperatures often exceeding 100°F add to the County's fire hazard. Human activities are the major causes of wildland fires, while lightning causes the remaining wildland fires. High hazard areas for wildland fires are the grass-covered areas in the east and the southwest foothills of the County (San Joaquin County 2016).

The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program identifies fire threat based on a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined in determining the following Fire Hazard

Severity Zones: Moderate, High, Very High, Extreme. These zones apply to areas designated as State Responsibility Areas, where the State has primary firefighting responsibility. The project site and the surrounding area are not within a State Responsibility Area, and these areas have not been placed in any Very High Fire Hazard Severity Zone (Cal Fire 2007a, 2007b).

Environmental Impacts and Mitigation Measures

a) Emergency Response Plans and Emergency Evacuation Plans.

As noted in Section 3.9, Hazards and Hazardous Materials, the project would not obstruct the road around the eastern and northern shoreline of Lodi Lake. Emergency vehicles would be able to use this road during construction, and the road would be open for evacuations if necessary. The project would have no impact related to emergency vehicle responses or evacuations.

b) Exposure of Project Occupants to Wildfire Hazards.

As noted, the project would not place any occupants on the project site, so the project would not expose any occupants to wildfire hazards, which have not been identified on the project site. The project would have no impact regarding exposure of occupants to wildfire hazards.

c) Installation and Maintenance of Infrastructure.

As described in Section 3.19, Utilities and Service Systems, the project would not involve the installation of any infrastructure on the project site. Therefore, the project would not install infrastructure that may exacerbate fire risk or that may result in temporary or ongoing wildfire hazard impacts. The project would have no impact related to infrastructure and wildfire hazards.

d) Risks from Runoff, Post-Fire Slope Instability, or Drainage Changes.

The project does not propose the construction of any structures that 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. Such potential hazards would occur mainly in the areas close to foothill areas that would experience significant wildfire hazards. The project site is within the flat area of the San Joaquin Valley, away from the foothills. The project would have no impact related to potential post-fire hazards.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		✓		
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			✓	
c) Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?			✓	

NARRATIVE DISCUSSION

a) Findings on Biological and Cultural Resources.

The project's potential biological resource impacts were described in Section 3.4, Biological Resources, while potential impacts on cultural resources were described in Section 3.5, Cultural Resources, and in Section 3.18, Tribal Cultural Resources. Potentially significant environmental impacts were identified in these issue areas, but these impacts would be reduced to levels that would be less than significant with implementation of mitigation measures described in the aforementioned sections.

b) Findings on Cumulatively Considerable Impacts.

As described in this IS/MND, most of the potential environmental effects of the project would either be less than significant or would have no impact at all. Where the project involves potentially significant effects, these effects would be avoided or reduced to a level that is less than significant with proposed mitigation measures and/or compliance with applicable regulations and conditions of required permits.

The potential environmental effects identified in this IS/MND have been considered in conjunction with each other as to their potential to generate other potentially significant effects. The various potential environmental effects of the project would not combine to generate any potentially significant cumulative effects. There are no other known, similar

projects in the area with which the project might combine to produce adverse cumulative impacts.

c) Findings on Adverse Effects on Human Beings.

Potential adverse effects on human beings were discussed in Section 3.7, Geology and Soils (seismic hazards); Section 3.9, Hazards and Hazardous Materials; Section 3.10, Hydrology and Water Quality (flooding); Section 3.17, Transportation (traffic hazards); and Section 3.20, Wildfire. All potential adverse effects on human beings identified in those sections would be reduced to levels that are less than significant through mitigation measure or through compliance with applicable laws, regulations, and ordinances.

4.0 REFERENCES

4.1 DOCUMENT PREPARERS

This IS/MND was prepared by BaseCamp Environmental, Inc. for use by and under the supervision of the City of Lodi Community Development Department. The following persons were involved in preparation of the IS/MND:

City of Lodi Community Development Department

BaseCamp Environmental, Inc.

Charlie Simpson, Principal
Terry Farmer, AICP, Senior Environmental Planner
Krista Simpson, Associate Environmental Planner

Biological Resources

Diane Moore, Moore Biological Consultants
Patrick Cuthbert, FISHBIO

Cultural Resources

Jason Coleman, Solano Archaeological Services

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4.3 PERSONS CONSULTED

Jason A. Coleman, M.A., R.P.A. Solano Archaeological Services.

Patrick Cuthbert. FISHBIO.

William Darsie. KSN, Inc.

Diane Moore. Moore Biological Consultants.

Jeff Mueller, P.E. Civil Engineer, KSN, Inc.

Susan Talcott. Solano Archaeological Services.

5.0 NOTES RELATED TO EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [CEQA Guidelines Section 15063(c)(3)(D)]. In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used: Identify and state where they are available for review.

   b) Impacts Adequately Addressed: Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures: For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific

conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

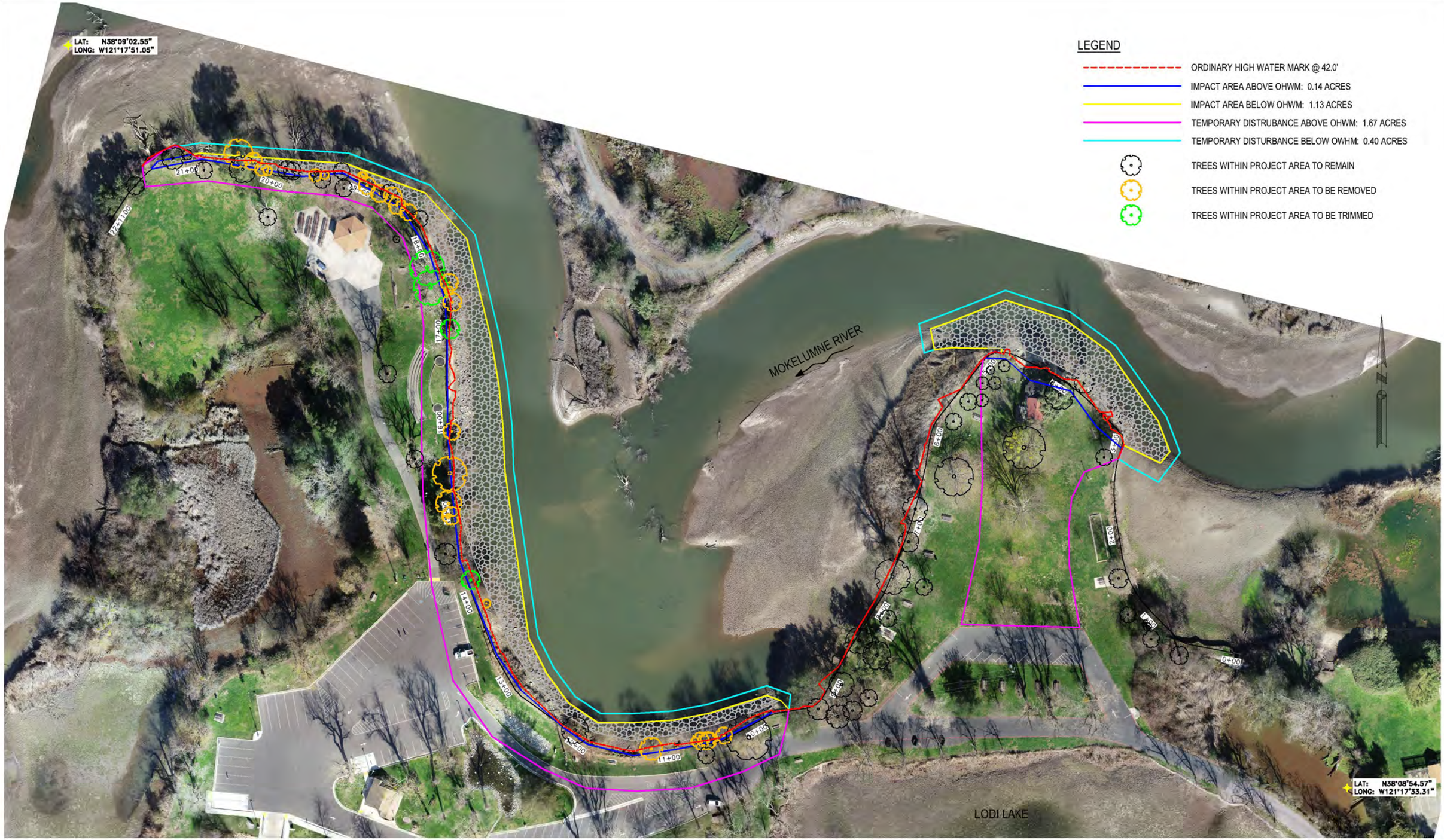
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

APPENDIX A
PROJECT PLANS



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LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

PROJECT IMPACT MAP

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SHEET OF
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2402-0010

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SITE MAP

DATE
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SHEET IDENTIFICATION
C-106
SHEET 6 OF 12

KSN PROJECT FILE NO.
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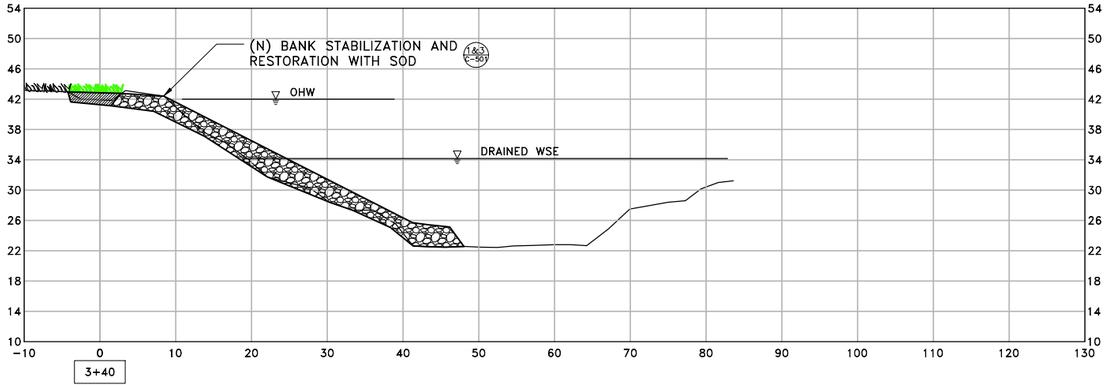

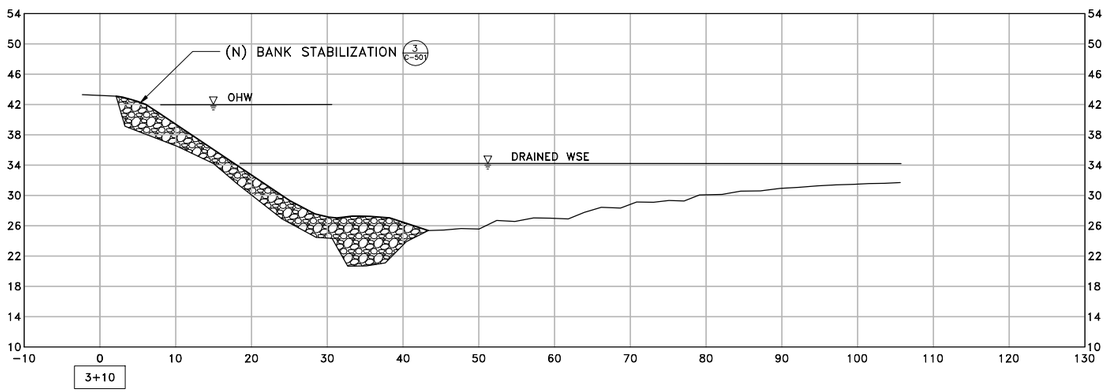

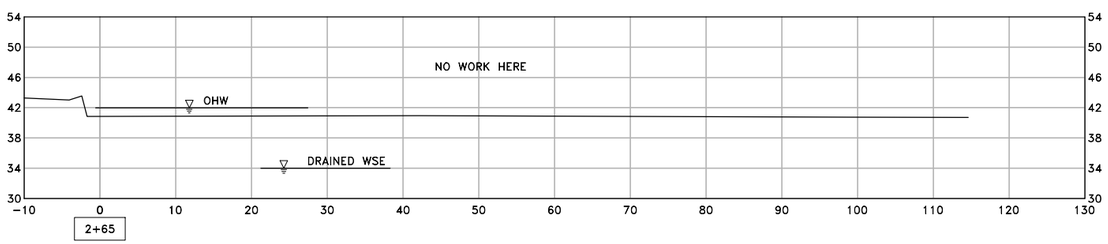

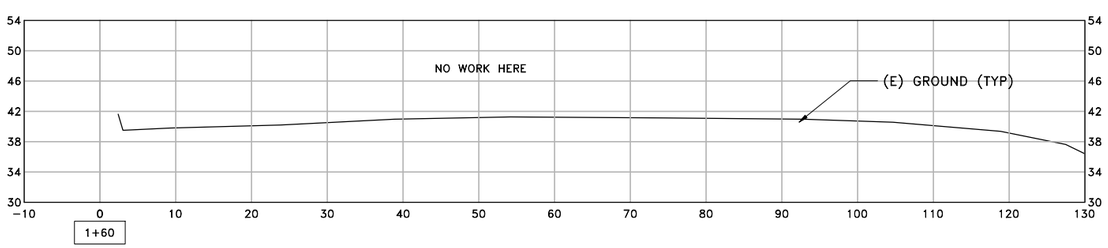

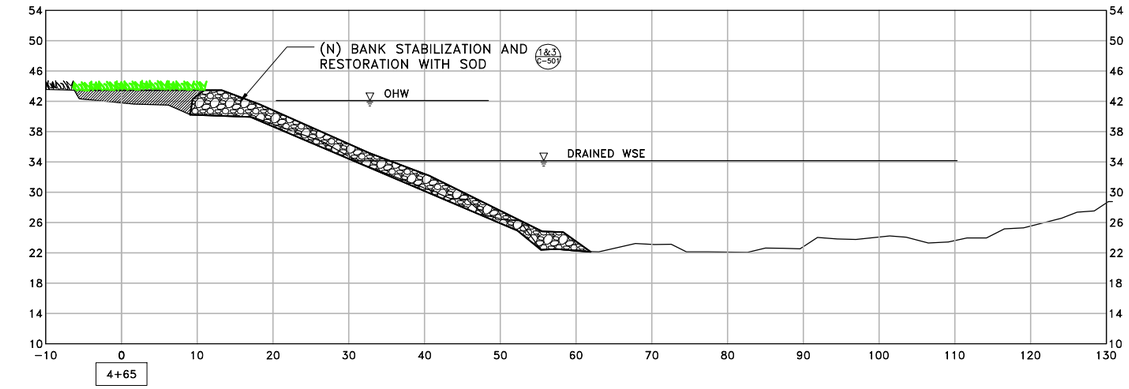

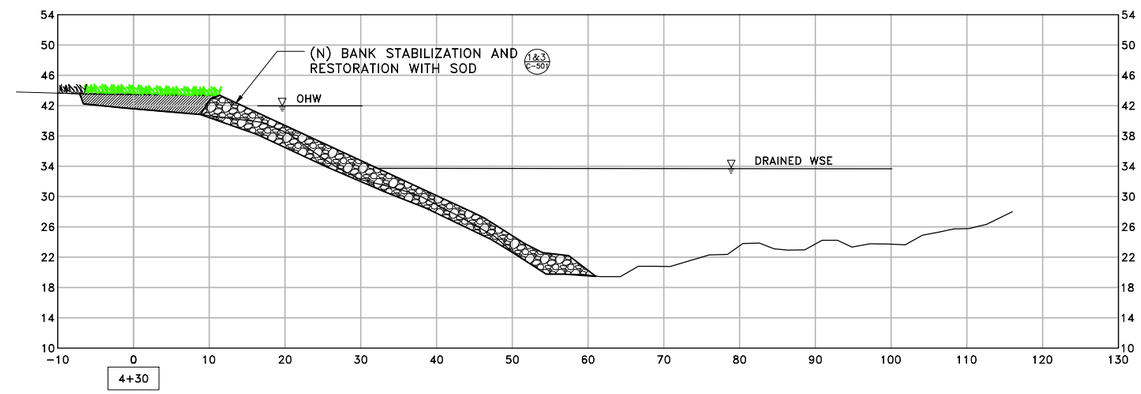

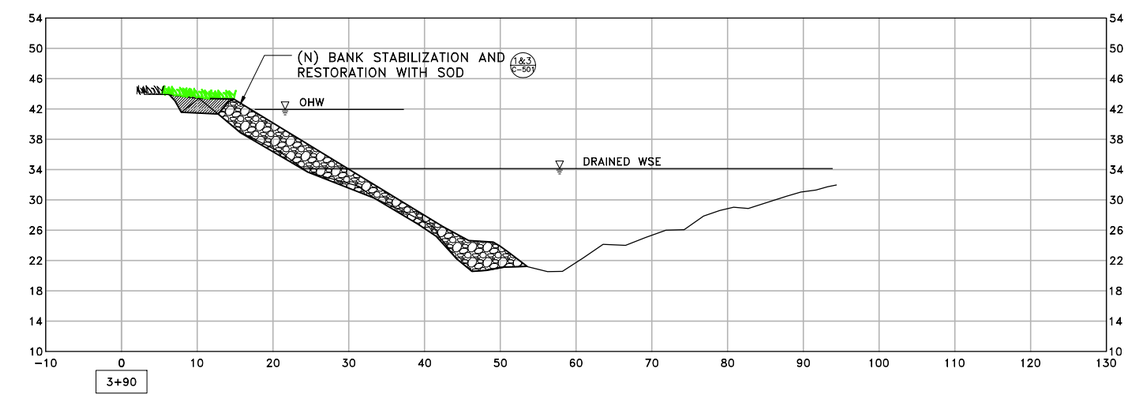

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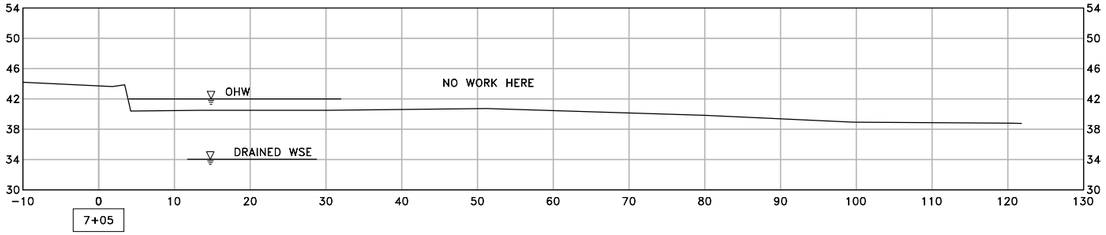
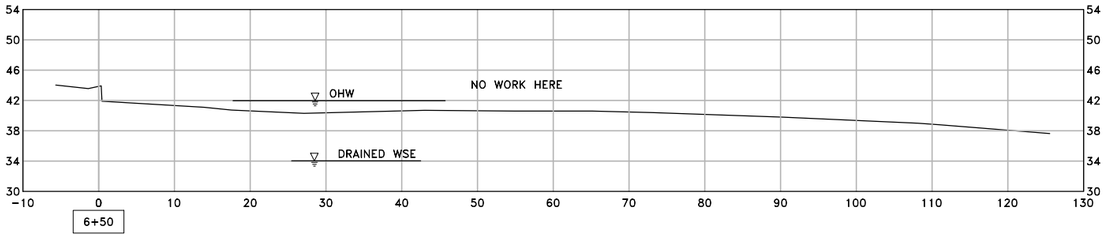
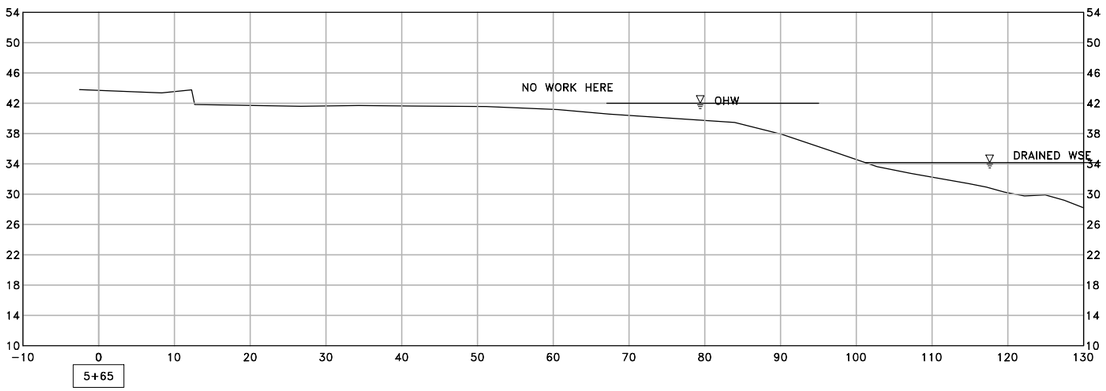
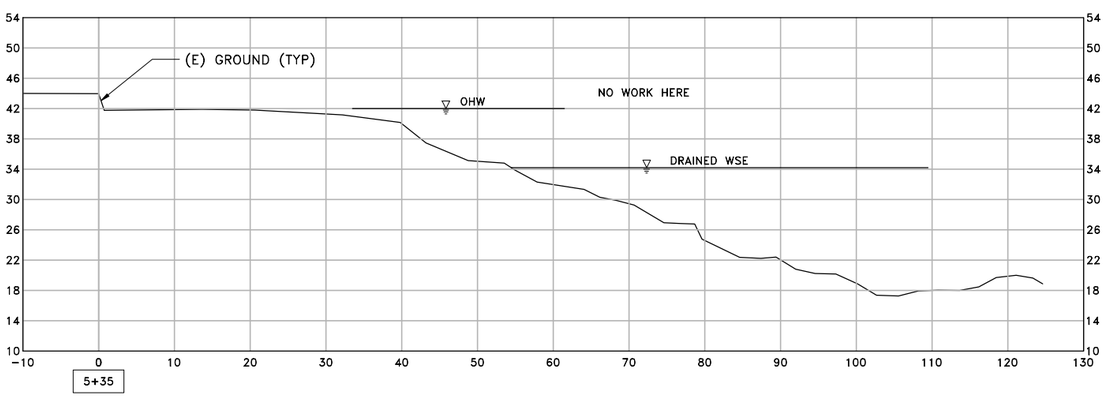
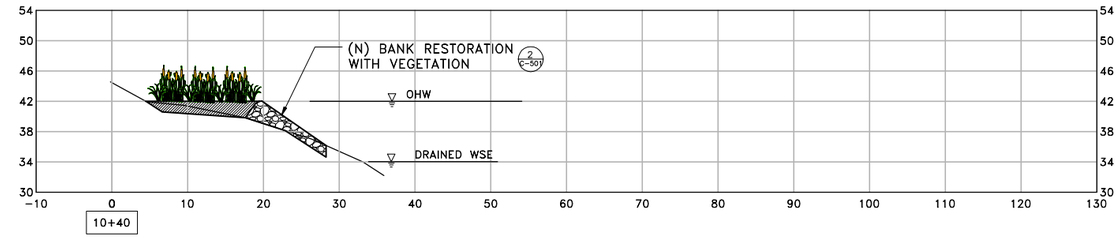
SHEET 7 OF 12
KSN PROJECT FILE NO. 2402-0010

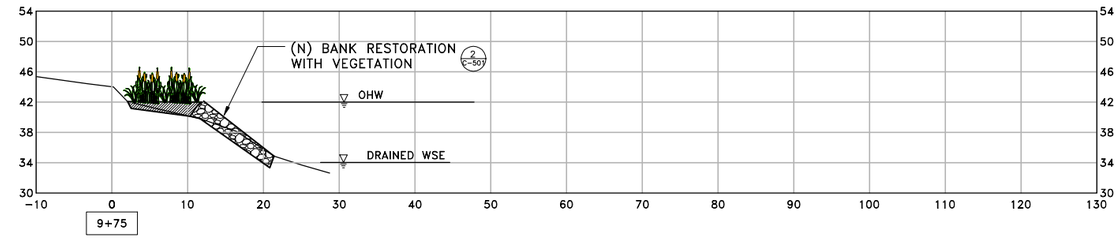


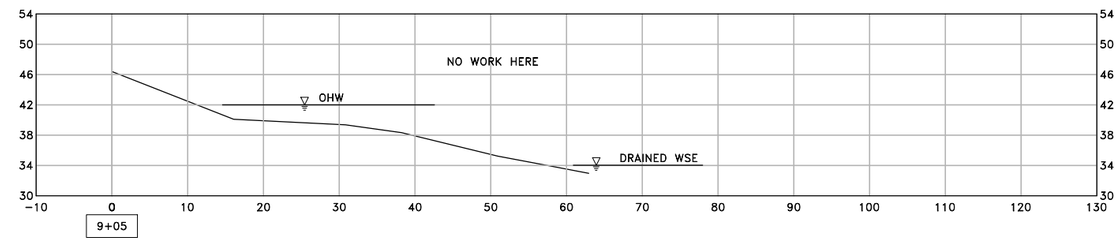


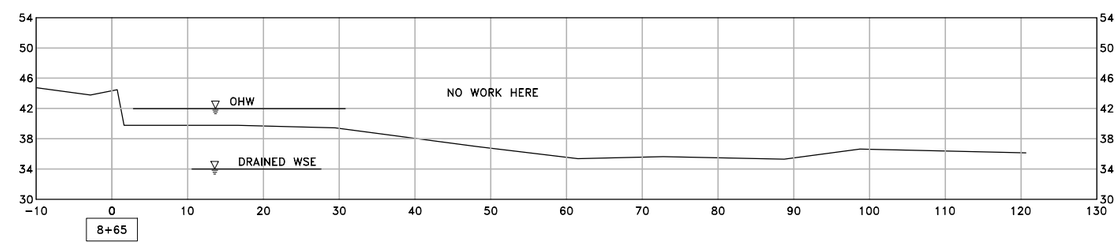


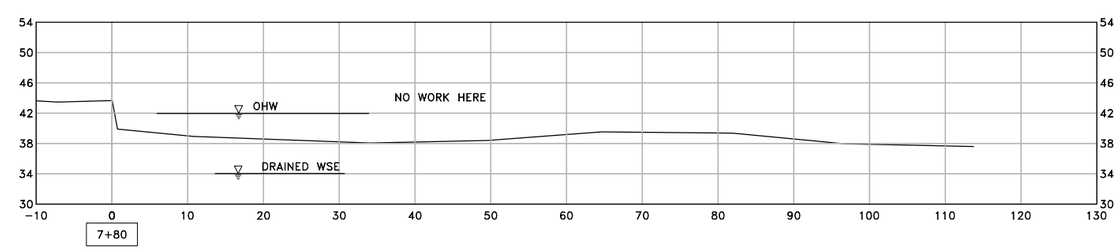












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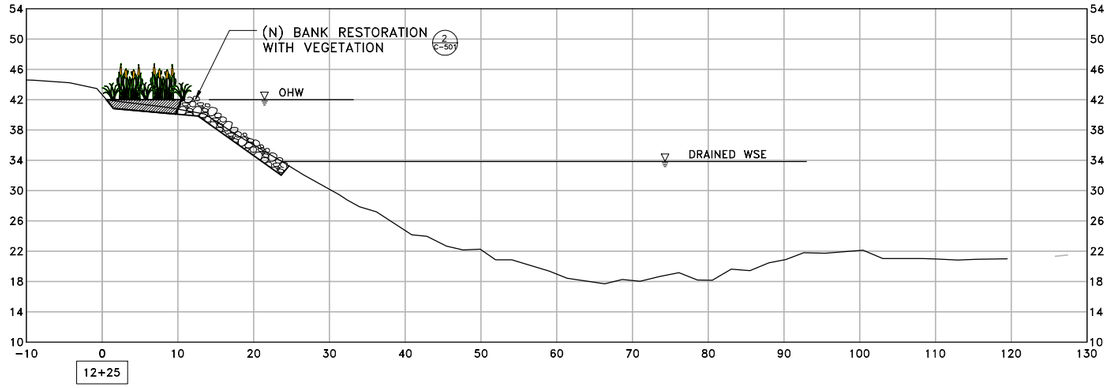

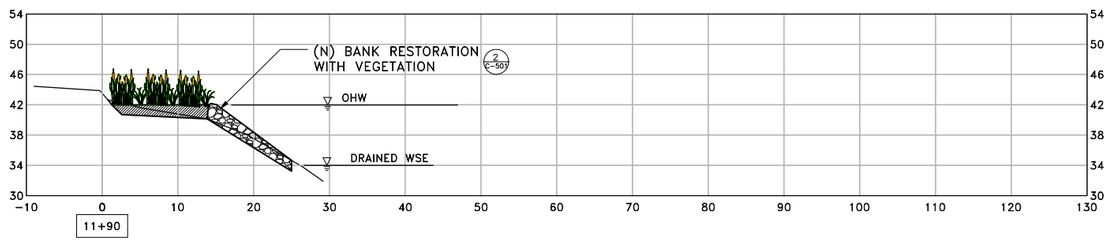

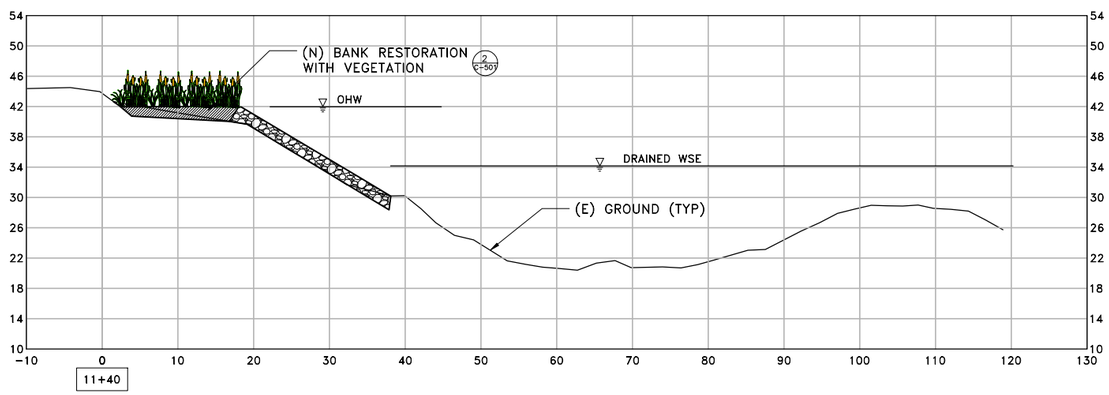

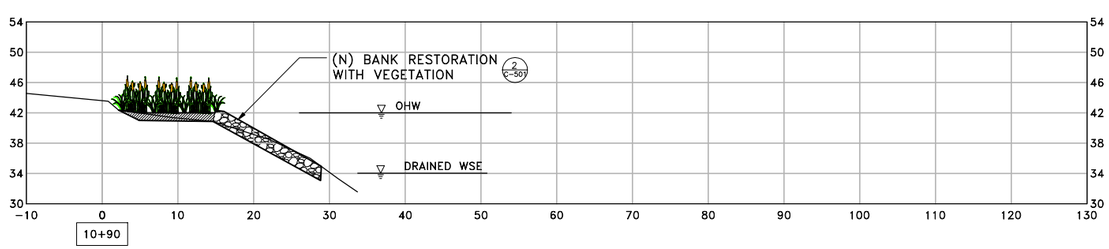

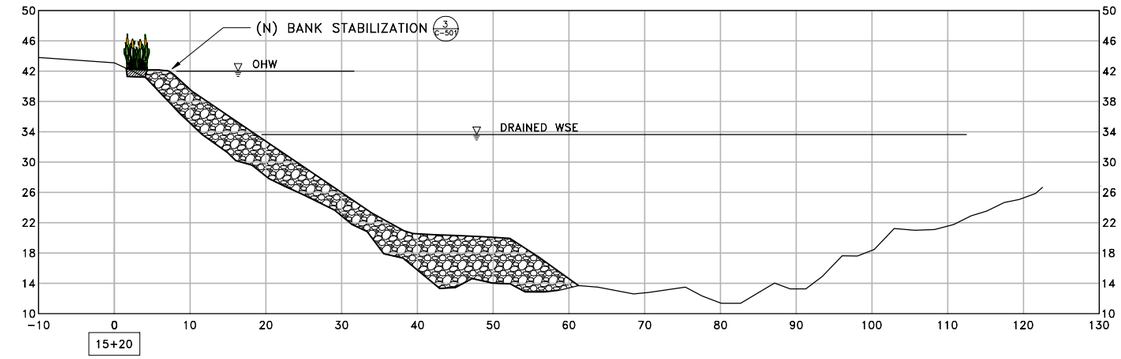

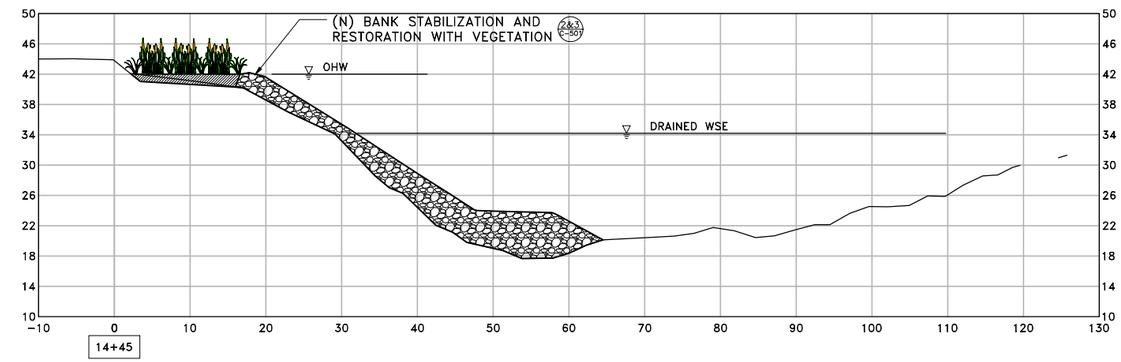

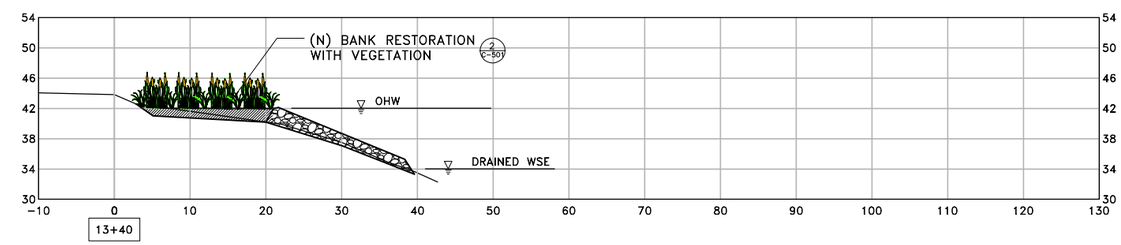

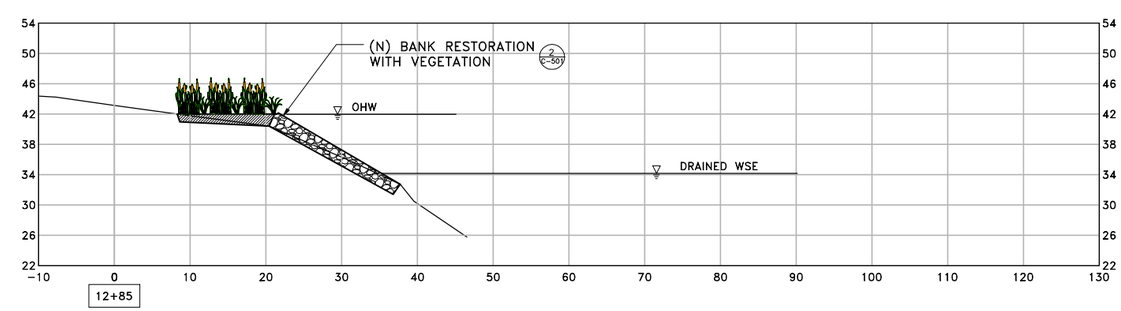

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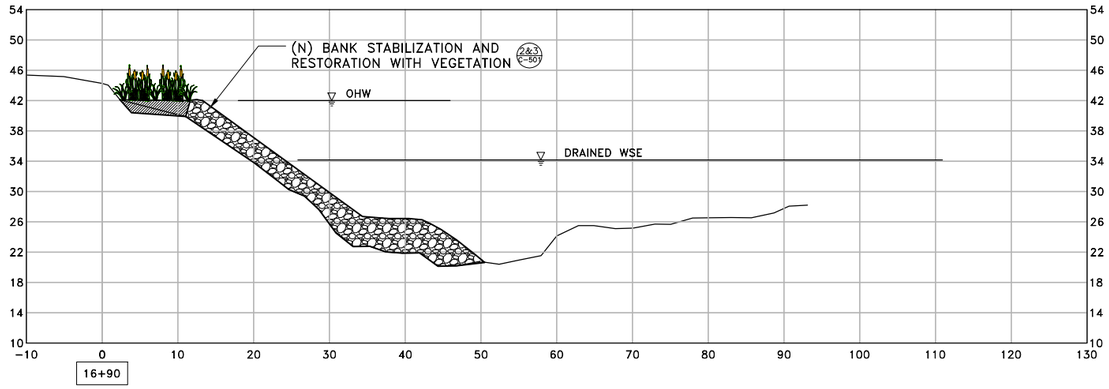

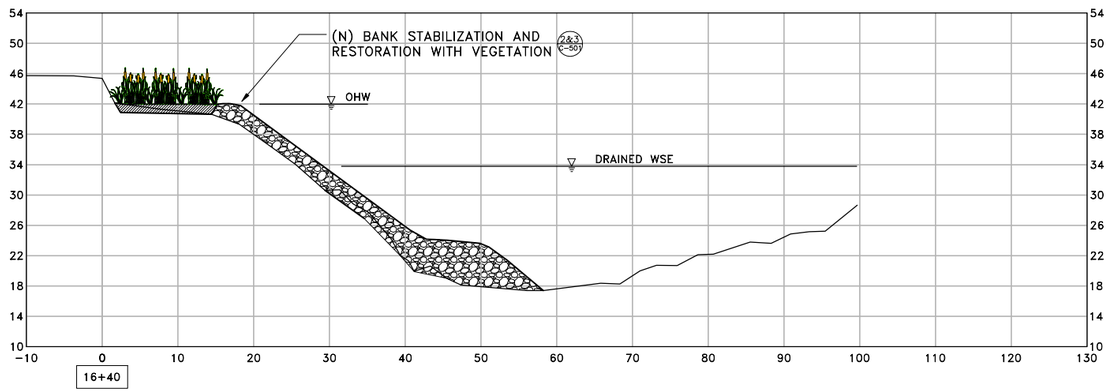

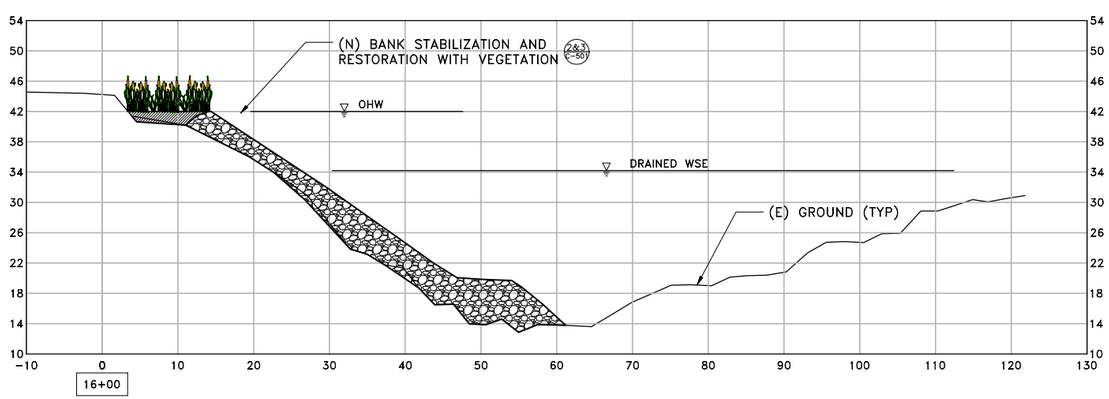

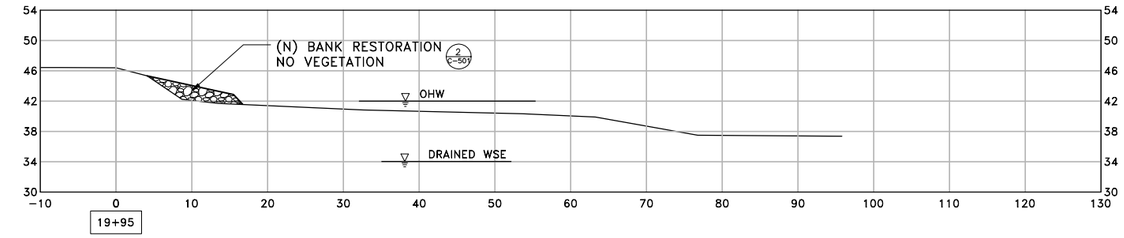

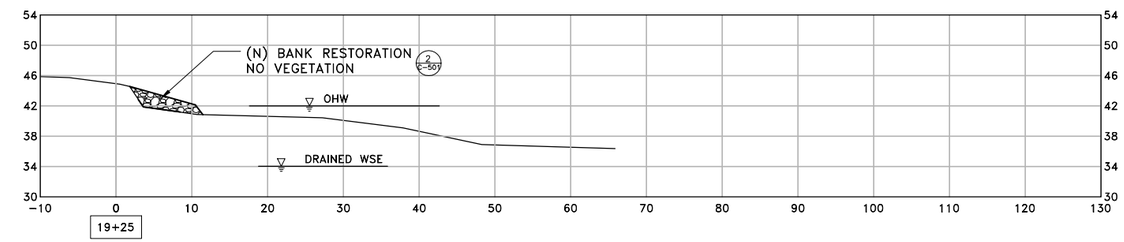

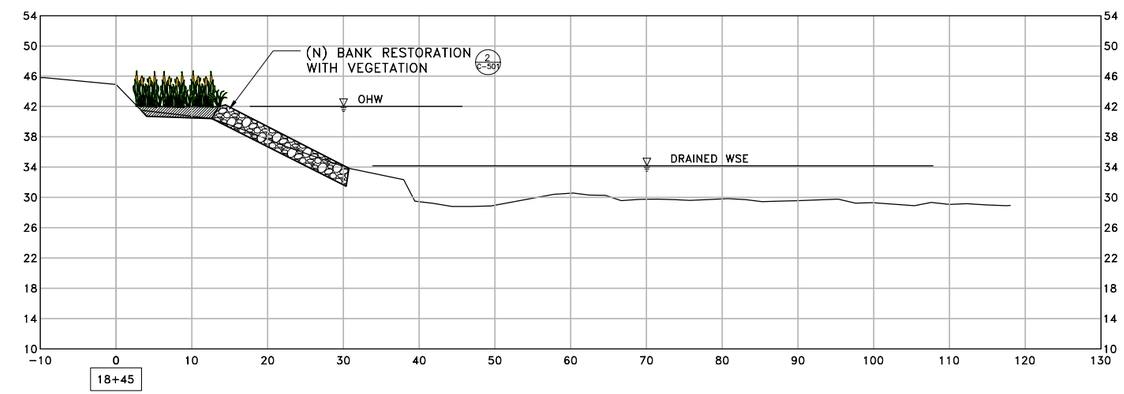

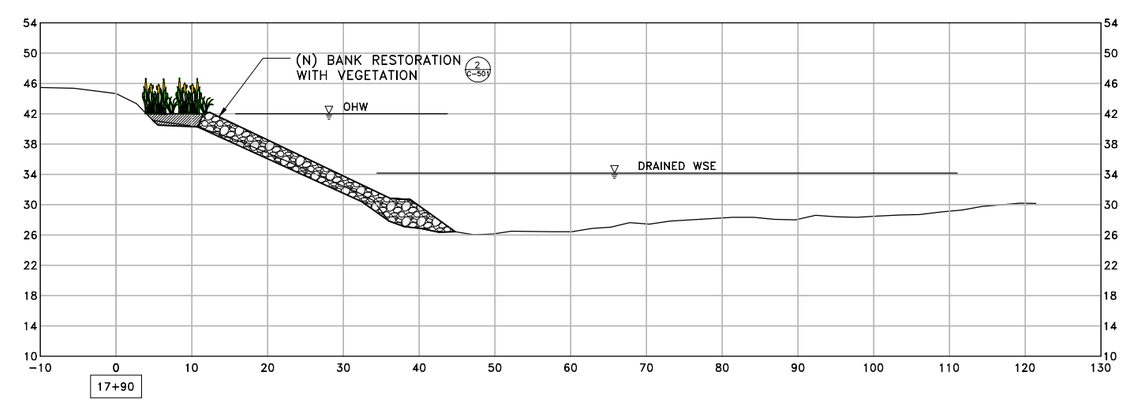

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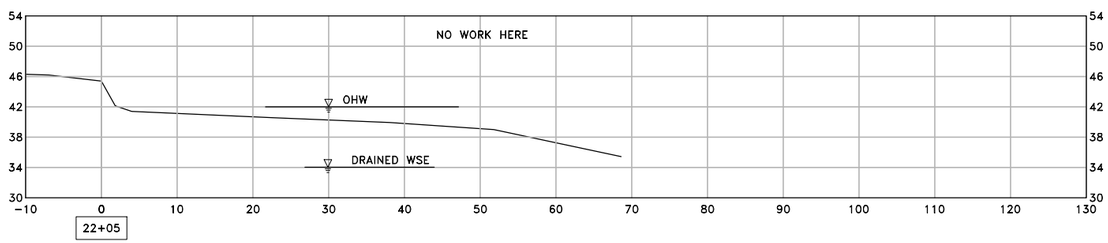

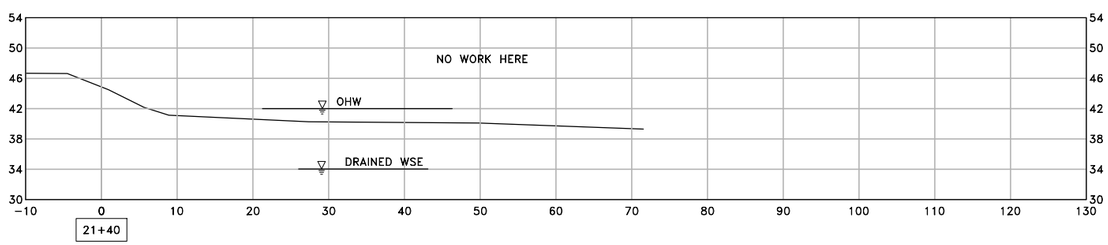

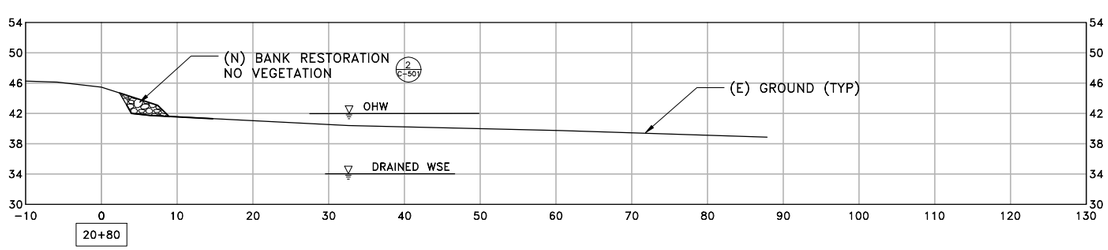

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SHEET 11 OF 12

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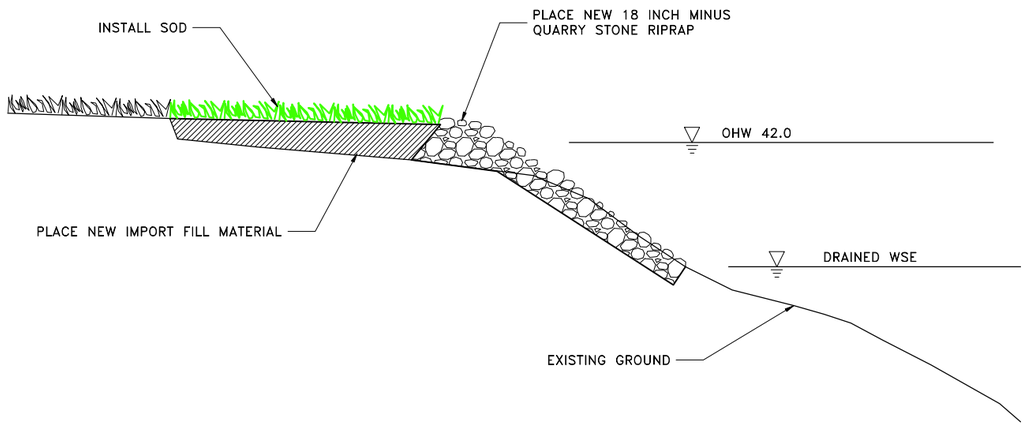
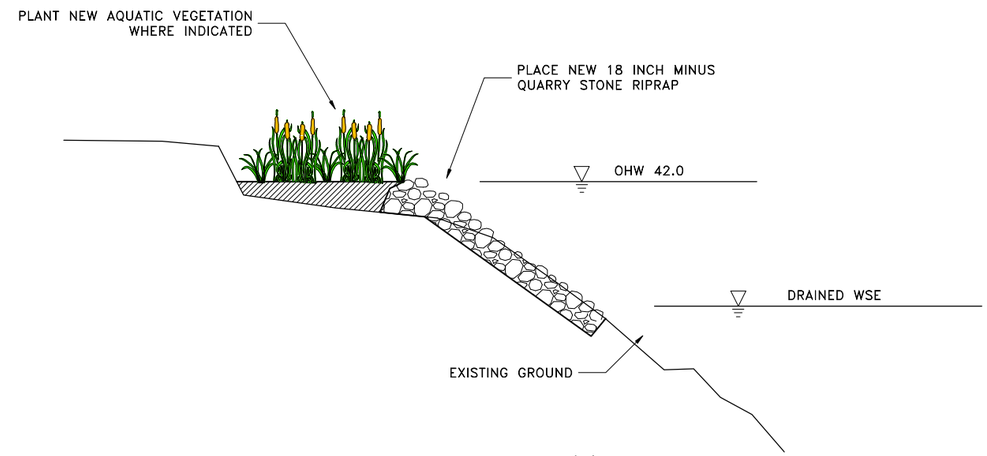


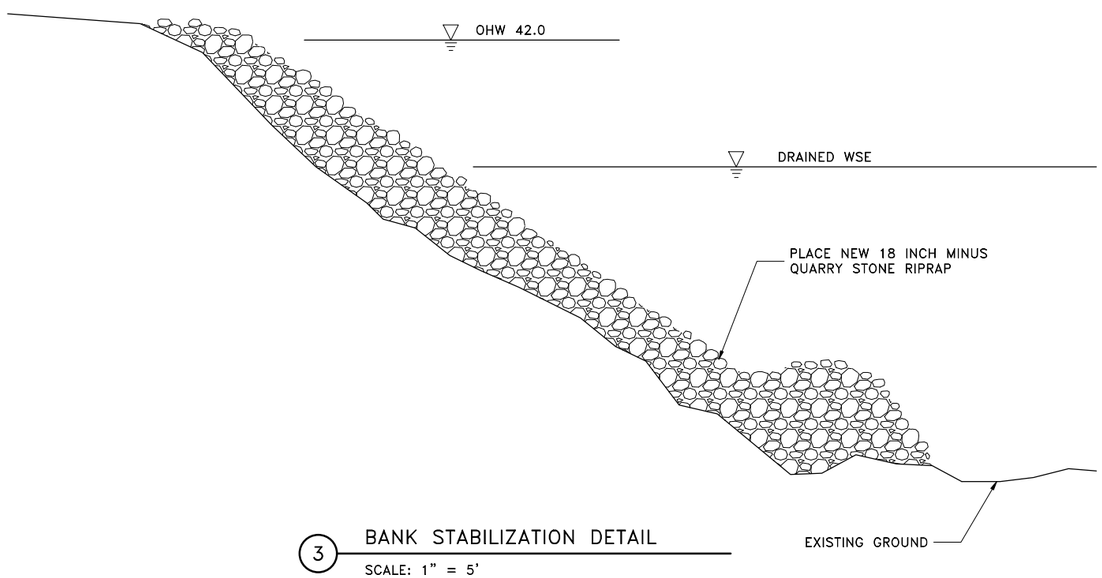
1 BANK RESTORATION DETAIL (1)

SCALE: 1" = 5'



2 BANK RESTORATION DETAIL (2)

SCALE: 1" = 5'



3 BANK STABILIZATION DETAIL

SCALE: 1" = 5'

NOTE: DEBRIS REMOVAL

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 – 9:13am

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE

ORIGINAL DRAWING SCALE 0 ½" 1"

KSN inc. KJELDSEN SINNOCK NEUDECK CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Drive, Suite 212
West Sacramento, CA 95691
916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

DETAILS

DATE JUNE 2019

SHEET IDENTIFICATION C-501

SHEET 12 OF 12

KSN PROJECT FILE NO. 2402-0010

APPENDIX B
AIR QUALITY MODELING RESULTS

Road Construction Emissions Model **Version 9.0.0**
Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Lodi Lake	
Construction Start Year	2021	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	1.00	month
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.38	miles
Total Project Area	1.15	acres
Maximum Area Disturbed/Day	0.05	acres
Water Trucks Used?	2	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	20.00	20.00	0.00
	Grading/Excavation	20.00	20.00	0.00
	Drainage/Utilities/Sub-Grade	20.00	20.00	0.00
	Paving	20.00	20.00	0.00
Asphalt	Grubbing/Land Clearing	0.00	0.00	0.00
	Grading/Excavation	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	0.00	0.00	0.00
	Paving	0.00	0.00	0.00

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.10		1/1/2021
Grading/Excavation		0.40		1/5/2021
Drainage/Utilities/Sub-Grade		0.35		1/18/2021
Paving		0.15		1/29/2021
Totals (Months)	1			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
User Input					
Miles/round trip: Grubbing/Land Clearing				1	0.00
Miles/round trip: Grading/Excavation				1	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				1	0.00
Miles/round trip: Paving				1	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grading/Excavation (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Draining/Utilities/Sub-Grade (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Paving (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
User Input					
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grading/Excavation (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Draining/Utilities/Sub-Grade (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Paving (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values		
User Input				
Miles/ one-way trip			Calculated Daily Trips	Calculated Daily VMT
One-way trips/day				
No. of employees: Grubbing/Land Clearing			0	0.00
No. of employees: Grading/Excavation			0	0.00
No. of employees: Drainage/Utilities/Sub-Grade			0	0.00
No. of employees: Paving			0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grading/Excavation (grams/mile)	0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Paving (grams/mile)	0.02	1.10	0.10	0.05	0.02	0.00	339.80	0.00	0.01	342.28
Grubbing/Land Clearing (grams/trip)	1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Grading/Excavation (grams/trip)	1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Draining/Utilities/Sub-Grade (grams/trip)	1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Paving (grams/trip)	1.18	2.95	0.34	0.00	0.00	0.00	72.81	0.08	0.04	85.39
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
User Input								
Grubbing/Land Clearing - Exhaust								0.00
Grading/Excavation - Exhaust								0.00
Drainage/Utilities/Subgrade								0.00
Paving								0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grading/Excavation (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Draining/Utilities/Sub-Grade (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Paving (grams/mile)	0.43	1.14	6.49	0.21	0.15	0.02	1,859.78	0.02	0.29	1,947.39
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			1.00	0.00	0.21	0.00
Fugitive Dust - Grading/Excavation			1.00	0.00	0.21	0.00
Fugitive Dust - Drainage/Utilities/Subgrade			1.00	0.00	0.21	0.00

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16	0.00	505.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.26	1.90	0.11	0.10	0.00	300.90	0.10	0.00	304.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grubbing/Land Clearing	pounds per day	0.42	5.53	4.05	0.22	0.20	0.01	801.09	0.26	0.01	809.72
	Grubbing/Land Clearing	tons per phase	0.00	0.01	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.89

Grading/Excavation	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16	0.00	505.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.26	1.90	0.11	0.10	0.00	300.90	0.10	0.00	304.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Grading/Excavation	pounds per day	0.42	5.53	4.05	0.22	0.20	0.01	801.09	0.26	0.01	809.72
	Grading/Excavation	tons per phase	0.00	0.02	0.02	0.00	0.00	0.00	3.52	0.00	0.00	3.56

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16	0.00	505.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.26	1.90	0.11	0.10	0.00	300.90	0.10	0.00	304.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Drainage/Utilities/Sub-Grade	pounds per day	0.42	5.53	4.05	0.22	0.20	0.01	801.09	0.26	0.01	809.72
	Drainage/Utilities/Sub-Grade	tons per phase	0.00	0.02	0.02	0.00	0.00	0.00	3.08	0.00	0.00	3.12

Paving	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.23	3.27	2.15	0.10	0.10	0.01	500.19	0.16	0.00	505.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.26	1.90	0.11	0.10	0.00	300.90	0.10	0.00	304.14
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving		pounds per day	0.42	5.53	4.05	0.22	0.20	0.01	801.09	0.26	0.01	809.72
	Paving		tons per phase	0.00	0.01	0.01	0.00	0.00	0.00	1.32	0.00	0.00	1.34
Total Emissions all Phases (tons per construction period) =>				0.00	0.06	0.04	0.00	0.00	0.00	8.81	0.00	0.00	8.91

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX C
BIOLOGICAL ASSESSMENTS

Biological Assessment of Terrestrial Species

Lodi Lake Erosion Repair Project

Lodi, San Joaquin County, California

Prepared for:

Kjeldsen, Sinnock & Neudeck, Inc.
P.O. Box 844
Stockton, CA 95201-0844

Prepared by:

Moore Biological Consultants
10330 Twin Cities, Suite 30
Galt, CA 95632
(209) 745-1159

April 2020

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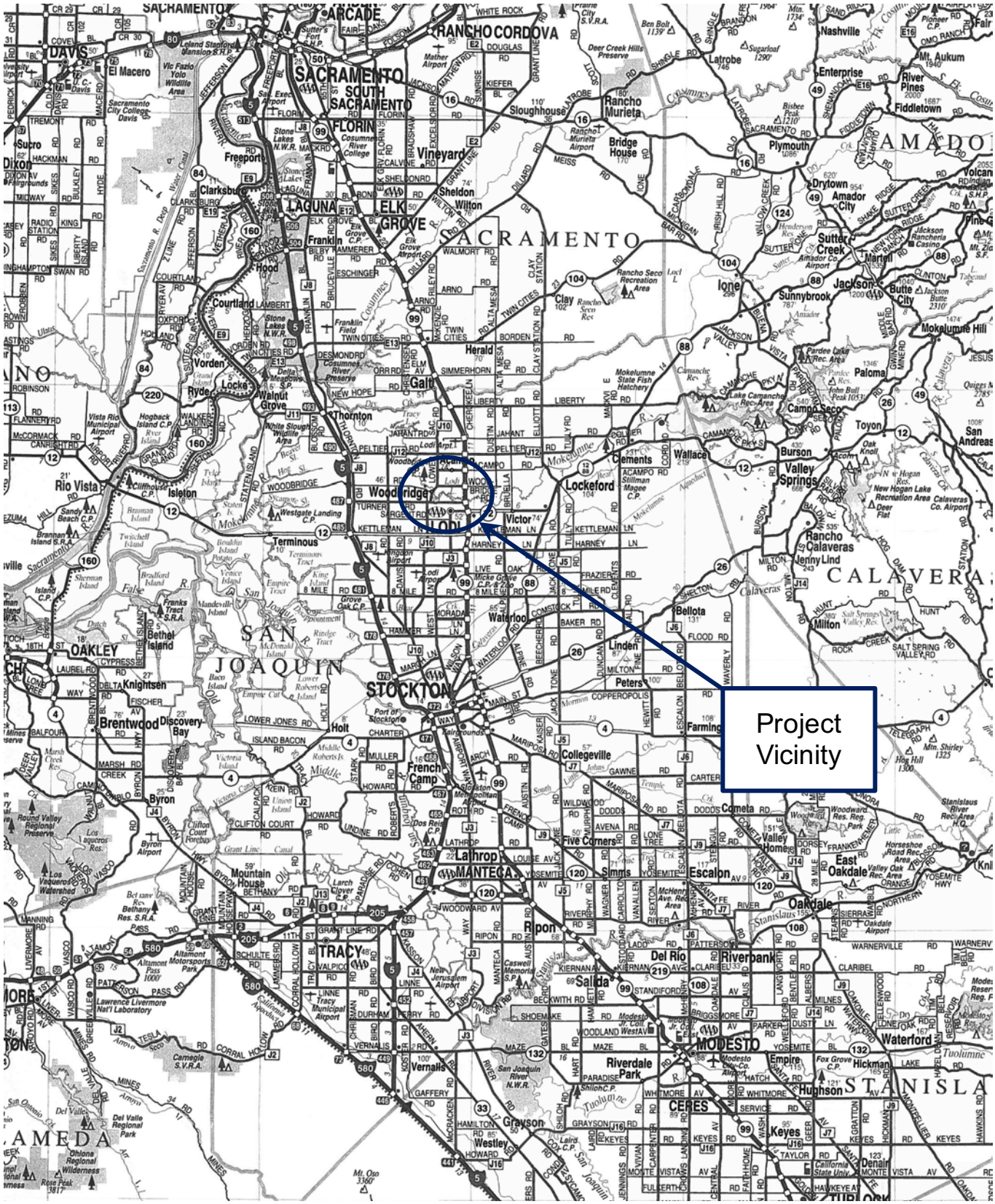
I. INTRODUCTION

The project site is in Lodi, in San Joaquin County, California (Figure 1). The site is in Section 35 in Township 4 North, Range 6 East of the USGS 7.5-minute Lodi North topographic quadrangle (Figure 2). The “project site” includes two areas of eroded riverbank along the south bank of the Mokelumne River within Lodi Lake Municipal Park (Figure 3). The site is accessible through the entrance to the park on Turner Road.

The proposed project is the repair of approximately 1,600 linear feet of riverbank material along the south bank of the Mokelumne River in Lodi. The work areas consist of riverbank areas that have been eroded, particularly during high river flows during the past decade, resulting in the loss of recreational land, oversteepening of the banks, and loss of wetland and riparian habitats. Work will involve removing concrete rubble and non-native vegetation, stabilizing the banks, restoring near-shore areas with emergent wetland species, and planting native trees along the banks. The State of California Department of Parks and Recreation is providing cost-share funding through its Office of Grants and Local Services program.

This assessment describes the existing biological environment and how the project would affect that environment. This document provides the pertinent biological information regarding Waters of the U.S. and wetlands, Federal and State special-status species, and other natural resources that may be present in the project site. This assessment also evaluates potential impacts of the proposed project to biological resources in the study area resulting from construction of the project.

The upland areas in the project site provide habitat for a number of common wildlife species and a few special-status species. Swainson’s hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and western pond turtle (*Emys marmorata*) are special-status wildlife species with the potential to occur in the



Source: California State Automobile Association

Moore Biological Consultants

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FIGURE 1

PROJECT VICINITY

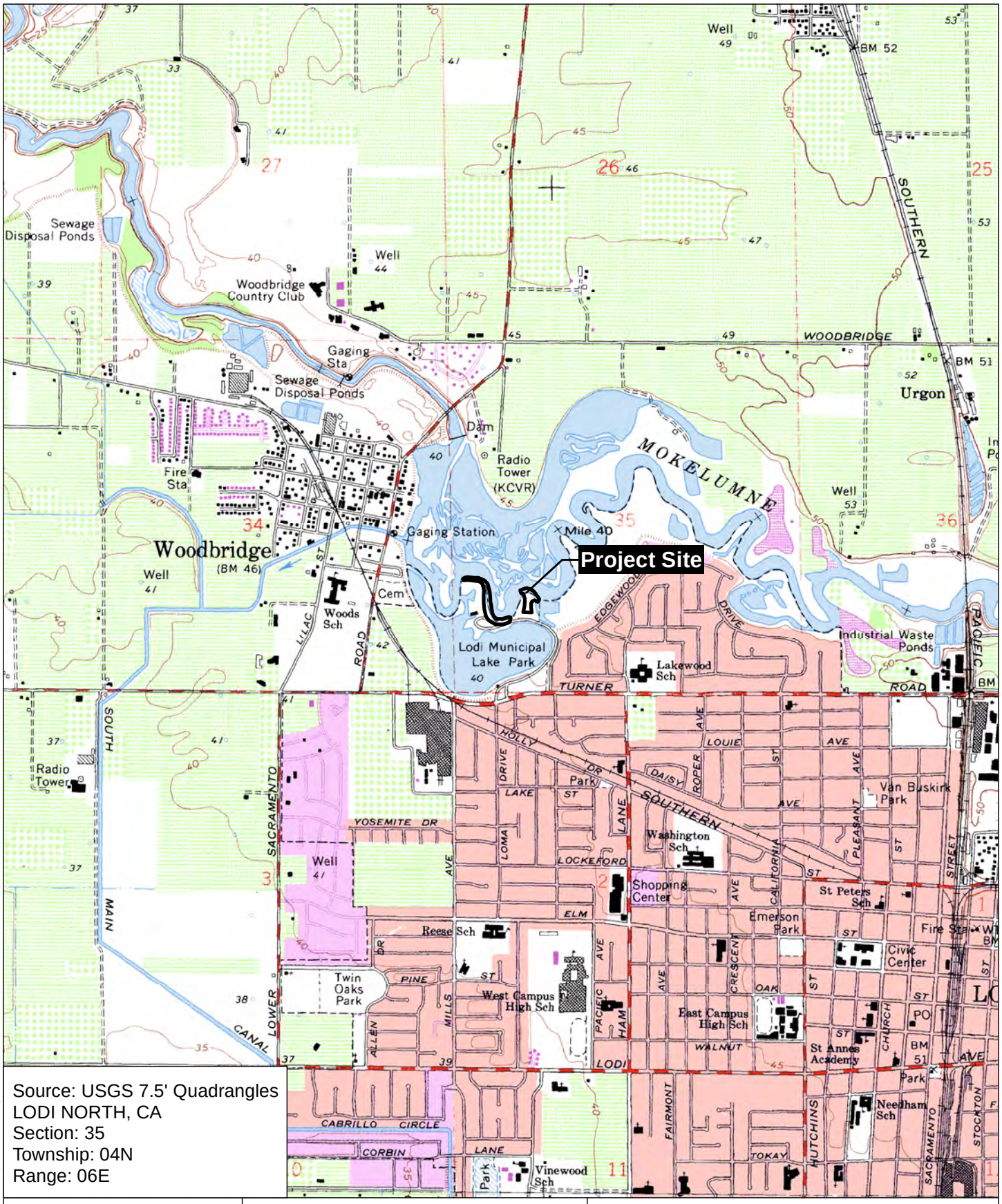

Figure 2

Moore Biological Consultants

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Map Date: 01/28/2020

USGS

Lodi Lake Riverbank

San Joaquin County, CA

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Figure 3

Moore Biological Consultants

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Map Date: 02/24/2020
Aerial Source: Google Earth (05/2017)

AERIAL

Lodi Lake Riverbank

San Joaquin County, CA

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project site on more than an occasional or transitory basis. Central Valley steelhead (*Oncorhynchus mykiss irrideus*) are known occur in the Mokelumne River but are not expected to occur in the site on more than a migratory basis. The potential project impact to special-status fish are addressed in a separate Biological Assessment.

With the implementation of proposed Avoidance and Minimization Measures including pre-construction surveys and construction scheduling, the project would have less than significant impacts to special-status plant and wildlife species. There would be no long-term adverse impacts to biological resources as a result of the proposed project. The project would have minimal impacts on the aquatic habitats and potentially occurring special-status fish species in the Mokelumne River and downstream waterways.

II. PROJECT DESCRIPTION

The project proponent, the City of Lodi, proposes to construct approximately 1,600 linear feet of riverbank stabilization and habitat restoration of two work areas (Figures 4a, 4b and 4c). The work areas consist of riverbank areas that have been eroded, particularly during high river flows during the past decade, causing loss of recreational land, oversteepening of the banks, and loss of wetland and riparian habitats. Detailed plan view and cross-section drawings of the project work are included in Appendix A.

The project area as a whole would encompass a total of 3.34 acres, with the majority of the area consisting of developed parkland that will be used for construction access and staging (Table 1). The project would involve bank stabilization and wetland restoration in approximately 1.13 acres of riverbank located below the ordinary high-water mark (OHWM) of the Mokelumne River and 0.14 acres above the OHWM. Existing concrete debris up to approximately 2 feet deep would be removed from these areas, which would then be graded and protected from further erosion with a blanket of rock slope protection.

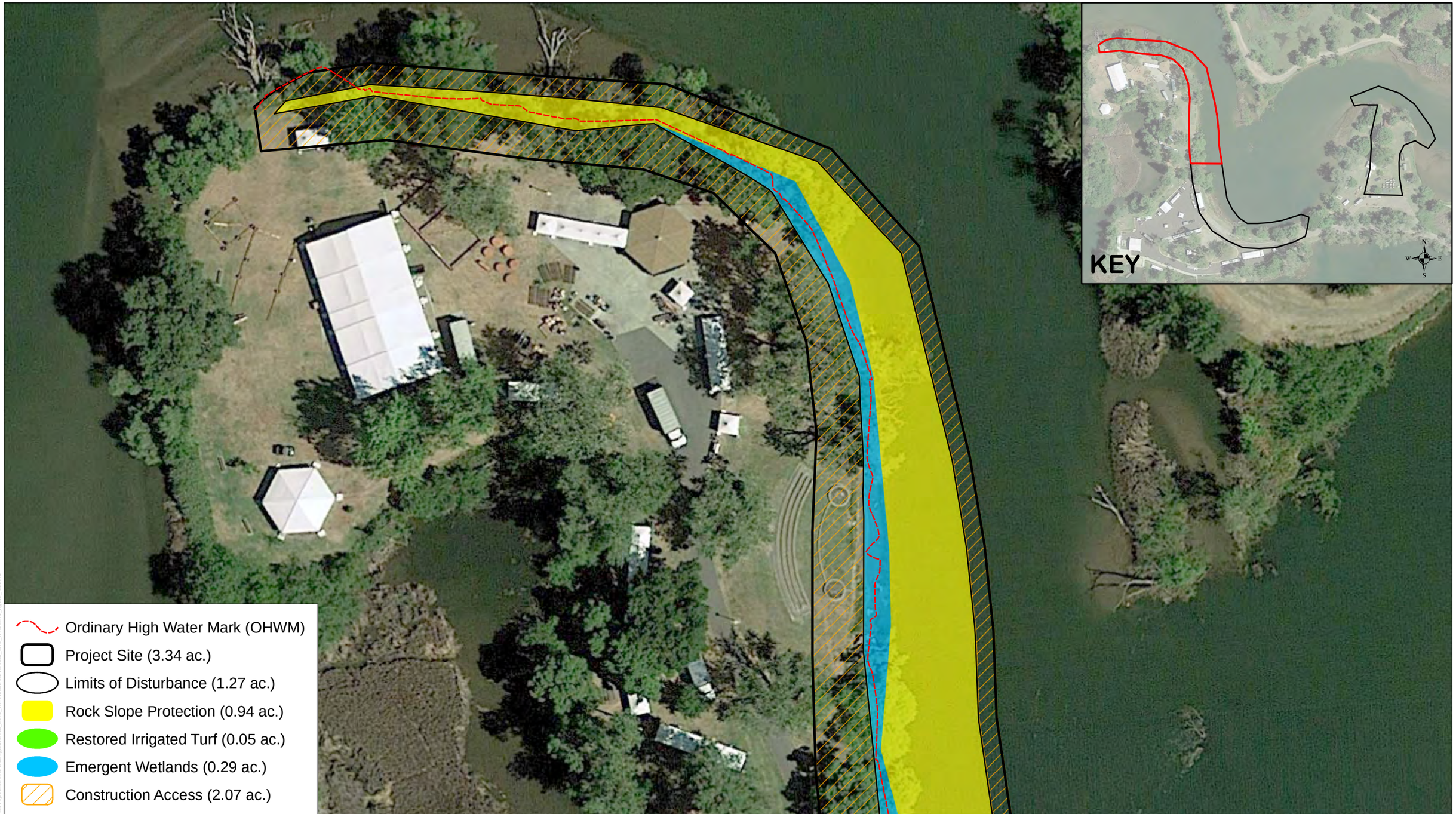

Figure 4a

Moore Biological Consultants

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Map Date: 02/14/2020
Aerial Source: Google Earth (05/2017)

PROJECT ELEMENTS - WEST PART

Lodi Lake Riverbank

San Joaquin County, CA

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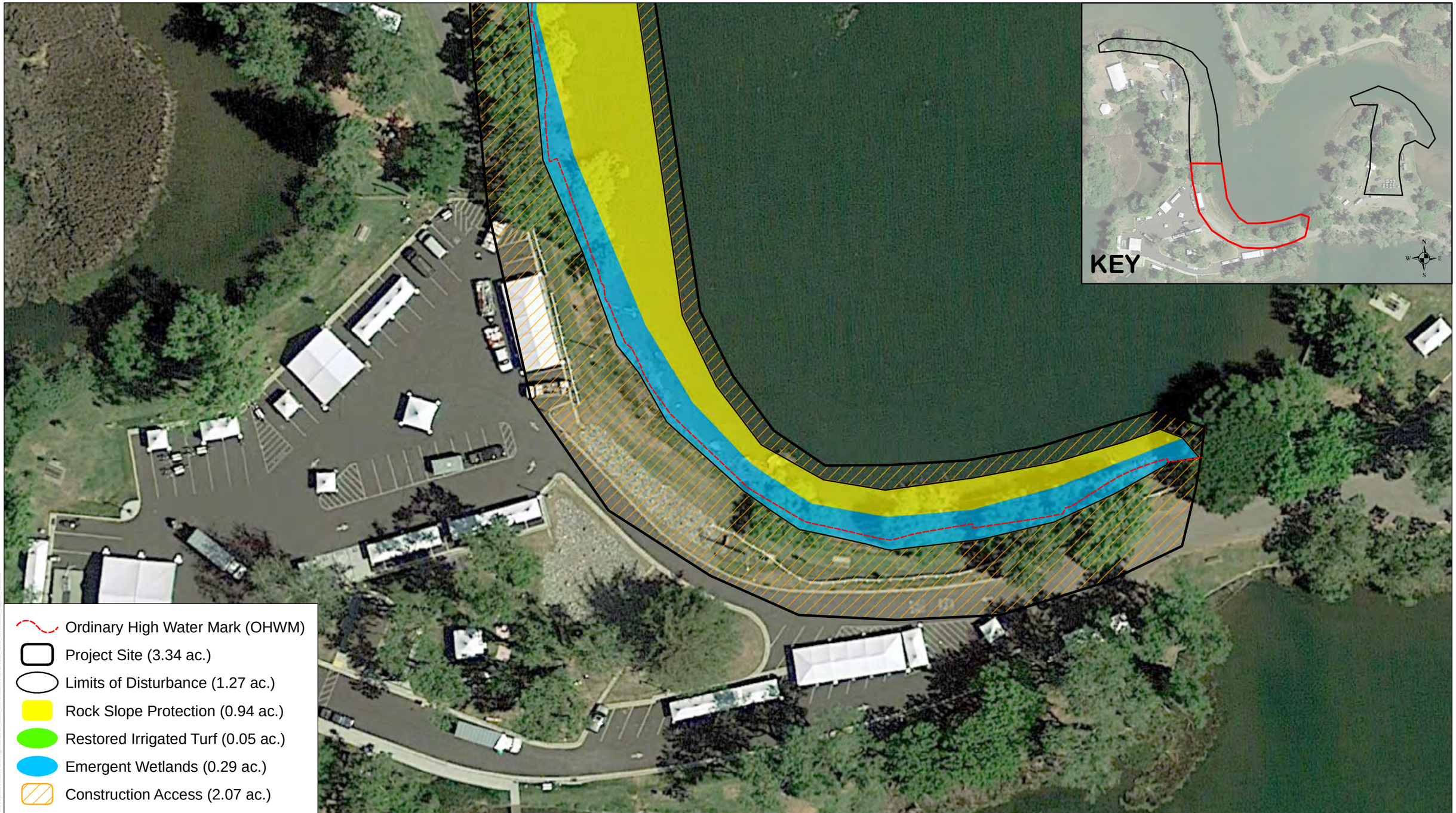

Figure 4b

Moore Biological Consultants

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Map Date: 02/14/2020
Aerial Source: Google Earth (05/2017)

PROJECT ELEMENTS - CENTRAL PART

Lodi Lake Riverbank

San Joaquin County, CA

Figure 4c

Moore Biological Consultants

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Map Date: 02/14/2020
Aerial Source: Google Earth (05/2017)

PROJECT ELEMENTS - EAST PART

Lodi Lake Riverbank

San Joaquin County, CA

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TABLE 1

QUANTITIES OF AREAS AFFECTED AND MATERIALS

Quantity (Area or Volume)	Uplands	Waters of the U.S. [1]	Total
Work Area (acres)	0.14	1.13	1.27
Temporary Disturbance (acres)	1.67	0.40	2.07
TOTAL ACRES	1.81	1.53	3.34
Excavation: Rubble (cubic yards)	13	569	582
TOTAL EXAVATION (cubic yards)	13	569	582
Fill: Soil (cubic yards)	93	569	662
Fill: RSP[2] (cubic yards)	115	4,166	4,281
TOTAL FILL (cubic yards)	208	4,735	4,943

[1] Includes 1.51+/- acres of open waters below the ordinary high water mark (OHWM, elevation = 42.0 feet) and 0.024+/- acres of wetlands spanning the OWHM.

[2] RSP = rock slope protection

Wetland habitat restoration would occur in approximately 0.29 acres of riverbank spanning the OHWM, between areas of riverbank stabilization and existing upland park areas (Figures 4a, 4b, 4c). Approximately 0.02 acres of existing wetlands would be impacted by this work, for a net increase in 0.27 acres of wetlands. In these habitat restoration areas, soil would be placed and planted with emergent wetland species. A small fraction of the area above the OHWM (0.05 acres) would be restored to upland turf area, which would be returned to park use. Fill areas and material quantities associated with the project are shown in Table 1.

Of the total work area, the majority (2.07 acres) would consist of lands subject to only temporary impacts, as required for construction access and staging. The majority of this area (1.67 acres) is existing upland areas in the park located above the OHWM. The “construction access” lands also include a strip approximately 10 feet in width located outside the proposed riverbank stabilization area that may require minor disturbance in conjunction with placement of rock slope protection.

RSP would consist of 18-inch minus quarry stone obtained from off-site commercial sources. RSP materials would be composed of various sizes and weights, primarily of rocks 12 to 18 inches in diameter, with smaller rock used to fill in the gaps between the larger rocks. As shown in Table 1, nearly all the RSP would be placed below the OHWM.

Construction of erosion protection in riverbank stabilization areas would begin with removal of existing concrete rubble along the riverbank at the project site with excavators and other construction equipment operating from the riverbank and disposed off-site. Rubble removal would be limited to the portion of the work areas above the water surface elevation while the lake is drained (i.e., elevation of approximately 34 feet) during the annual lake maintenance period in February. The construction equipment will access the work areas from dry land; rock will be placed with a long reach excavator and equipment will not drive in to the water.

The underlying slopes would be regraded as required to establish a uniform bed for RSP, which would be placed with long-reach excavators. Rock material would initially be placed at the lower limit of the protected area then stacked working from the bottom back up to the top of the slope. The RSP would be stabilized and secured in place by bucket tamping and pressing by the excavator. Although some minor regrading of the slope would be required, no soil would be removed from the site.

The project would also involve the removal of approximately 25 non-native trees along the riverbank and the trimming of a few native trees. These trees would be replaced by native oaks and native riparian tree species, which would be planted along the bank in approximately the same locations as where the trees were removed.

Fill soil would be imported from off-site commercial sources and placed in specified areas above and below the OHWM in areas above proposed RSP placement. Most of this soil (569 CY) would be placed in proposed emergent wetland restoration areas immediately below the OHWM. Small portions of the fill soil (93 CY) would be placed in areas planned to support installation of grass sod.

Access for construction equipment and vehicles would be provided from the existing road along the northern shoreline of Lodi Lake. It is expected that project construction would use a long-reach excavator, a front-end loader/backhoe, 2-3 pickups, and 6-10 double-bottom trailer haul trucks.

Construction is anticipated to occur in February 2021 during the annual draining of the lake and when river levels are at their lowest. The majority of the construction, including all grading and slope stabilization, is anticipated to take no longer than one month. Tree planting, installation of emergent wetland species in the habitat restoration areas, and installation of irrigation for the new trees are expected to occur within a few months of grading and slope stabilization.

Proposed avoidance and minimization measures include the following:

- Construction access via adjacent developed parklands.
- Minimization of overall construction disturbance areas.
- Minimization of project footprint in jurisdictional Waters of the U.S.

- Staging areas located in existing disturbed area.
- Protection of trees to be retained with construction fencing in or near construction area.
- Scheduling project construction outside the nesting season.

The collective implementation of these Avoidance and Minimization Measures as a part of the project will assure the protection of sensitive habitat and species and the maintenance of biological functions and values.

III. REGULATORY FRAMEWORK

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 (16 U.S.C. 1531-1543) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend.

Section 7 of FESA requires Federal agencies, in consultation with and with the assistance of the Secretary of the Interior or the Secretary of Commerce, as appropriate, to insure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the Act. Regulations governing interagency cooperation under Section 7 are found at 50 CFR Part 402. The opinions issued at the conclusion of consultation include statements authorizing take that may occur incidental to an otherwise legal activity.

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 404 of the CWA established a permit program administered by the U.S. Army Corps of Engineers (ACOE) regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementing regulations by ACOE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as the Section 404 (b)(1) Guidelines and were developed by the Environmental Protection Agency (EPA) in conjunction with ACOE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

State and federal agencies regulate Waters of the U.S. and wetlands, and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands. California Department of Fish and Wildlife (CDFW) also has jurisdiction over modifications to rivers, lakes, and streams under Section 1600 of Fish and Game Code of California.

“Waters of the U.S.”, as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, as well as their tributaries. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the “ordinary high water mark”. The ordinary high water mark is established by physical characteristics such as a natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris.

Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands. Wetlands and

Waters of the U.S. provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species.

Section 401 of the CWA requires an applicant for a Federal license or permit that allows activities resulting in a discharge to waters of the U.S., to obtain a state certification that the discharge complies with other provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California.

California Water Code, Section 8710

The Central Valley Flood Protection Board (CVFPB) administers section 8710 of the California Water Code. Section 8710 of the California Water Code requires that a permit must be obtained from the CVFPB prior to the start of any work, including excavation and construction activities within floodways, levees, and 10 feet landward of the landside levee toes. Streams regulated by the CVFPB include the Sacramento or San Joaquin Rivers or any of their tributaries (California Code of Regulations, Title 23, Section 122).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC, Section 703-711; 40 Stat. 755), as amended, prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act applies to whole birds, parts of birds, and bird nests and eggs. The MBTA does not provide protection for habitat of migratory birds, but does prohibit the destruction or possession of individual birds, eggs, or nest in active use without a permit from USFWS.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code 2050 et seq.) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species, if reasonable and prudent alternatives are available that would avoid jeopardy. CESA requires State lead agencies to consult with the during the California Environmental Quality Act **(**CEQA) process to avoid jeopardy to threatened or endangered species. As an outcome of consultation, CDFW is required to issue a written finding indicating if a project would jeopardize threatened or endangered species and specifying reasonable and prudent alternatives that would avoid jeopardy. The Act provides for joint consultations when species are listed by both the State and Federal governments.

California Environmental Quality Act

With respect to biological resources, the California Environmental Quality Act (CEQA) Guidelines Section 15206 specifies that a project shall be deemed to be of statewide, regional, or area wide significance if it would substantially affect sensitive wildlife habitats, including but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species.

CEQA Guidelines Section 15380 provides that a species not listed under the FESA or CESA may be considered rare or endangered under specific criteria. These criteria have been modeled after the definitions in FESA and CESA. Section 15380 was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a candidate species that has not yet been listed by either USFWS or CDFW. Thus, Section 15380 provides an agency with the ability to protect a species from a project’s potential impacts until the respective resource

agencies have had an opportunity to designate the species as protected, if warranted.

An example would be the vascular plants listed as rare or endangered by the California Native Plant Society (CNPS), but which may have no designated status or protection under FESA or CESA. The CNPS created five lists:

- List 1A: Plants presumed extinct in California,
- List 1B: Plants rare, threatened, or endangered in California and elsewhere,
- List 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere,
- List 3: Plants about which more information is needed; a “review list”, and
- List 4: Plants of limited distribution; a “watch list”.

In general, plants appearing on CNPS List 1A, 1B, or 2 are considered to meet the criteria of Section 15380.

Fish and Game Code of California (Sections 1600 and 3503)

Under Section 1600 of the Fish and Game Code of California, project proponents are required to notify CDFW prior to initiating activities for any project that would divert water from, or obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

Section 3503 of the Fish and Game Code prohibits unlawful take, possession or needless destruction of the nest or eggs of any bird. Section 3503.5 of the Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds-of-prey in the orders Falconiformes or Strigiformes . . .” (i.e., hawks, owls, eagles,

and falcons). The loss of an active nest is considered a violation of this code by CDFW. This statute does not provide for the issuance of any type of incidental take permit.

Porter-Cologne Water Quality Control Act & Waters of the State

Under the Porter-Cologne Water Quality Control Act, “Waters of the State” fall under the jurisdiction of the State Water Resource Control Board (SWRCB) and California Regional Water Quality Control Boards (RWQCBs). The RWQCBs are required to prepare and periodically update water quality control basin plans, which set forth water quality standards for surface water and groundwater, as well as actions to control non-point and point sources of pollution to achieve and maintain these standards.

Projects that affect Waters of the State may also be required to meet waste discharge requirements (WDRs) of the RWQCBs. SWRCB’s Resolution 2008-0026 identified a need to protect Waters of the State that are not subject to CWA Section 404 permitting and associated CWA Section 401 Water Quality Certification. On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for the Discharges of Dredged or Fill Material to Waters of the State*; the effective date of the Procedures May 28, 2020. Once implemented, the Central Valley Regional Water Quality Board is expected to require WDRs for the fill of isolated wetlands that not subject to CWA Section 404 that authorize the impacts by issuing WDRs or in some cases, a WDR waiver.

California Native Plant Protection Act

The California Native Plant Protection Act (codified in Fish and Game Code Sections 1900-1913) is intended to preserve, protect, and enhance endangered or rare native plants in the state. The act directs CDFW to establish criteria for determining what native plants are rare or endangered. Under Section 1901, a species is endangered when its prospects for survival and reproduction are in

immediate jeopardy from one or more causes. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens. Under the Act, the Fish and Game Commission may adopt regulations governing the taking, possessing, propagation, or sale of any endangered or rare native plant.

IV. METHODS

Database Review

A search of CDFW's California Natural Diversity Database (CNDDB, 2020) was conducted. The CNDDB search included the USGS 7.5-minute Lodi North, Lockeford, Lodi South and Waterloo topographic quadrangles, which encompass approximately 240 square miles surrounding the site. The USFWS IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project vicinity was also reviewed (Appendix B). This information was used to identify wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. The USFWS maps of designated critical habitat were also downloaded.

Field Surveys

Moore Biological Consultants conducted field surveys on February 6, April 9, May 14, June 3, June 6, and July 31, 2019, and January 24, February 3, and February 6, 2020. The field surveys encompassed the 3.34+/- acre project site and adjacent areas.

The field surveys consisted of walking throughout the project site observing habitat conditions and noting surrounding land uses, general habitat types, and

plant and wildlife species. The surveys included an assessment of the site for potentially jurisdictional Waters of the U.S. and wetlands as defined by ACOE (1987; 2008), special-status species, and suitable habitat for special-status species (e.g., blue elderberry shrubs, wetlands). Trees in and near the site were assessed for the potential use by nesting raptors, especially Swainson's hawk. The site and surrounding areas were also searched for burrowing owls or burrows that could be utilized by burrowing owls.

The limit of federal jurisdiction of Waters of the U.S. (i.e., the ordinary high water mark) along the bank in the work area was identified by physical characteristics including a natural water line impressed on the bank, shelves, destruction of terrestrial vegetation, and/or the presence of litter and debris. The elevation along the bank was staked in the field and recorded by KSN surveyors using traditional survey methods. The wetland boundaries were recorded in the field using a Trimble GeoXH Global Positioning System (GPS) unit and the GPS data were corrected using the nearest available base station. The survey and GPS data were then combined to create the wetland delineation map in Appendix C. The acreage of Waters of the U.S. and wetlands was calculated as the area within the project site below the OHWM and the adjacent wetlands.

Finally, West Coast Arborists (WCA) conducted a site review on June 20, 2019 to assess trees in the project site for general health and public safety considerations and provide recommendations for tree removal or trimming.

V. RESULTS AND DISCUSSION

Setting

The project site is in Lodi, in San Joaquin County, California (Figure 1). The site is in Section 35 in Township 4 North, Range 6 East of the USGS 7.5-minute Lodi North topographic quadrangle (Figure 2). The "project site" includes two areas of

eroded riverbank along the south bank of the Mokelumne River within Lodi Lake Municipal Park (Figure 3). The site is located at elevations of approximately sea level to 45 feet above mean sea level.

Habitats within the site include landscaped areas associated with the park, a variety of natural volunteer and ornamental trees, the lakebed covered with rubble, and a small emergent wetland in a shallow water area along the bank (see photographs in Appendix D). Lands just south of the project site include Lodi Lake and other landscaped areas of the park. The Lodi Lake Nature Area is located to the east of the site. The Mokelumne River and an area of expansive riparian wetlands and woodlands are situated just north and just west of the site. Lands in the greater project vicinity are primarily agricultural, but also include the City of Lodi and the community of Woodbridge to the south and to the northwest of the site, respectively.

Vegetation

Vegetation communities in the project site along the edge of the Mokelumne River include manicured lawn, ruderal grassland, degraded riparian forest and scrub, and emergent wetlands. The vast majority of the project site is manicured lawn and open water of the Mokelumne River that is devoid of vegetation.

The bank of the Mokelumne River supports a discontinuous and narrow fringe of native riparian forest and riparian scrub species interspersed with numerous non-native and ornamental tree species. The Valley oak series and Red willow series (Sawyer and Keeler-Wolf, 1995) best describe the historic vegetation communities along the bank of the Mokelumne River in the vicinity of the site; the riparian forest and riparian scrub in the project site comprise a degraded form of the Valley oak series and Red willow series.

Dominant native trees along the shoreline include valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), Fremont's cottonwood (*Populus fremontii*),

polished willow (*Salix laevigata*), and box elder (*Acer negundo*); black locust (*Robinia pseudoacacia*), common privet (*Ligustrum vulgare*), and cork oak (*Quercus suber*) are the dominant non-native and ornamental tree species. Himalayan blackberry (*Rubus discolor*), California wild grape (*Vitis californica*) and Pacific poison oak (*Toxicodendron diversilobum*) are dominant shrubs and vines in areas where there is an understory. Table 2 is a list of plant species observed in the site. No blue elderberry (*Sambucus nigra, ssp. caerulea*) shrubs were observed in or adjacent to the project site.

The California Annual Grassland series (Sawyer and Keeler-Wolf, 1995) best describes the narrow strips of highly disturbed ruderal grassland vegetation between the manicured lawn areas and the shoreline of the Mokelumne River. Dominant grassland species include ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), Dallis grass (*Paspalum dilatatum*), and Bermuda grass (*Cynodon dactylon*).

In the vicinity of the site, the shoreline of the Mokelumne River supports patches of emergent wetland vegetation spanning the OHWM. Within the project site, there is a small patch (0.024 acre) of emergent wetland vegetation that is dominated by cattails (*Typha* sp.). There are lesser amounts of umbrella sedge (*Cyperus eragrostis*), other sedges (*Juncus effusus, Juncus balticus*), and curly dock (*Rumex crispus*). The Cattail series (Sawyer and Keeler-Wolf, 1995) best describes the patch of emergent wetland vegetation in the site. There is a notable patch of emergent wetland vegetation dominated by common tule (*Schoenoplectus acutus*) just outside the boundaries of the eastern work area.

Wildlife

Well-developed riparian wetlands and woodlands along the Mokelumne River in the greater project vicinity provide habitat for a variety of wildlife species. In addition to resident wildlife, the river corridor provides seasonal habitats for a migratory wildlife, primarily waterfowl, other birds, and fish. In contrast, the

TABLE 2

PLANT SPECIES OBSERVED IN THE SITE

Acer negundo	box elder
Bromus diandrus	ripgut brome
Cyperus eragrostis	umbrella sedge
Fraxinus latifolia	Oregon ash
Hordeum murinum	foxtail barley
Juncus balticus	Baltic rush
Juncus effuses	soft rush
Juncus patens	spreading rush
Ligustrum vulgare	common privet
Paspalum dilatatum	Dallis grass
Populus fremontii	Fremont's cottonwood
Quercus agrifolia	coast live oak
Quercus lobata	valley oak
Quercus suber	cork oak
Robinia pseudoacacia	black locust
Rubus discolor	Himalayan blackberry
Rumex crispus	curly dock
Salix laevigata	polished willow
Schoenoplectus acutus	common tule
Toxicodendron diversilobum	Pacific poison oak
Typha sp.	cattail
Verbena bonariensis	purpletop vervain
Vitis californica	California wild grape
Zelkova serrata	sawtooth

manicured lawn areas in and adjacent to the project site are intensively maintained and do not provide high-quality foraging habitat for birds or other wildlife species. The small patch of emergent wetlands and degraded riparian forest and scrub along the shoreline in the project site provides suitable habitat for nesting birds, although utilization may be limited by noise disturbance.

A variety of bird species were observed during the field surveys; all of these are common species found in riparian and urban areas of San Joaquin County (Table 3). Several birds were flying around and over the site and perching in trees and shrubs. Mallard (*Anas platyrhynchos*), great egret (*Casmerodias albus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, acorn woodpecker (*Melanerpes formicivorus*), California scrub jay (*Aphelocoma californica*), black phoebe (*Sayornis nigricans*), American robin (*Turdus migratorius*), and red-winged blackbird (*Agelaius phoeniceus*) are representative of the avian species observed in the site.

There are several potential nest trees in and near the site that are suitable for nesting raptors and other protected migratory birds, including Swainson's hawk. A Swainson's hawk was observed nesting a tree approximately 300 feet northeast of the east work area during the June 6, 2019 survey. Given the presence of large trees near the project site, it is likely one or more pairs of raptors, plus a variety of songbirds, nest in trees in or near the site each year. Further, it is considered likely that numerous songbirds nest within trees, shrubs, and emergent wetland vegetation in or adjacent to the site each year.

A variety of mammals common to riparian and urban areas likely occur in the project site. However, raccoon (*Procyon lotor*), muskrat (*Ondatra zibethicus*), and western gray squirrel (*Sciurus griseus*) were the only mammals observed during the surveys. Mule (black-tail) deer (*Odocoileus hemionus*), beaver (*Castor canadensis*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), and California ground squirrel (*Spermophilus beecheyi*) may also occur in the area on occasion. A number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*) and voles (*Microtus californicus*) also likely occur.

Based on habitat types present, a variety of amphibians and reptiles may use habitats in and adjacent to the site. Western fence lizard (*Sceloporus occidentalis*) was observed in the site; western pond turtle (*Actinemys*

TABLE 3

WILDLIFE SPECIES DOCUMENTED IN THE SITE

Birds	
Western grebe	*Aechmophorus occidentalis*
Double-crested cormorant	*Phalacrocorax auritus*
Great egret	*Casmerodius albus*
Mallard	*Anas platyrhynchos*
Canada goose	*Branta canadensis*
Turkey vulture	*Cathartes aura*
Osprey	*Pandion haliaetus*
Red-shouldered hawk	*Buteo lineatus*
Swainson's hawk	*Buteo swainsoni*
Red-tailed hawk	*Buteo jamaicensis*
Anna's hummingbird	*Calypte anna*
Acorn woodpecker	*Melanerpes formicivorus*
Northern flicker	*Colaptes auratus*
Western bluebird	*Sialia mexicana*
American robin	*Turdus migratorius*
Black phoebe	*Sayornis nigricans*
California scrub jay	*Aphelocoma californica*
Red-winged blackbird	*Agelaius phoeniceus*
Mammals	
Raccoon	*Procyon lotor*
Western gray squirrel	*Sciurus griseus*
Muskrat	*Ondatra zibethicus*
Reptiles and Amphibians	
Western fence lizard	*Sceloporus occidentalis*
Red-eared slider	*Trachemys scripta elegans*
Western pond turtle	*Actinemys marmorata*

marmorata) and red-eared slider (*Trachemys scripta elegans*) were observed in other parts of Lodi Lake. Other species such as common garter snake (*Thamnophis sirtalis*), American bullfrog (*Rana catesbeiana*), Pacific chorus frog (*Pseudacris regilla*), and gopher snake (*Pituophis melanoleucus*) are known to occur in the greater project vicinity and may occur in the site on occasion.

Waters of the U.S. and Wetlands

In the vicinity of Lodi, the Mokelumne River is a Water of the U.S. that is subject to Section 404 of the Clean Water Act; areas further downstream near Thornton are also navigable Waters of the U.S. that are subject to Section 10 of the Rivers and Harbor Act. The Mokelumne River also falls under the jurisdiction of CDFW, RWQCB, and CVFPB.

The project site contains approximately 1.53+/- acres of Waters of the U.S. and wetlands. This includes 1.51 acres of open waters below the OHWM and 0.024 acres of emergent wetland vegetation spanning the OHWM (see wetland delineaiton Map in Appendix C). The OWHM is at an elevation of approximately 42 feet above mean sea level when the lake is full, which is nearly year-round. This 1.51+/- acre area of open waters is devoid of vegetation and is best described as “other waters”. During the annual maintenance period in February, the lake is drained to an elevation of approximately 34 feet above mean sea level. The thick layer of concrete rubble that blankets nearshore areas is readily visible when the lake is drained (see photographs in Appendix D).

As described above, there is a small patch (0.024 acre) of emergent wetland vegetation spanning the OHWM in the west work area. Due to slightly greater water depths throughout most of the patch, cattails are dominant. Sedges and curly dock are dominant in the shallowest area, right along the shoreline.

No other potentially jurisdictional wetlands or Waters of the U.S. were observed in or near the site.

The project will involve the removal of rubble and placement of fill in 1.13+/- acres of Waters of the U.S. and wetlands (Table 1 and Appendix A). There will also be 0.40+/- acres of temporary construction access in of Waters of the U.S.

Special-Status Species

Special-status species are plants and animals that are legally protected under the CESA, FESA, or other regulations. Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat.

The likelihood of occurrence of listed, candidate, and other special-status species in the project site is generally low. Table 4 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS

Succulent owl's clover (*Castilleja campestris ssp. succulenta*), legenere (*Legenere limosa*), Mason's lilaeopsis (*Lilaeopsis masonii*), Sanford's arrowhead (Sagittaria sanfordii), and Suisun marsh aster (*Symphotrichum lentum*) are the only special-status plants in the CNDDB (2020) search area (Table 4 and Appendix B). The USFWS IPaC Trust Report only lists succulent owl's clover.

Special-status plants generally occur in relatively undisturbed areas and are largely found within unique vegetation communities such as vernal pools,

TABLE 4

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
PLANTS						
Succulent owl's clover	*Castilleja campestris ssp. succulenta*	T	E	1B	Vernal pools.	Unlikely: there are no vernal pools or seasonal wetlands in the project site. The nearest occurrence of succulent owl's clover in the CNDDB (2020) search area is approximately 7 miles northeast of the project site. The site is not in designated critical habitat for succulent owl's clover (USFWS, 2005a); the nearest areas of designated critical habitat for this species is approximately 6.5 miles northeast of Lodi Lake.
Legenere	*Legenere limosa*	None	None	1B	Vernal pools.	Unlikely: there are no vernal pools or seasonal wetlands in the project site. The nearest occurrence of this species in the CNDDB (2020) search area is approximately 5 miles northwest of the project site.
Mason's lilaeopsis	*Lilaeopsis masonii*	None	R	1B	Marshes, swamps, and riparian scrub.	Unlikely: the small patch of emergent wetland vegetation in the site provides low quality habitat for Mason's lilaeopsis; this species is almost entirely restricted to tidal delta habitats. The nearest occurrence of Mason's lilaeopsis in the CNDDB (2020) search area is approximately 10 miles southwest of the project site.
Sanford's arrowhead	*Sagittaria sanfordii*	None	None	1B	Standing or slow moving freshwater ponds, marshes, and ditches.	Unlikely: the small patch of emergent wetland vegetation in the site provides low quality habitat for this species. The only occurrence of Sanford's arrowhead in the CNDDB (2020) search area is approximately 6.5 miles southeast of the project site.
Suisun marsh aster	*Symphotrichum lentum*	None	None	1B	Marshes and swamps.	Unlikely: the small patch of emergent wetland vegetation in the site provides low quality habitat for Suisun marsh aster; this species is almost entirely restricted to tidal delta habitats. The only occurrence of this species in the CNDDB (2020) search area is an historic record (1917) mapped approximately 6.5 miles southeast of the project site.

TABLE 4

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
WILDLIFE						
Birds						
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Nests in large trees along riparian corridors or in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	Moderate: there are several potentially suitable nest trees in and adjacent to the project site. Swainson's hawks were observed nesting in a tree approximately 300 feet northeast of the project site during Spring 2019 surveys. There are several records of nesting Swainson's hawks in the CNDDB (2020) search area in the project vicinity, with the nearest record being approximately 2 miles west of the project site.
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	Low: the small patch of emergent wetland vegetation in the site provides very low quality nesting habitat for tricolored blackbird. More extensive patches of emergent wetland vegetation, blackberry brambles, and patches of wild rose along the shores of Lodi Lake may be suitable for nesting. The nearest occurrence of nesting tricolored blackbirds in the CNDDB (2020) search area is approximately 1.5 miles southwest of the site.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: the manicured lawns do not provide suitable habitat for burrowing owls. Further, no burrowing owls or burrows with evidence of past or current use by burrowing owls were observed in or near the site. The nearest occurrence of nesting burrowing owls in the CNDDB (2020) search area is approximately 8.5 miles southwest of the project site.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	T	E	N/A	Nests in riparian forests, along the broad, lower flood-bottoms of larger river systems.	Unlikely: there is no well-developed riparian forest vegetation in the project site. Western yellow-billed cuckoo is not known from this part of the valley and there are no recorded occurrences of this species in the CNDDB (2020) search area.

TABLE 4

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Song sparrow ("Modesto Population")	*Melospiza melodia*	None	SC	N/A	Brackish water marshes. Inhabits cattails, tules, and tangles bordering sloughs.	Unlikely: the small patch of emergent wetland vegetation in the site provides very low quality nesting habitat for song sparrow. More extensive patches of emergent wetland vegetation, blackberry brambles, and patches of wild rose along the shores of Lodi Lake may be suitable The Modesto population of song sparrow is widespread in delta waterways; the nearest occurrence of song sparrow in the CNDDB (2020) search area is 5 miles northwest of the site.
Yellow warbler	*Setophaga petechia*	None	SC	N/A	Nests in riparian areas, usually in willows, alders, and cottonwoods.	Unlikely: the trees and shrubs along Lodi Lake and the Mokelumne River provide low quality yet potentially suitable nesting habitat for this species. The nearest occurrence of yellow warbler in the CNDDB (2020) search area is approximately 9 miles northeast of the site.
Mammals						
Riparian brush rabbit	*Sylvilagus bachmani riparius*	E	E	N/A	Riparian thickets in Stanislaus and southern San Joaquin Counties.	Unlikely: the riparian forest habitat along the Mokelumne River and Lodi Lake is potentially suitable for this species. However, riparian brush rabbit is not known from this part of the valley and there are no recorded occurrences of this species in the CNDDB (2020) search area.
Reptiles & Amphibians						
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marshes and low gradient streams. Uses drainage canals and irrigation ditches, primarily for dispersal or migration. Requires the combination of adequate water during the active season, a prey base, cover, basking habitat, and upland refugia for retreat during flood waters. Generally absent from larger rivers.	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable habitat for giant garter snake. There is only one record of giant garter snake documented in the CNDDB (2020) search area, approximately 6.5 miles southwest of the project site.

TABLE 4

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
California red-legged frog	*Rana aurora draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable habitat for California red-legged frog, which is also presumed extinct on the floor of the Central Valley of California. There are no occurrences of this species recorded in the CNDDB (2020) within the search area. The project site is not within designated critical habitat for California red-legged frog (USFWS, 2006).
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	Unlikely: there are no potential breeding ponds for California tiger salamander in or adjacent to the site. California tiger salamander primarily occurs in the transitional band between the valley floor and foothills to the east and is not known to occur in the project vicinity. The nearest documented occurrence of this species in the CNDDB (2020) search area is approximately 6 miles northeast of the project site. The project site is not within designated critical habitat for California tiger salamander (USFWS, 2005b).
Western pond turtle	*Emys marmorata*	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Moderate: Lodi Lake and the Mokelumne River provide suitable aquatic habitat for this species. A western pond turtle was observed basking on a log in Lodi Lake to the east of project area during a Spring 2019 survey. The nearest documented occurrence of this species in the CNDDB (2020) search area is approximately 5.5 miles southwest of the project site.

TABLE 4

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Project Site
Foothill yellow-legged frog	*Rana boylii*	None	SC	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation; not found on Central Valley floor.	Unlikely: the Mokelumne River and Lodi Lake do not provide suitable aquatic habitat for this species. Foothill yellow-legged frog is not known to occur on the valley floor. The only occurrence of this species in the CNDDB (2020) search area is an historical occurrence (1958) approximately 3.5 miles northwest of the site.
Invertebrates						
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools	Unlikely: there are no vernal pools in or adjacent to the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2020) search area is near Galt, approximately 5.5 miles north of the project site. The site is not within designated critical habitat for vernal pool fairy shrimp (USFWS, 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools in or adjacent to the site. The only occurrence of this species in the CNDDB (2020) search area is mapped non-specifically in downtown Lodi, approximately 1 mile southeast of the project site. The exact location of this population historical population is not known. The site is not within designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs, usually in Central Valley riparian habitats.	Unlikely: there were no blue elderberry shrubs observed in or adjacent to the project site. The nearest occurrence of valley elderberry longhorn beetle in the CNDDB (2020) search area is approximately 6.5 miles northeast of the project site. The site is not within designated critical habitat for valley elderberry longhorn beetle (USFWS, 1980).

1 T= Threatened; E = Endangered.

2 T = Threatened; E = Endangered; R = Rare; SC = State of California Species of Special Concern

3 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere.

chenopod scrub, chaparral, marshes and swamps, and areas with unique soils. The site does not provide highly suitable habitat for any of the species listed in Table 4 and is entirely unsuitable for most of the plants. Due to habitats present in the site, the potential for any special-status plants to occur on-site is very low.

The site does not provide suitable habitat for succulent owl's clover or legenere, which occur in vernal pools; there are no vernal pools within or adjacent to the project site. Although some near shore areas along the bank of the Mokelumne River provide emergent wetland vegetation resembling potentially suitable habitat of Mason's lilaeopsis, Sanford's arrowhead, and Suisun marsh aster, this group of species is largely restricted to the delta waterways several miles west of the site. Specifically, Mason's lilaeopsis and Suisun marsh aster are strongly associated with tidal or brackish areas in developed marshes and swamps and the nearest records of these species in the CNDDB (2020) search area are 10 miles and 6.5 miles from the site, respectively. While Sanford's arrowhead occurs in slow moving ponds, marshes, and ditches and can be in fresh water, this easily recognized plant was not observed in the emergent wetland vegetation in the project site. There is also only one historic (1917) occurrence of this species within the CNDDB (2020) search area, located approximately 6.5 miles southeast of the project site.

SPECIAL-STATUS WILDLIFE

The potential for intensive use of habitats within the project site by special-status wildlife species is generally low. Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), burrowing owl, the "Modesto population" of song sparrow (*Melospiza melodia*), yellow warbler (*Setophaga petechia*), giant garter snake (*Thamnophis gigas*), California tiger salamander (*Ambystoma californiense*), western pond turtle (*Emys marmorata*), foothill yellow-legged frog (*Rana boylii*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*) and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) are special-status wildlife species identified in the CNDDB (2020)

query. The USFWS IPaC Trust Report includes a few of these same species and also includes western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), riparian brush rabbit (*Sylvilagus bachmani riparius*), San Joaquin kit fox (*Vulpes macrotis mutica*), and California red-legged frog (*Rana aurora draytonii*).

Central Valley steelhead (*Oncorhynchus mykiss*) and Sacramento splittail (*Pogonichthys macrolepidotus*) are also identified in the CNDDB (2020) query, while delta smelt (*Hypomesus transpacificus*) is included in the USFWS IPaC Trust Report. The life history, distribrution, and potential project impacts to these and other special-status fish are addressed in a separate Biological Assessment.

While the project site may have provided habitat for several special-status wildlife species at some time in the past, the construction of Lodi Lake dam and associated development of the park in and adjacent to the site have modified the natural habitats and associated potential to support special-status wildlife species. Of the wildlife species in Table 4, Swainson's hawk, tricolored blackbird, and western pond turtle are the only wildlife species with potential to occur in the site on more than a transitory or very occasional basis. These species are discussed further below. Other special-status birds may fly over or forage in the area on occasion, but are not expected to nest in the project site.

SWAINSON'S HAWK: The Swainson's hawk is a migratory hawk listed by the State of California as a Threatened species. The Migratory Bird Treaty Act and Fish and Game Code of California protect Swainson's hawks year-round, as well as their nests during the nesting season (March 1 through September 15). Swainson's hawks are found in the Central Valley primarily during their breeding season, a population is known to winter in the San Joaquin Valley.

Swainson's hawks prefer nesting sites that provide sweeping views of nearby foraging grounds consisting of grasslands, irrigated pasture, hay, and wheat crops. Most Swainson's hawks are migratory, wintering in Mexico and breeding in

California and elsewhere in the western United States. This raptor generally arrives in the Central Valley in mid-March, and begins courtship and nest construction immediately upon arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August. The CNDDB (2020) contains several records of nesting Swainson's hawks in the project vicinity; the nearest occurrence of nesting Swainson's hawks is approximately 2 miles west of the site (Appendix B).

The site is within the nesting range of Swainson's hawks and grasslands and agricultural fields in the greater project vicinity provide suitable foraging habitat for this species. The manicured lawn areas and small areas of ruderal grassland in the site provide very marginal quality Swainson's hawk foraging habitat. Due to high levels of maintenance of the lawn in the site, it is unlikely Swainson's hawks forage in the site intensively, if at all, as there are expansive alfalfa and hay fields in the region providing much higher quality foraging habitat.

Relatively larger oaks, cottonwoods, willows, and other trees in and near the site and in the greater project vicinity provide suitable nesting habitat for Swainson's hawks. A pair of Swainson's hawks was observed nesting in a tree adjacent to the site, approximately 300 feet northeast and across the river from the east work area during Spring 2019 surveys. Swainson's hawks likely nest in other trees along the river near the site and could potentially nest in the site.

Swainson's hawks could be adversely affected by construction noise and disturbance if they nested in or near the project site during construction. However, project construction will occur outside of the nesting period of this species. Bank stabilization and habitat restoration along the shoreline and upper banks of the Mokelumne River would not result in a conversion of potential Swainson's hawk foraging habitat.

TRICOLORED BLACKBIRD: The tricolored blackbird is a State of California Species threatened species and is also protected by the federal MBTA and Fish and

Game Code of California. Tricolored blackbirds are colonial nesters requiring very dense stands of emergent wetland vegetation and/or dense thickets of wild rose, willows, or blackberries for nesting. Preferred nesting substrates are expansive stands of cattails and tules adjacent to open water. Tricolored blackbirds forage in annual grasslands and cropland. The nearest occurrence of tricolored blackbird in the CNDDB (2020) search area is approximately 1.5 miles southwest of the project site.

While the tules, cattails, blackberry brambles, shrubby willows, and other emergent wetland vegetation along the edges of the Mokelumne River provide suitable nesting habitat for tricolored blackbirds, this species was not observed in the site during any of the 2019 or 2020 surveys. Within the project site, nesting habitat is limited to the small patch (0.024 acre) of emergent wetland vegetation in the west work area. In contrast, expansive patches of tules and cattails in other emergent wetland vegetation to the north of the site, along the north bank of the Mokelumne River, provide highly suitable nesting habitat for tricolored blackbird.

The manicured lawn areas and small areas of ruderal grassland in the site provide very marginal quality tricolored blackbird foraging habitat. Due to high levels of maintenance of the lawn in the site, it is unlikely tricolored blackbird forage in the site intensively, if at all.

The loss of 0.024 acres of potentially suitable tricolored blackbird habitat from proposed restoration of the riverbank is a less than significant impact. This patch is very small and unlikely to be used by nesting tricolored blackbirds. Further, the project will involve the creation of 0.29 acres of emergent wetlands, for a net increase of 0.27 acres. While the removal of vegetation containing nesting tricolored blackbirds would result in direct take of the birds, or their eggs or chicks, project construction would occur outside of the nesting season for this species.

WESTERN POND TURTLE: The Western pond turtle is a state species of concern, but is not a listed species at the state or federal level. Western pond turtles are associated with permanent or nearly permanent bodies of water with adequate basking sites such as logs, rocks or open mud banks. Pond turtles construct nests in sandy banks along slow moving streams and ponds in the spring and the young usually hatch in 2 to 3 months. The nearest occurrence of western pond turtle recorded in the CNDDB (2020) within the search area is approximately 5.5 miles southwest of the project site.

The Mokelumne River within the project site provides suitable aquatic habitat for western pond turtle, with open waters for swimming and the shoreline for basking. However, it is unlikely this species would nest in or adjacent to the project site. Upland habitats adjacent to the work areas consist of manicured lawn and parking areas with high amounts of human activity. In contrast, western pond turtles require sandy areas for nesting. A western pond turtle was observed basking on a log approximately 300 feet southeast of the east end of the work area.

OTHER SPECIAL-STATUS SPECIES: The site and surrounding areas do not provide suitable habitat for California red-legged frog, which is presumed extinct on the floor of the Central Valley. The Mokelumne River also does not contain suitable habitat for foothill yellow-legged frog. There are no potential breeding ponds in or near the site for California tiger salamander.

Giant garter snake is not known to occur in the project vicinity and is not known from the Mokelumne River (CNDDB, 2020). This species is absent from larger rivers, and from wetlands with sand, gravel, or rock substrates. Riparian woodlands do not typically provide suitable habitat because of excessive shade, lack of basking sites, and the absence of prey populations" (USFWS 1999). The likelihood of occurrence of giant garter snake in or near the project site is considered extremely low to none, due to the paucity of habitat attributes and lack of nearby populations.

The site does not provide well-developed riparian woodlands required by yellow-billed cuckoo or riparian brush rabbit; on-site riparian vegetation is sparse and fragmented. The Modesto population of song sparrow is more commonly found in brackish waters bordering sloughs. The fragmented riparian forest habitat within the work area contains moderately suitable habitat for yellow warbler; nearby more established reaches of the Mokelumne River provides highly quality habitat for yellow warbler. There are no vernal pools or seasonal wetlands in the site for vernal pool branchiopods (i.e., fairy and tadpole shrimp). There are no blue elderberry shrubs in or adjacent to the site, precluding the occurrence of valley elderberry longhorn beetle.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (HCP)

The project is expected to participate in the (HCP) (SJCOG, 2000). The HCP involves the payment of fees and implementation of ITMMs to avoid impacts on nesting birds and other special-status species. The uplands parts of the site are mapped as urban land in the HCP that is exempt from fees. Areas below the OWHM appear to be mapped as “Natural Lands”, for which the per-acre fee is currently $12,822.00. The precise acreages of fee exempt lands and Natural Lands in the site will be determined by SJCOG prior to construction.

Designated Critical Habitat

The project site is not within designated critical habitat for California red-legged frog (USFWS, 2006), California tiger salamander (USFWS, 2005b), federally listed vernal pool shrimp or plants (USFWS, 2005a), valley elderberry longhorn beetle (USFWS, 1980), or other federally listed species (Appendix E).

Several Central Valley drainages, including the Mokelumne River are designated Critical Habitat for federally listed anadromous salmonids. The project site is located within designated critical habitat for Central Valley California steelhead but not within designated critical habitat for winter-run Chinook salmon or spring-run Chinook salmon (NOAA, 2005). The potential project impacts to special-status fish are addressed in a separate Biological Assessment.

VI. AVOIDANCE, MINIMIZATION AND MITIGATION MEASURES

The following avoidance, minimization, and mitigation measures will be implemented to reduce the potential for impacts to jurisdictional Waters of the U.S., special-status species, and potential or actual habitats of special-status species:

- Minimize the overall construction disturbance areas.
- Access construction areas via adjacent developed parklands.
- Locate staging areas in existing disturbed parklands.
- Minimize impacts to potentially jurisdictional Waters of the U.S. and wetlands by restricting all work to the project footprint and adjacent temporary construction areas, as proposed. Permits from ACOE, CDFW, and RWQCB shall be secured prior to the placement of any fill material within the jurisdictional Waters of the U.S. The City shall implement all permit conditions and mitigation measures related to the protection of sensitive habitats and species, including any conditions resulting from ACOE Section 7 consultations with USFWS and/or the NMFS, such as project scheduling and implementing appropriate construction Best Management Practices.

- Project construction shall be scheduled during February when the lake is drained to reduce the potential for sedimentation of the Mokelumne River, and associated impacts to aquatic resources including special-status fish. During the wintertime lake maintenance period, the upper 8+/- feet of the bank stabilization will be dry. Project construction outside the avian nesting season will also minimize potential impacts to nesting birds.

- Implement standard BMPs for vegetation protection, including fencing of avoided valley oaks and other native tree species.

- Since the project is participating in the HCP, standard Take Avoidance measures outlined in the HCP for nesting burrowing owl will be required. The ITMMs will include pre-construction surveys for nesting burrowing owls. If active nests are found, temporal restrictions on construction will be required.

- Trees and shrubs within the work area could be used by other birds protected by the Migratory Bird Treaty Act of 1918. The grasslands may be used by ground-nesting species. Any vegetation removal during the general avian nesting season (February 1 through August 31) shall be immediately preceded by a survey. If active nests are found, adequate marking of the nest site shall be provided and vegetation removal in the vicinity of the nest shall be delayed until the young fledge.

- Western pond turtle may be present in the project area. If a western pond turtle is observed, it should be allowed to move out of the area on its own.

- A biological worker awareness training program shall be implemented to educate the construction crews of the biological diversity within the project area. The worker awareness program shall include a presentation on the life history and legal status of potentially occurring special-status species and distribution of informational packages to each worker.

VII. REFERENCES AND LITERATURE CONSULTED

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Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento. California.

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USFWS. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28pp.

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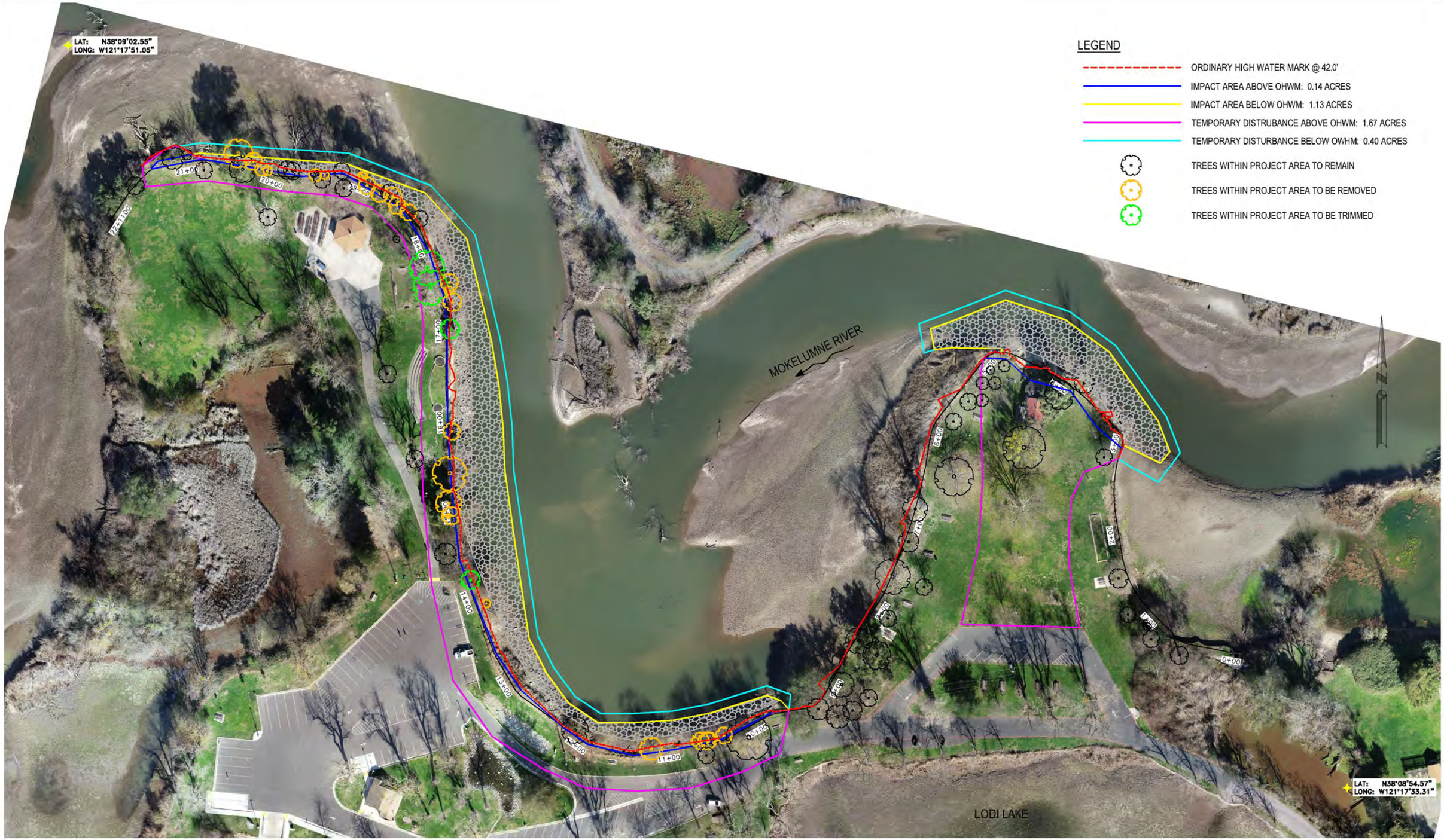
APPENDIX A

Project Drawings



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PLOT DATE: Apr 20, 2020 – 11:25am

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY
DRAWN BY
CHECK BY
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
1" = 50'
ORIGINAL DRAWING SCALE
0 ½" 1"

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1550 Harbor Drive, Suite 212
West Sacramento, CA 95691
916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

PROJECT IMPACT MAP

DATE
JUNE 2019
SHEET IDENTIFICATION
C-100
SHEET OF
KSN PROJECT FILE NO.
2402-0010

CITY OF LODI

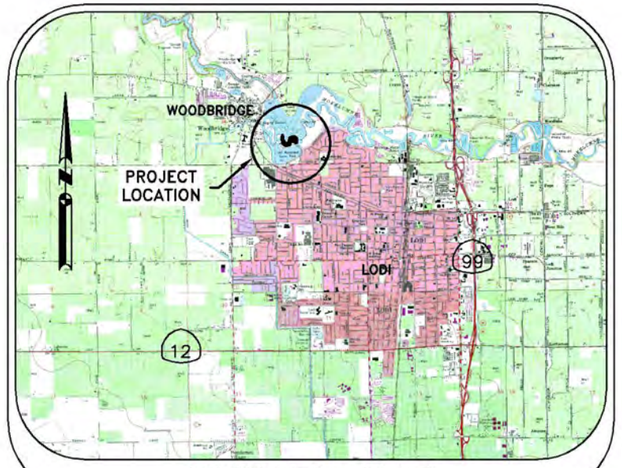
LODI LAKE

SAN JOAQUIN COUNTY, CALIFORNIA

SUMMER 2019

LODI LAKE RESTORATION PROJECT

RIVERBANK STABILIZATION



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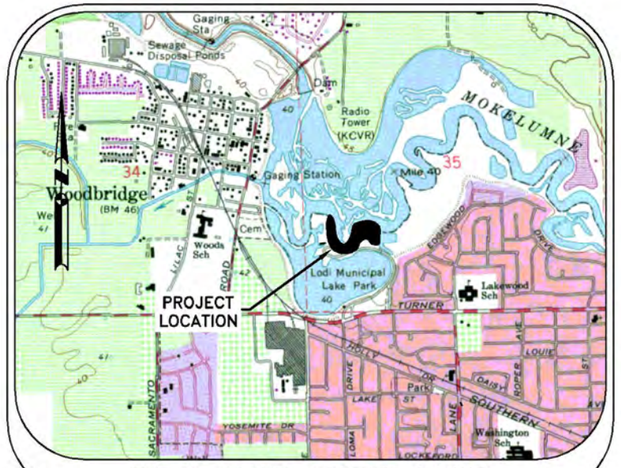

PROJECT SITE MAP

DWG NO	SHT NO	DESCRIPTION
G-001	1	TITLE SHEET
C-101	2	CONSTRUCTION NOTES
C-102	3	BASE MAP
C-103 & C-104	4-5	SITE MAP TREES
C-105 & C-106	6	SITE MAP DRAINED
C-301 TO C-305	7-11	CROSS SECTIONS
C-501	12	DETAILS

SHEET INDEX

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht-Title.dwg
PLOT DATE: Mar 31, 2020 – 9:40am

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE N.T.S.

ORIGINAL DRAWING SCALE 0 ½" 1"

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LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

TITLE SHEET

DATE JUNE 2019
SHEET IDENTIFICATION G-001
SHEET 1 OF 12
KSN PROJECT FILE NO. 2402-0010

GENERAL NOTES:

1. PRIOR TO THE COMMENCEMENT OF WORK, A JOINT INSPECTION BETWEEN THE ENGINEER, OR HIS REPRESENTATIVE, AND THE CONTRACTOR, OR HIS REPRESENTATIVE, WILL BE CONDUCTED TO REVIEW THE PRECONSTRUCTION CONDITIONS OF THE EXISTING FACILITIES IN THE VICINITY OF THE PROJECT SITE, (E.G. ROADS, PUMPS, DISCHARGE PIPES, SIPHONS, RAMPS, GATES, SIGNS, ETC.) IF SUCH EXISTING FACILITIES ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR, AT HIS EXPENSE, SHALL REPLACE OR RESTORE THEM TO THE CONDITION THAT EXISTED PRIOR TO THE COMMENCEMENT OF WORK.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT (209) 946-0268, A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. THE DISTRICT RESERVES THE RIGHT TO SUSPEND CONSTRUCTION AT ANY TIME IN THE EVENT OF EXTREME HIGH OR LOW TIDES, FLOOD EVENTS, OTHER CONDITIONS OR EMERGENCIES THAT MAY JEOPARDIZE THE INTEGRITY OF THE GOLF COURSE, DISTRICT'S LEVEE, AND ROAD SYSTEM.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, COUNTY AND LOCAL PERMITS AND OR REQUIREMENTS DURING THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS ALONG THE DISTRICT/COUNTY ROADS AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO THE ROADS AND GOLF COURSE SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
6. THE CONTRACTOR SHALL NOT CLOSE ANY ROAD, STREET, OR HIGHWAY TO THE PUBLIC EXCEPT WITH THE PERMISSION OF THE ENGINEER AND THE PROPER GOVERNMENTAL AUTHORITY. TEMPORARY PROVISIONS SHALL BE MADE BY THE CONTRACTOR TO ENSURE CONTINUOUS ACCESS TO PUBLIC AND PRIVATE DRIVEWAYS, AND PROPER FUNCTIONING OF CULVERTS, DRAINAGE AND IRRIGATION DITCHES, AND NATURAL WATER COURSES.
7. NEITHER THE DISTRICT NOR THE ENGINEER MAKE ANY WARRANTY OR GUARANTEE AS TO THE ADEQUACY OF THE EXISTING NATIVE MATERIALS TO SUPPORT THE CONSTRUCTION TRAFFIC ON THE ACCESS ROADS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MAKING THE NECESSARY IMPROVEMENTS AND PROVIDING THE NECESSARY MEASURES REQUIRED TO ACCOMMODATE HIS ANTICIPATED NEEDS.
8. MAXIMUM SPEED LIMIT ON DISTRICT ROADS IS 20 MPH, OR AS POSTED.
9. THE ENGINEER WILL PROVIDE LOCATIONS OF THE DESIGNATED PROJECT REPAIR SITES WITH START AND STOP POINTS, AND WILL PROVIDE TEMPORARY BENCHMARKS AT EACH OF THE PROJECT SITES TO BE UTILIZED BY THE CONTRACTOR FOR SETTING ELEVATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR SETTING ALL CONSTRUCTION STAKING AND SURVEYING.
11. THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE DISTRICT AND THE DISTRICT'S ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DISTRICT OR THE ENGINEER.
12. ANY DEFICIENCIES NOTED DURING INTERIM AND FINAL INSPECTIONS BY THE ENGINEER AND/OR DISTRICT, SHALL BE CORRECTED BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE BY THE DISTRICT. ANY ADDITIONAL COSTS AND EXPENSES FOR MOBILIZATION AND/OR DEMOBILIZATION, LABOR, EQUIPMENT AND OTHER ASSOCIATED COSTS REQUIRED TO CORRECT THE DEFICIENCIES NOTED, EXCEPT SPECIFIED MATERIAL(S), SHALL BE BORNE BY THE CONTRACTOR.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
14. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTRACT THE ENGINEER AT (209) 946-0268 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
15. THE INTENT OF THESE PLANS ARE TO SERVE AS A GUIDE AND TO PROVIDE THE CONTRACTOR WITH INFORMATION AND DETAILS NECESSARY TO CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE DISTRICT'S ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES AND AMBIGUITIES WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. IF THE PLANS DESCRIBE PORTION OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
16. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS.
17. ALL IMPROVEMENTS TO BE DONE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS.
18. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHENEVER THERE IS A CHANGE IN SITE CONDITIONS OR AN ADJUSTMENT TO BE MADE IN WORK REQUIREMENTS.
19. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR THE SECURITY OF HIS PLANT AND EQUIPMENT. THE DISTRICT WILL NOT BE RESPONSIBLE FOR MISSING OR DAMAGED EQUIPMENT, TOOLS, OR PERSONAL BELONGINGS.

ENVIRONMENTAL NOTES:

1. THE CONTRACTOR SHALL NOT DISCHARGE SMOKE, DUST, OR ANY OTHER AIR CONTAMINANTS INTO THE ATMOSPHERE IN SUCH QUANTITY AS WILL VIOLATE THE REGULATIONS OF ANY LEGALLY CONSTITUTED AUTHORITY. HE SHALL ALSO ABATE DUST NUISANCE BY CLEANING, SWEEPING AND SPRINKLING WITH WATER, OR OTHER MEANS AS NECESSARY. THE USE OF WATER IN AN AMOUNT WHICH RESULTS IN MUD ON PUBLIC ROADS IS NOT ACCEPTABLE AS A SUBSTITUTE FOR SWEEPING OR OTHER METHODS.
2. THE CONTRACTOR SHALL EXERCISE EVERY REASONABLE PRECAUTION TO PROTECT STREAMS, WATERWAYS AND OTHER BODIES OF WATER FROM POLLUTION WITH FUELS, OIL, BITUMEN'S, CALCIUM CHLORIDE, AND OTHER HARMFUL MATERIALS AND SHALL CONDUCT AND SCHEDULE HIS OPERATIONS SO AS TO AVOID OR MINIMIZE MUDDYING AND SILTING OF SAID WATERS. CARE SHALL BE EXERCISED TO PRESERVE ROADSIDE VEGETATION BEYOND THE LIMITS OF CONSTRUCTION.
3. THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, AND UNTIL FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL KEEP THE WORK SITE CONDITIONS CLEAN AND FREE FROM RUBBISH AND DEBRIS.

UTILITY NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE ACTUAL LOCATION OF ALL UNDERGROUND, SURFACE, OVERHEAD, AND SUBMARINE IMPROVEMENTS, OR FACILITIES WHICH MAY BE SUBJECT TO DAMAGE BY REASON OF HIS OPERATIONS.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES PRIOR TO COMMENCEMENT OF WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF ALL SUCH FACILITIES IN THE AREA OF CONSTRUCTION, AND SHALL NOTIFY UTILITIES TWENTY-FOUR (24) HOURS IN ADVANCE OF ANY CONSTRUCTION. (UNDERGROUND SERVICE ALERT (800) 642-2444)
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING IRRIGATION AND DRAINAGE FACILITIES INCLUDING, BUT NOT LIMITED TO, SIPHONS, DITCHES, CROSSINGS, DISTRIBUTION BOXES, SLIDE GATES, ETC., DURING THE TERM OF THE CONTRACT. THE EXISTING IRRIGATION AND DRAINAGE FACILITIES MUST REMAIN FULLY OPERATIONAL DURING THE PERIOD OF CONSTRUCTION.

TRAFFIC CONTROL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AS DESCRIBED IN SPECIAL PROVISIONS, SECTION 1.12, "TRAFFIC CONTROL."

CLEANUP:

1. THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, AND UNTIL FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL KEEP THE PREMISES OCCUPIED BY HIM IN A CLEAN AND ORDERLY CONDITION, DISPOSING OF REFUSE IN A MANNER SATISFACTORY TO THE ENGINEER.
2. THE CONTRACTOR, UPON COMPLETION OF ALL WORK, SHALL RESTORE ALL ACCESS ROADS, HAUL ROADS, AND PROJECT SITES IN A MANNER SATISFACTORY TO THE ENGINEER AND LANDOWNER.

CONSTRUCTION NOTES:
ACCESS ROADS:

1. THE CONTRACTOR SHALL IMPROVE, MAINTAIN, AND REPAIR/REPLACE UPON COMPLETION, ALL THE ACCESS ROADS AND GOLF COURSE ACCESS ROUTES AS MAY BE REQUIRED FOR TRANSPORTATION AND HAULING MATERIAL TO THE PROJECT AREAS.
2. THE CONTRACTOR SHALL REVIEW THE ACCESS ROAD ROUTES AND DETERMINE THE LOCATION FOR TURNOUTS, RAMPS, ROAD DRAINAGE, ALIGNMENT, ETC. UPON COMPLETION OF THE PROJECT, SOME PORTIONS OF THE ACCESS ROADS MAY REQUIRE MINOR MODIFICATIONS AND ALTERATIONS. THE ACCESS ROADS WHICH REMAIN SHALL BE LEFT IN GOOD CONDITION FOR THE DISTRICT AND OTHER LOCAL TRAFFIC.
3. THE ACCESS ROADS FOR THIS PROJECT MAY REQUIRE THE CONTRACTOR TO MODIFY AND REWORK THE GRADING OF THE EXISTING ROADS TO MEET THE CONTRACTOR'S HAULING AND ROAD DRAINAGE REQUIREMENTS.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MAKING ANY NECESSARY IMPROVEMENTS, MODIFICATIONS, AND ALTERATIONS TO MEET HIS REQUIREMENTS AND FOR THE MAINTENANCE AND EXPENSE THEREOF.
5. THE CONTRACTOR'S EQUIPMENT SHALL BE RESTRICTED TO OPERATE ONLY ON THOSE ROADS AND WITHIN THOSE SPECIFIED WORK AREAS INDICATED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE ENGINEER, DISTRICT, AND LANDOWNERS.
6. THE CONTRACTOR SHALL EXTEND, STRENGTHEN, REPLACE, OR OTHERWISE MODIFY THE EXISTING CROSSINGS (E.G. CULVERTS, SIPHONS, DRAIN PIPES, IRRIGATION PIPES, PUMP DISCHARGE PIPES, WET SPOTS, ETC.) AS NECESSARY TO ACCOMMODATE HIS EQUIPMENT. THE CONTRACTOR SHALL PROVIDE WHATEVER MEASURES ARE NECESSARY TO PRESERVE, PROTECT, AND MAINTAIN THE CROSSINGS SO AS TO ENSURE CONTINUOUS AND UNINTERRUPTED CONSTRUCTION OPERATIONS DURING THE ENTIRE TERM OF THIS CONTRACT.
7. THE ACCESS ROADS MAY REQUIRE TEMPORARY IRRIGATION OR DISCHARGE PIPE EXTENSIONS AND RAMPING DURING CONSTRUCTION OPERATIONS. TEMPORARY EXTENSIONS AND RAMPING WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT HIS EXPENSE, INCLUDING REMOVAL IF REQUIRED, IN A MANNER WHICH MEETS WITH THE APPROVAL OF THE ENGINEER AND THE LANDOWNERS.
8. NEITHER THE DISTRICT NOR THE ENGINEER MAKE ANY WARRANTY OR GUARANTEE AS TO THE ADEQUACY OF THE EXISTING NATIVE MATERIALS TO SUPPORT THE CONSTRUCTION TRAFFIC ON THE ACCESS ROADS AND/OR GOLF COURSE ACCESS ROUTES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MAKING THE NECESSARY IMPROVEMENTS AND PROVIDING THE NECESSARY MEASURES REQUIRED TO ACCOMMODATE HIS ANTICIPATED NEEDS.
9. THE CONTRACTOR SHALL SECURE ALL OTHER ACCESS ROAD EASEMENTS AS MAY BE REQUIRED WITH THE INDIVIDUAL PROPERTY OWNERS FOR ALL NON-DISTRICT AND/OR PUBLIC ACCESS ROADS AND AS DESCRIBED IN SPECIAL PROVISIONS, SECTION 1.12, "TRAFFIC CONTROL & RIGHT-OF-WAY."
10. THE CONTRACTOR SHALL BE RESTRICTED TO THE CAPACITY LIMITS OF HIGHWAY LEGAL SIZED TRUCKS AND TRAILERS AND OTHER EQUIPMENT OPERATIONS OVER THE ACCESS ROADS, UNLESS OTHERWISE APPROVED BY THE DISTRICT.

POWER LINES:

1. THE CONTRACTOR SHALL TAKE NOTE OF THE POWER LINES WITHIN THE CONSTRUCTION ZONE. EXTREME CAUTION SHALL BE EXERCISED.
2. IF POWER POLES, LINES AND GUY WIRES ARE WITHIN THE IMMEDIATE WORK AREA, CONTRACTOR TO WORK AROUND THEM AT A SAFE DISTANCE.

WORKING HOURS AND DAYS OF OPERATION:

1. DUE TO RESIDENTIAL NOISE RESTRICTIONS, ACTUAL CONSTRUCTION OPERATIONS CAN ONLY COMMENCE AT 0600 HOURS (6:00 AM) AND END (SHUT DOWN) AT 1900 HOURS (7:00 PM), FIVE (5) DAYS A WEEK, MONDAY THROUGH FRIDAY.

SPECIAL NOTE: THE NOTES PLACED ON THIS PLAN SHEET ARE TO BE USED AS A GUIDE FOR VARIOUS TOPICS DESCRIBED. SPECIFIC DETAILS AND FURTHER EXPLANATIONS OF THE VARIOUS NOTES ARE DESCRIBED IN THE SPECIFICATIONS AND WITHIN THESE PLANS.

CALL BEFORE YOU DIG 800-642-2444 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
ORIGINAL DRAWING SCALE 0 ½" 1"

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LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

CONSTRUCTION NOTES

DATE JUNE 2019
SHEET IDENTIFICATION C-101
SHEET 2 OF 12
KSN PROJECT FILE NO. 2402-0010

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Notes.dwg
PLOT DATE: Mar 31, 2020 - 9:41am

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht-BaseMap.dwg
PLOT DATE: Mar 31, 2020 - 9:41am

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE 1" = 150'
ORIGINAL DRAWING SCALE 0 ½" 1"

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West Sacramento, CA 95691
916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

BASE MAP

DATE JUNE 2019
SHEET IDENTIFICATION C-102
SHEET 3 OF 12
KSN PROJECT FILE NO. 2402-0010

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Trees.dwg
PLOT DATE: Apr 20, 2020 – 11:24am

CALL BEFORE YOU DIG 800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=30'
HORZ: 1"=30'
ORIGINAL DRAWING SCALE 0 ½" 1"

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LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

TREE SITE MAP

DATE JUNE 2019
SHEET IDENTIFICATION C-103
SHEET 4 OF 12
KSN PROJECT FILE NO. 2402-0010

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Trees.dwg
PLOT DATE: Apr 20, 2020 – 11:24am

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY	JAM
DRAWN BY	JDP
CHECK BY	CHN
HORIZONTAL DATUM	CCS83, ZONE 3
VERTICAL DATUM	NAVD88

DRAWING SCALE
VERT: 1"=30'
HORZ: 1"=30'

ORIGINAL DRAWING SCALE
0 ½" 1"

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916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

TREE SITE MAP

DATE
JUNE 2019

SHEET IDENTIFICATION
C-104
SHEET 5 OF 12

KSN PROJECT FILE NO.
2402-0010

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo2.dwg
PLOT DATE: Mar 31, 2020 – 10:14am

CALL BEFORE YOU DIG 800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY	JAM
DRAWN BY	JDP
CHECK BY	CHN
HORIZONTAL DATUM	CCS83, ZONE 3
VERTICAL DATUM	NAVD88

DRAWING SCALE
VERT: 1"=50'
HORZ: 1"=50'

ORIGINAL DRAWING SCALE
0 ½" 1"

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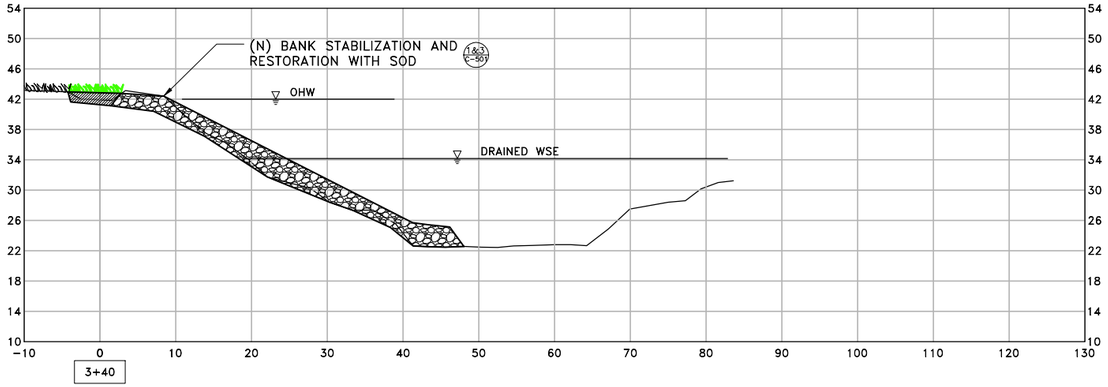
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

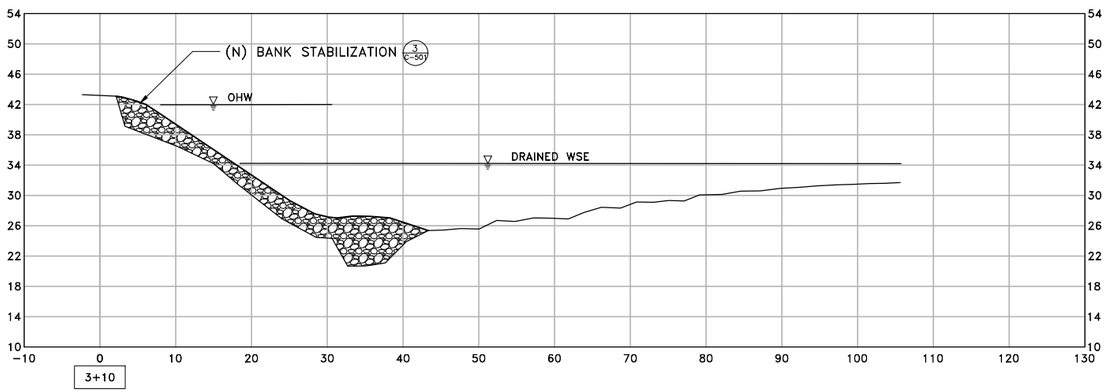
SITE MAP

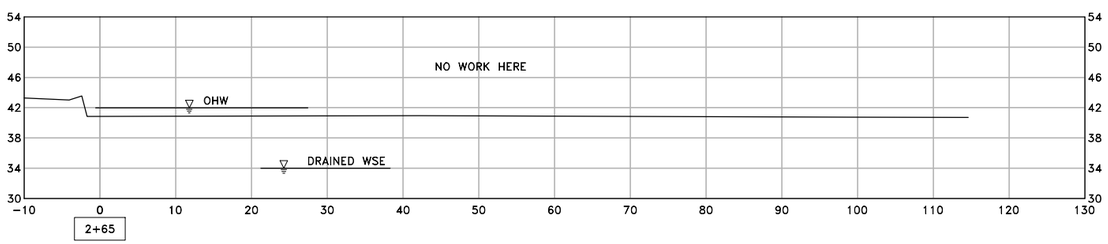
DATE
JUNE 2019

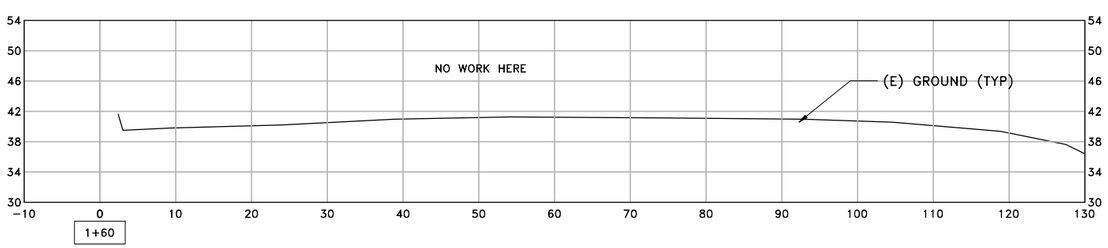
SHEET IDENTIFICATION
C-106
SHEET 6 OF 12

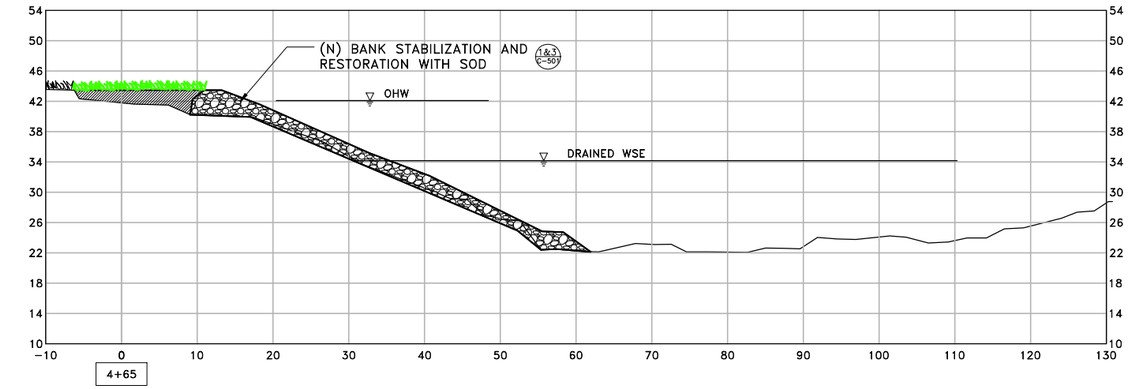
KSN PROJECT FILE NO.
2402-0010

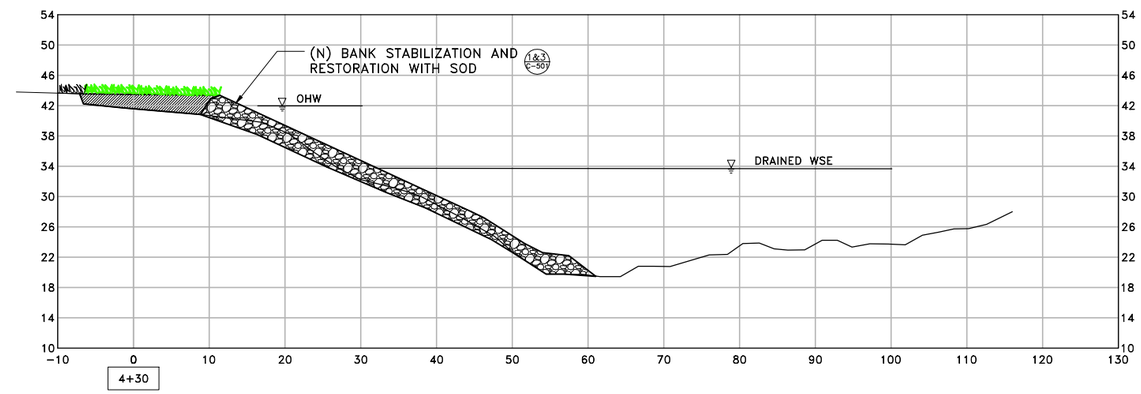


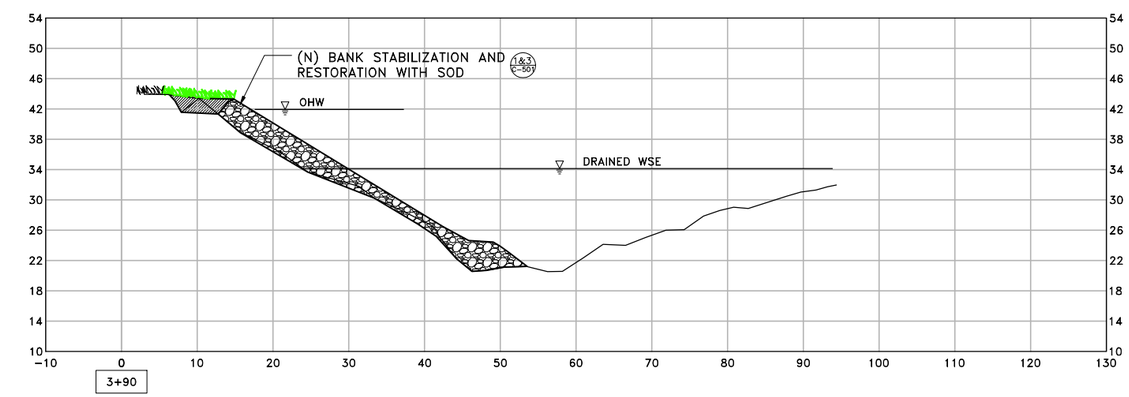












FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 - 9:11am

CALL BEFORE YOU DIG 800 227 2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=10'
HORZ: 1"=10'
ORIGINAL DRAWING SCALE
0 ½" 1"

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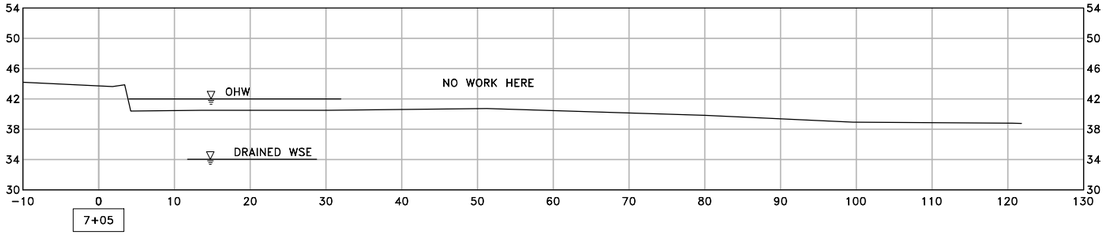
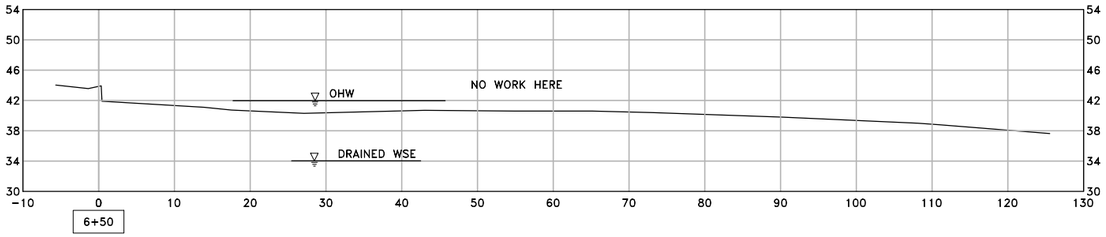
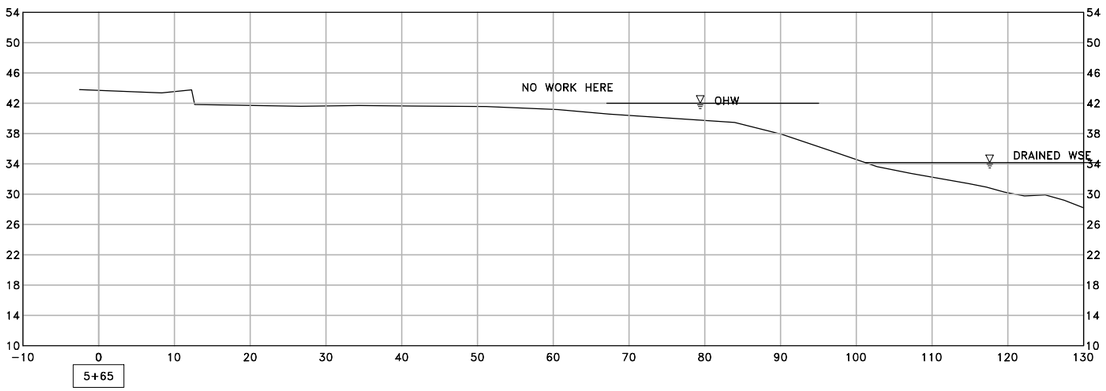
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

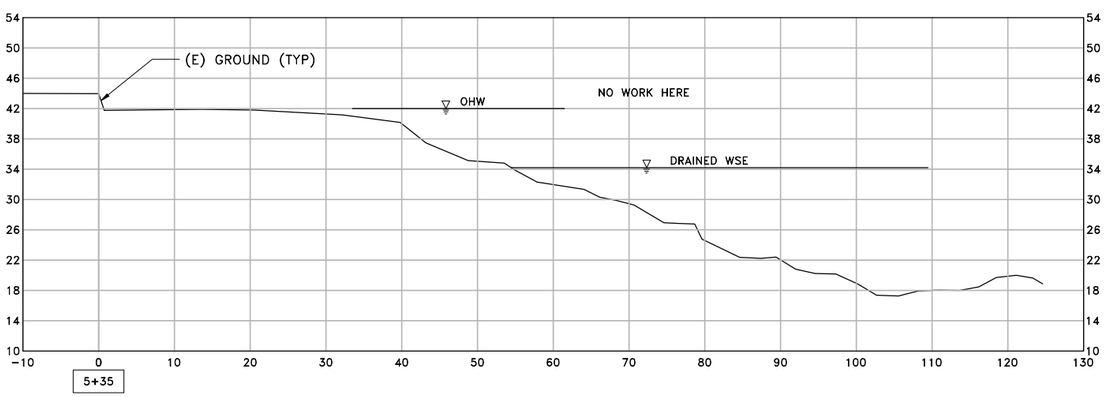
CROSS SECTIONS

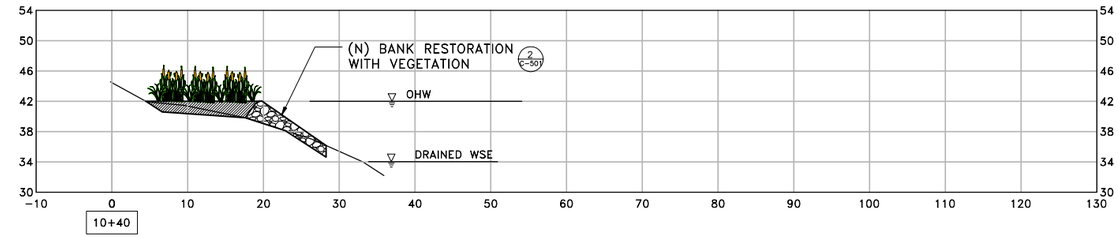
DATE JUNE 2019
SHEET IDENTIFICATION C-301
SHEET 7 OF 12
KSN PROJECT FILE NO. 2402-0010

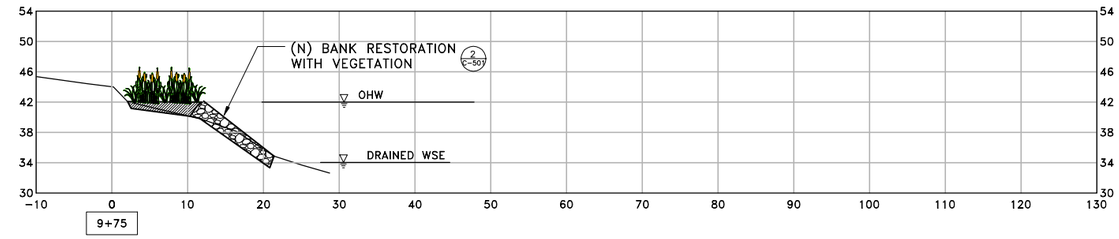


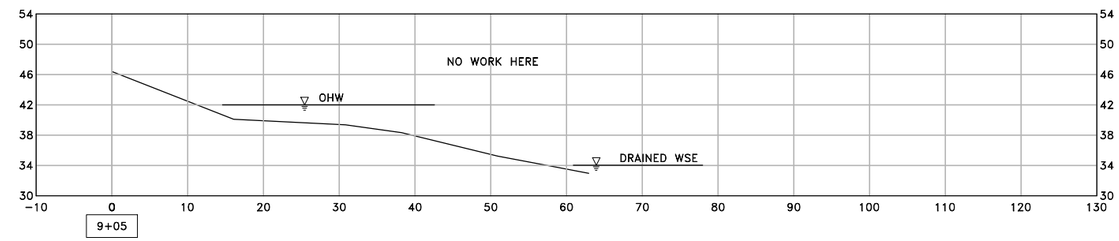


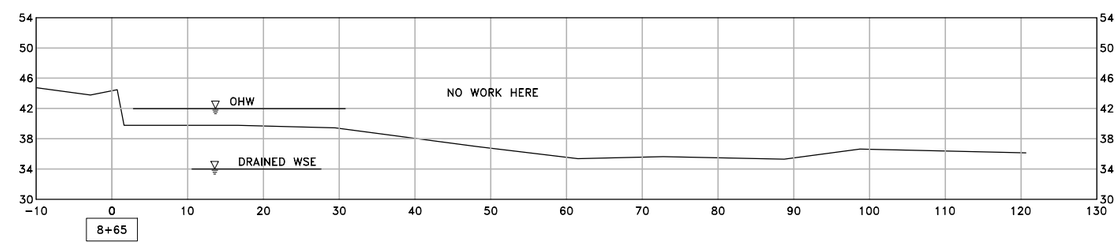


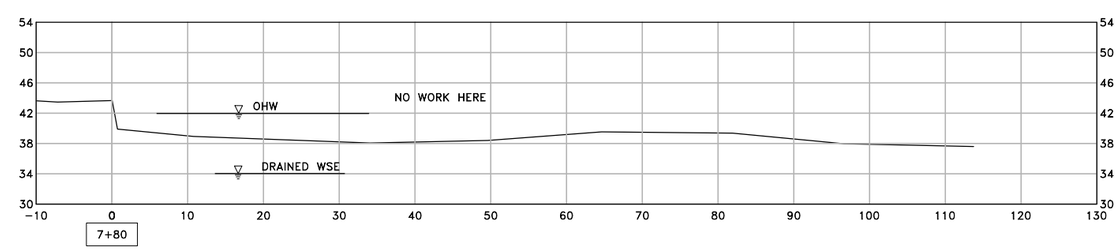












FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 - 9:11am

CALL BEFORE YOU DIG 800.227.2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=10'
HORZ: 1"=10'

ORIGINAL DRAWING SCALE
0 ½" 1"

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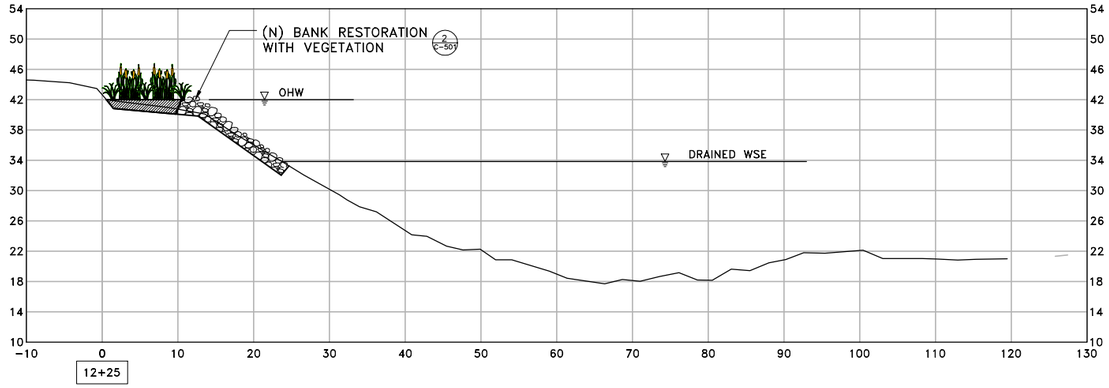
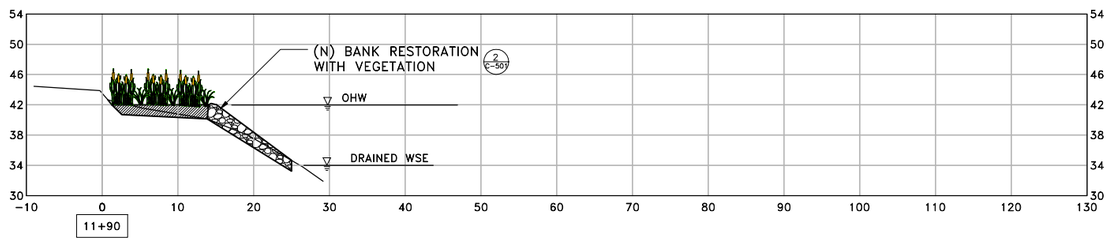
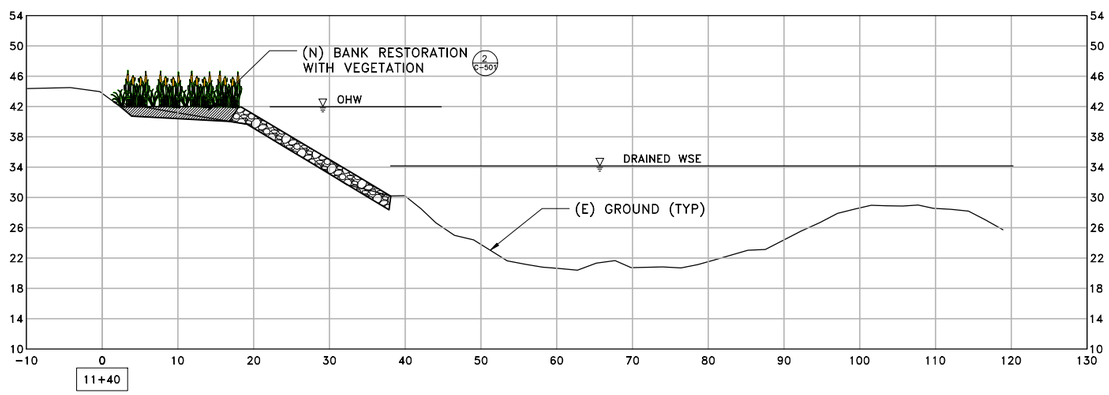
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

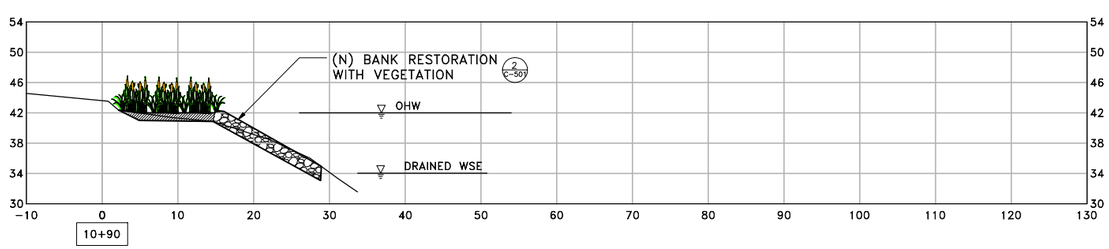
CROSS SECTIONS

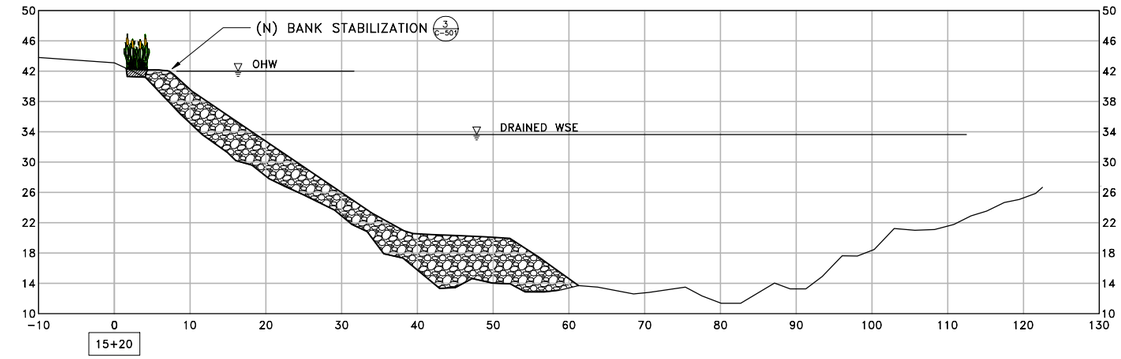
DATE JUNE 2019
SHEET IDENTIFICATION C-302
SHEET 8 OF 12
KSN PROJECT FILE NO. 2402-0010

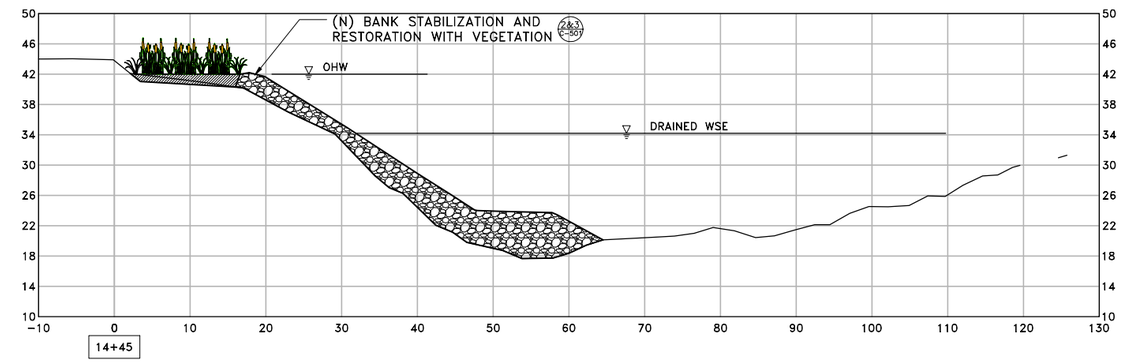


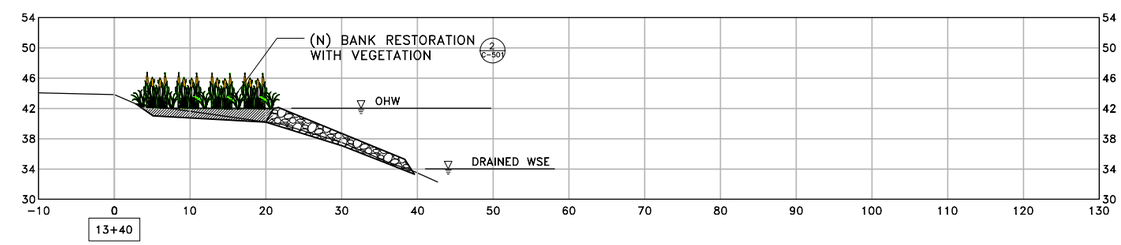


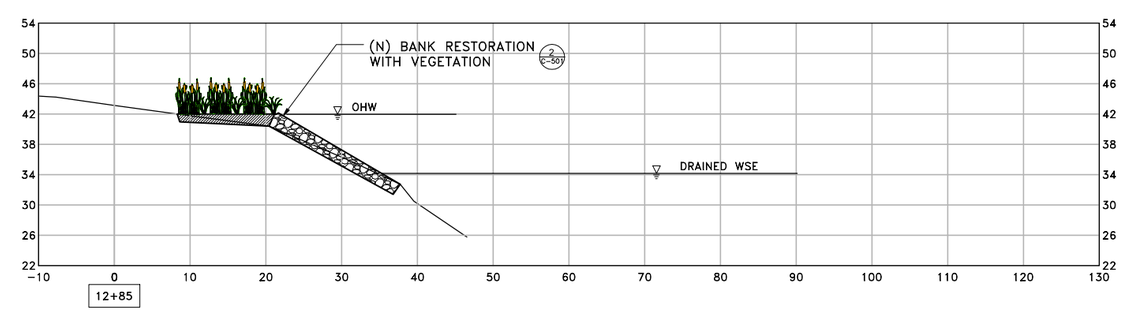












FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 – 9:11am

CALL BEFORE YOU DIG 800 227 2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=10'
HORZ: 1"=10'

ORIGINAL DRAWING SCALE
0 ½" 1"

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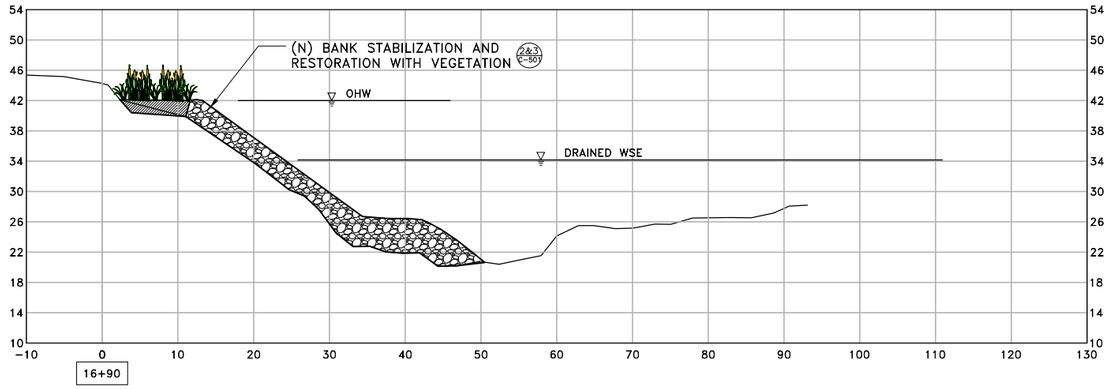
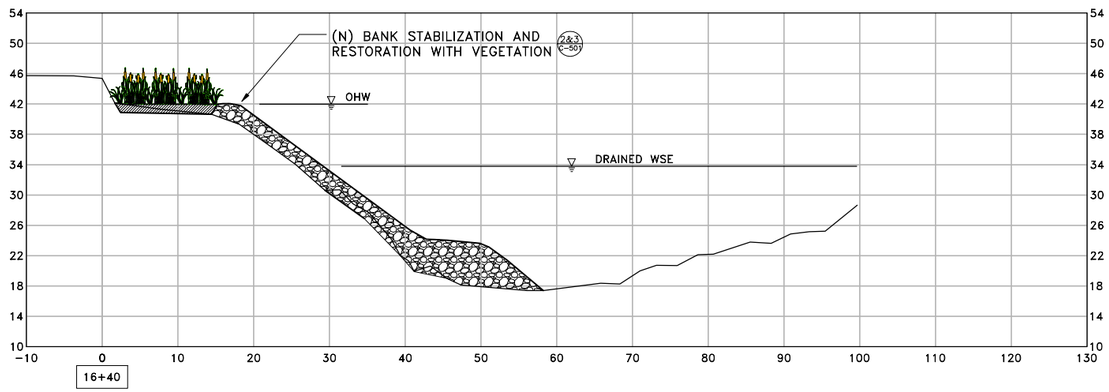
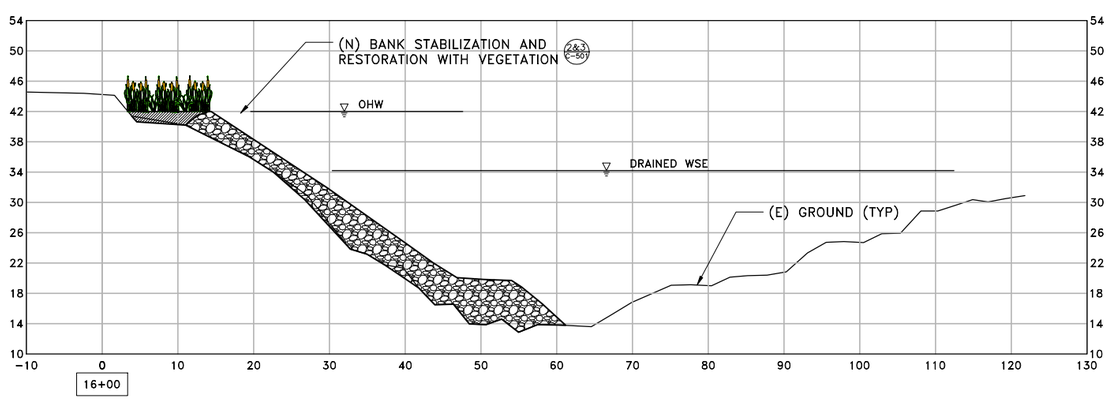
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

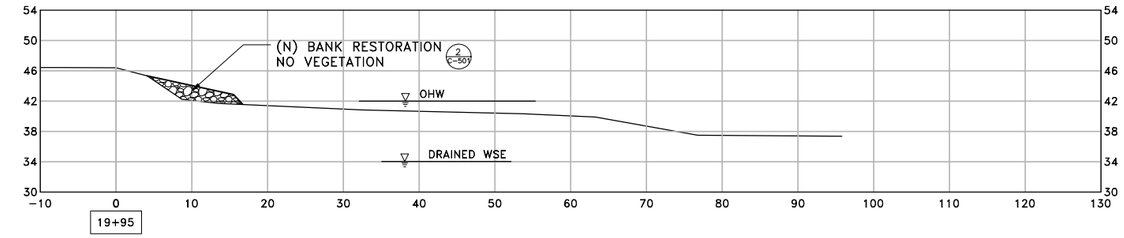
CROSS SECTIONS

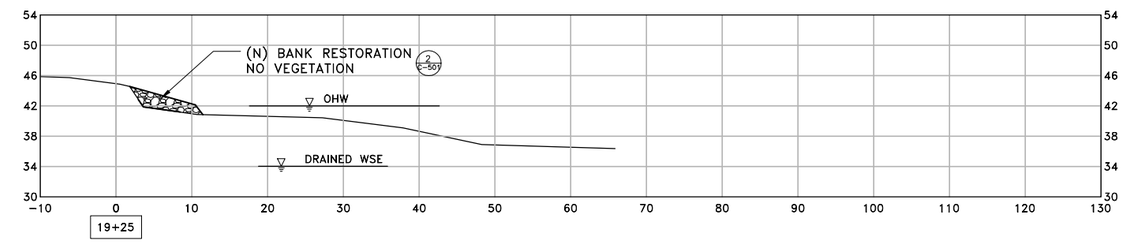
DATE JUNE 2019
SHEET IDENTIFICATION C-303
SHEET 9 OF 12
KSN PROJECT FILE NO. 2402-0010

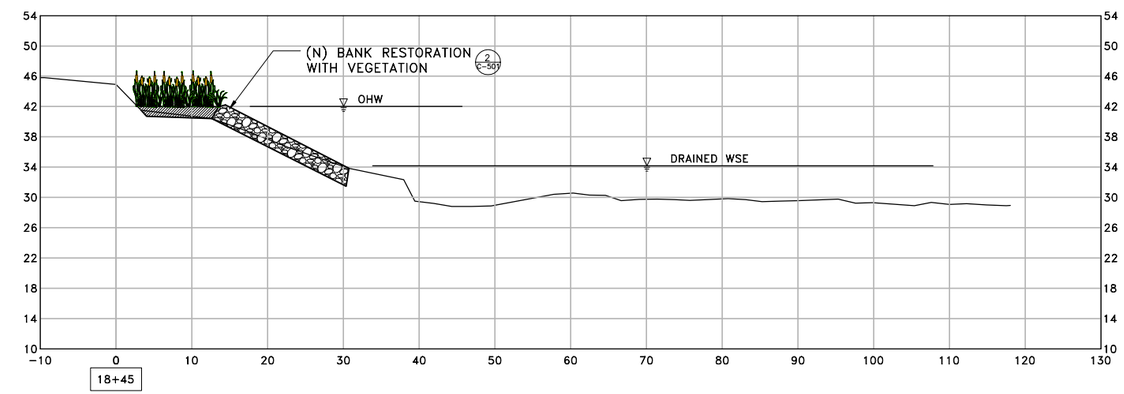


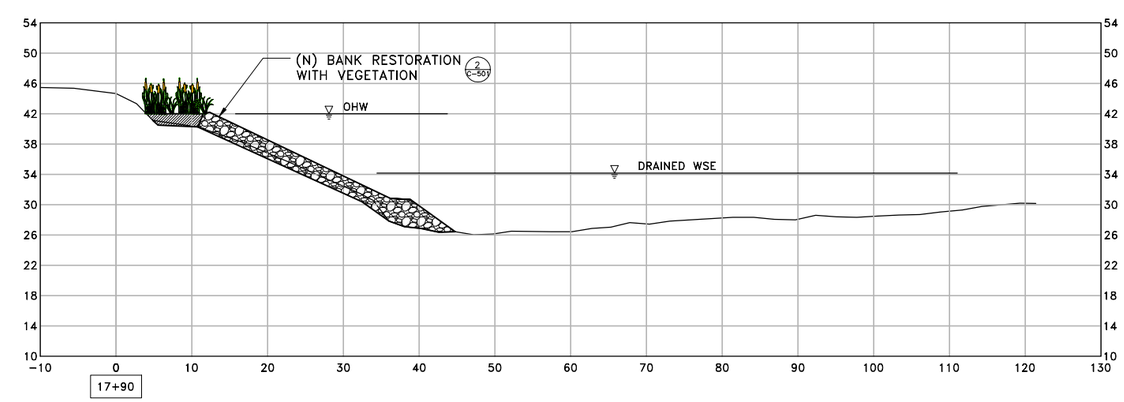












FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 - 9:12am

CALL BEFORE YOU DIG 800 227 2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=10'
HORZ: 1"=10'

ORIGINAL DRAWING SCALE
0 ½" 1"

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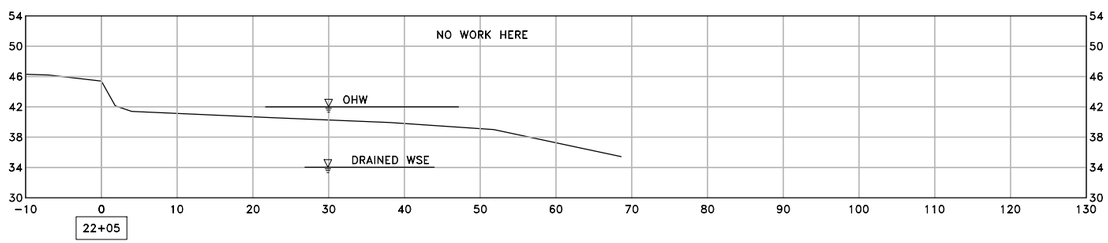
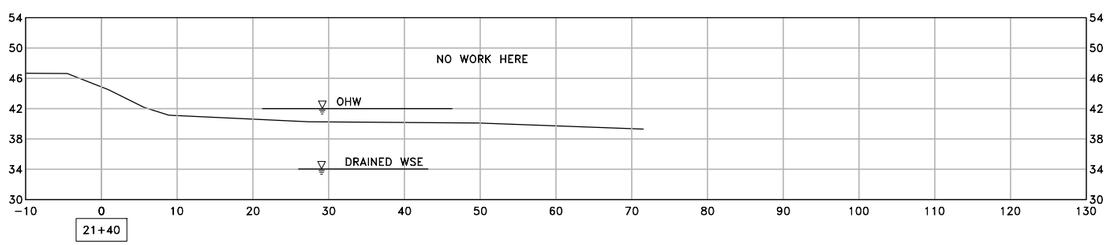
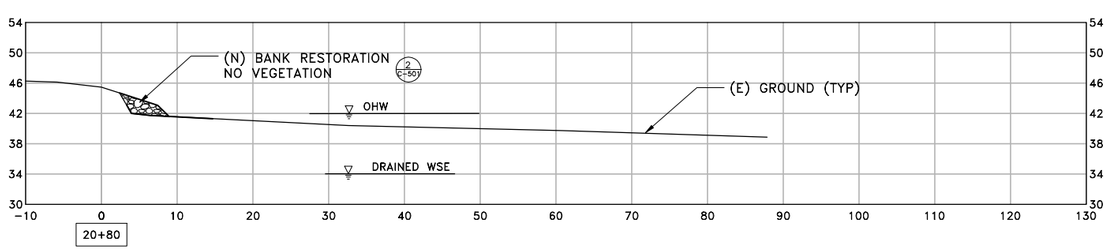
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

CROSS SECTIONS

DATE JUNE 2019
SHEET IDENTIFICATION C-304
SHEET 10 OF 12
KSN PROJECT FILE NO. 2402-0010







FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 – 9:12am

CALL BEFORE YOU DIG
1-800-227-2600
UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE
VERT: 1"=10'
HORZ: 1"=10'

ORIGINAL DRAWING SCALE
0 ½" 1"

KSN inc.
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CIVIL ENGINEERS & LAND SURVEYORS
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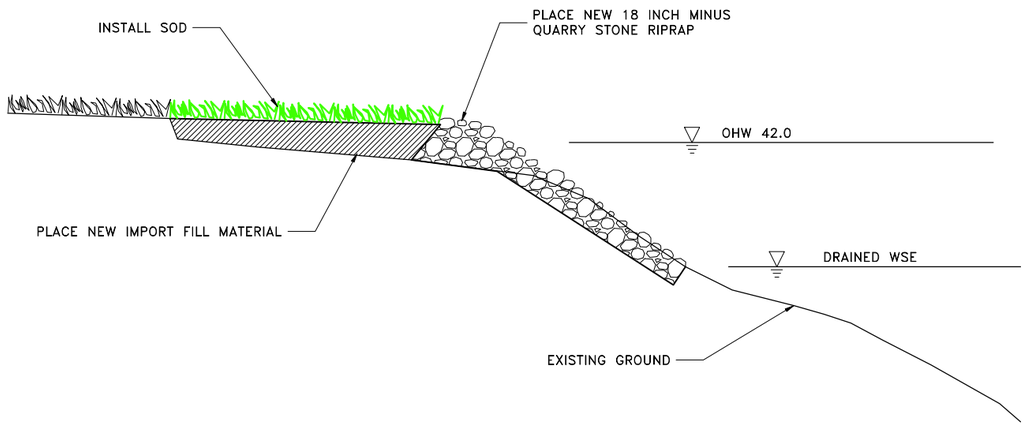
LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

CROSS SECTIONS

DATE
JUNE 2019

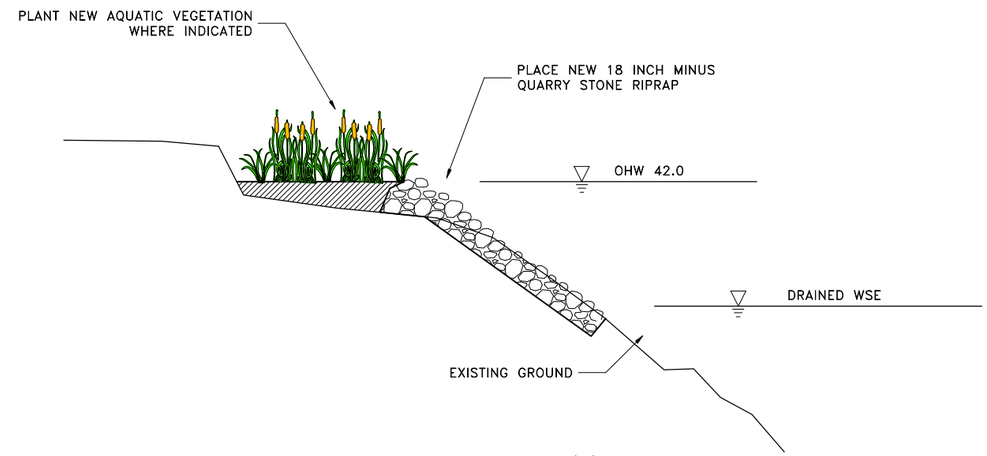
SHEET IDENTIFICATION
C-305
SHEET 11 OF 12

KSN PROJECT FILE NO.
2402-0010



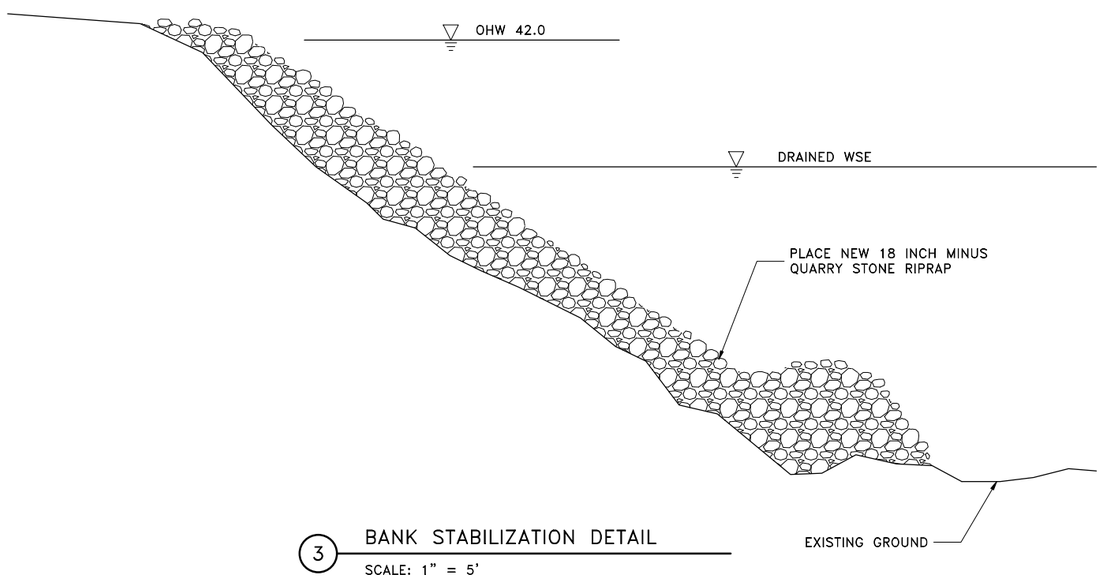
1 BANK RESTORATION DETAIL (1)

SCALE: 1" = 5'



2 BANK RESTORATION DETAIL (2)

SCALE: 1" = 5'



3 BANK STABILIZATION DETAIL

SCALE: 1" = 5'

NOTE: DEBRIS REMOVAL

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Sht_Topo.dwg
PLOT DATE: Nov 14, 2019 – 9:13am

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

PROJECT ENGINEER

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY JAM
DRAWN BY JDP
CHECK BY CHN
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE

ORIGINAL DRAWING SCALE 0 ½" 1"

KSN inc. KJELDSEN SINNOCK NEUDECK CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Drive, Suite 212
West Sacramento, CA 95691
916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

DETAILS

DATE JUNE 2019

SHEET IDENTIFICATION C-501

SHEET 12 OF 12

KSN PROJECT FILE NO. 2402-0010

APPENDIX B

CNDDB Summary Report and Exhibits

& USFWS IPaC Trust Resource Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

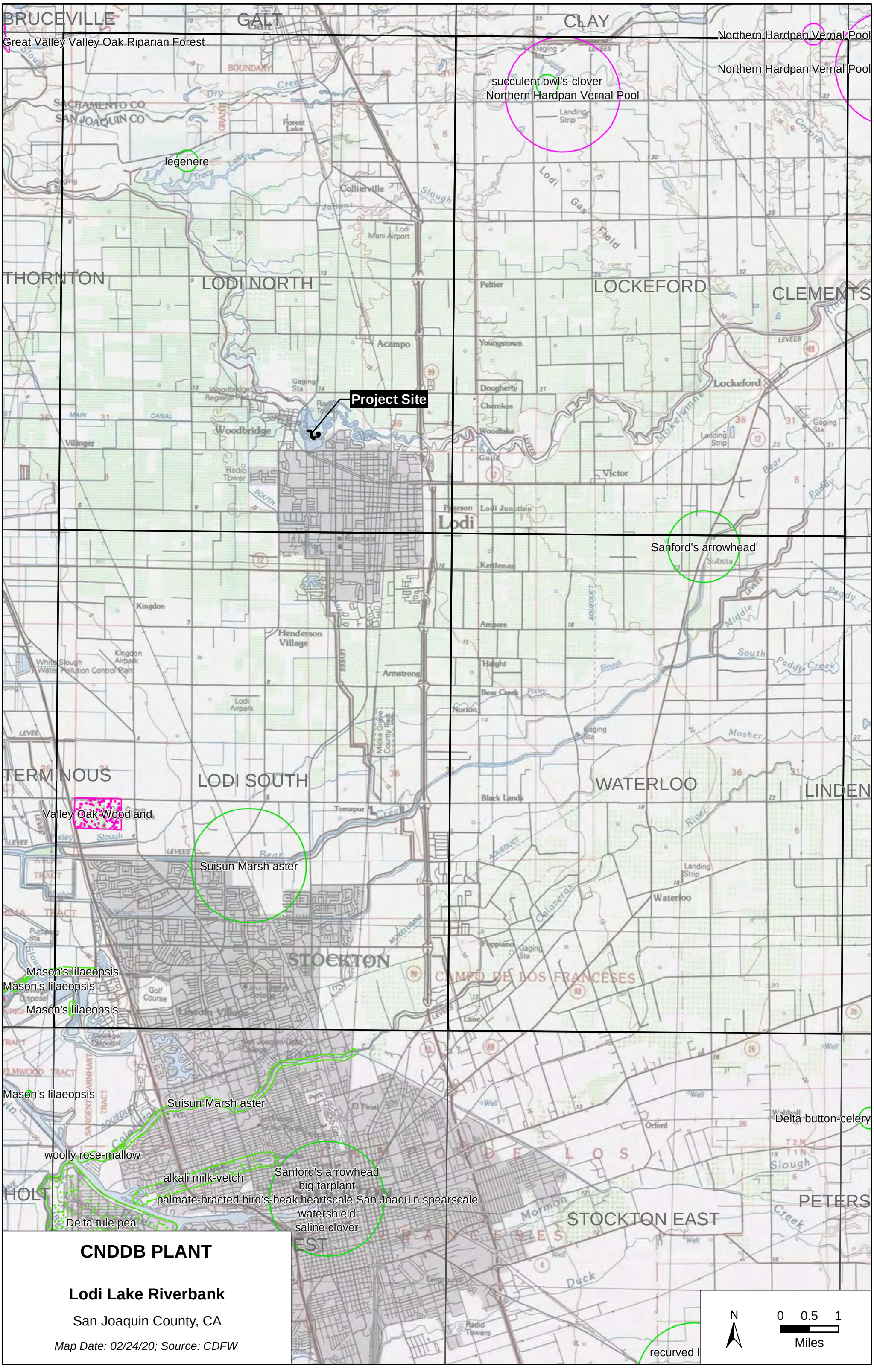
California Natural Diversity Database

Query Criteria: Quad IS (Lodi North (3812123) OR Lodi South (3812113) OR Waterloo (3812112) OR Lockeford (3812122))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Castilleja campestris var. succulenta succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Setophaga petechia	ABPBX03010	None	None	G5	S3S4	SSC
yellow warbler						
Symphyotrichum lentum	PDASTE8470	None	None	G2	S2	1B.2
Suisun Marsh aster						
Thamnophis gigas	ARADB36150	Threatened	Threatened	G2	S2	
giant gartersnake						
Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
Valley Oak Woodland						

Record Count: 23

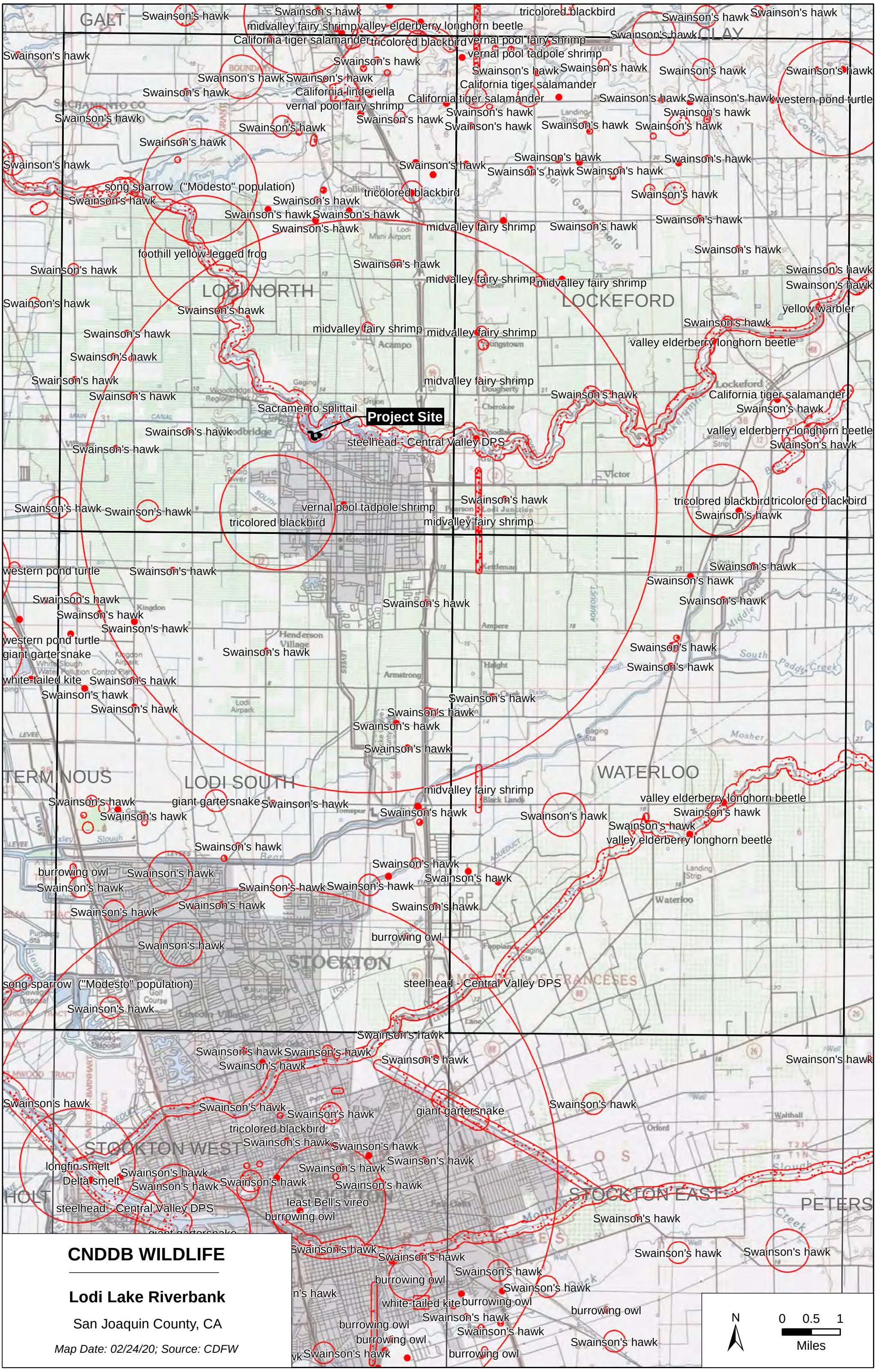


CNDDB PLANT

Lodi Lake Riverbank

San Joaquin County, CA

Map Date: 02/24/20; Source: CDFW



CNDDB WILDLIFE

Lodi Lake Riverbank

San Joaquin County, CA

Map Date: 02/24/20; Source: CDFW

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

San Joaquin County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

NOT FOR CONSULTATION

Riparian Brush Rabbit Sylvilagus bachmani riparius — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6189

Birds

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

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Insects

NAME	STATUS

NOT FOR CONSULTATION

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

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

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover *Castilleja campestris ssp. succulenta* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8095	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.

2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NOT FOR CONSULTATION

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jan 1 to Dec 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

NOT FOR CONSULTATION

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

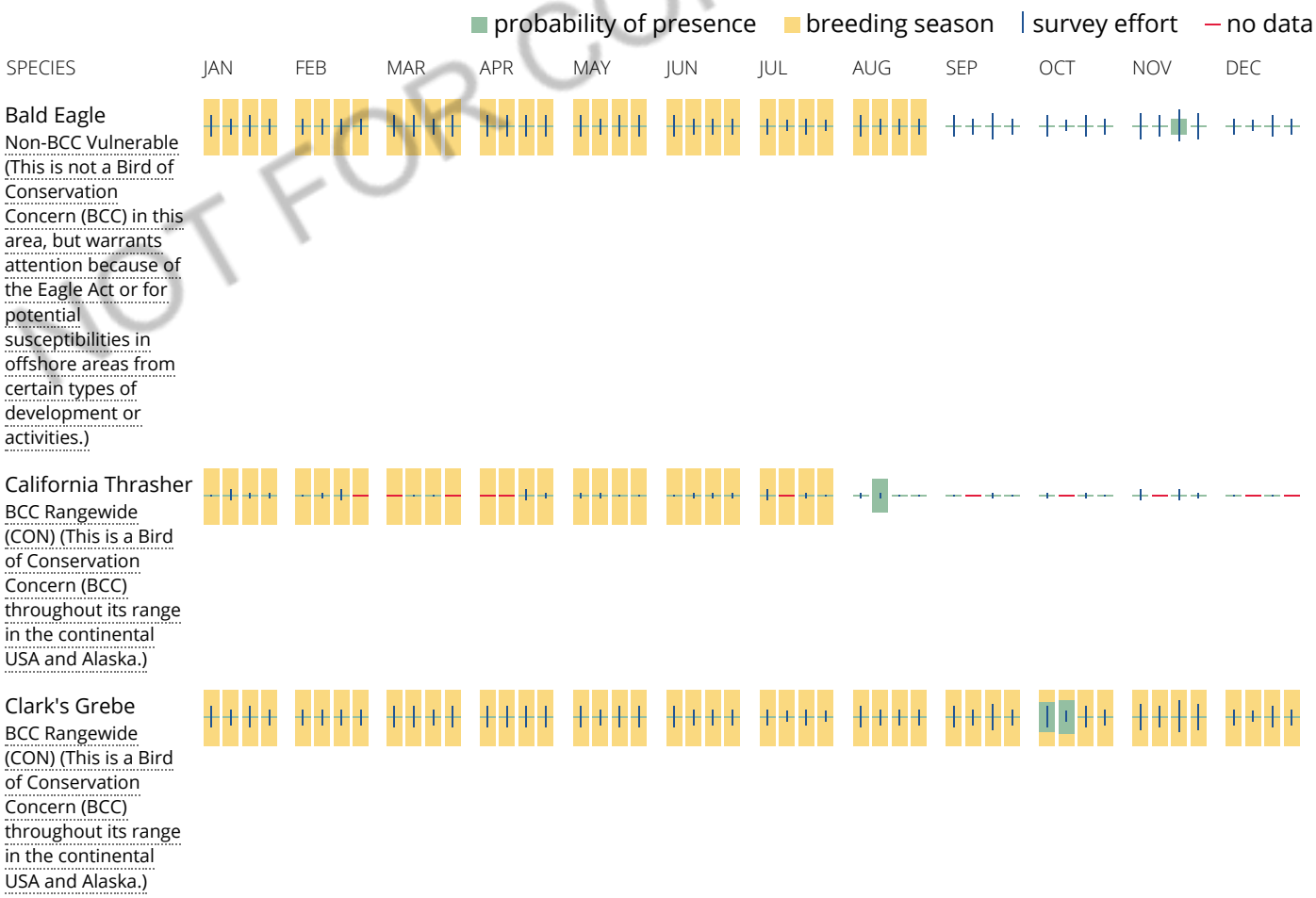
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

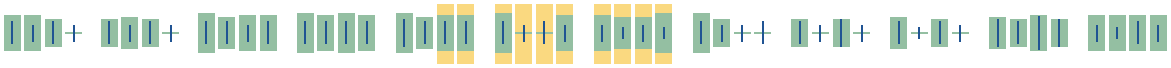
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION



Common Yellowthroat

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

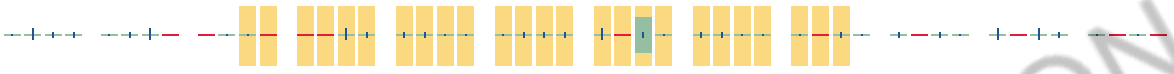


Costa's Hummingbird

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Lawrence's Goldfinch

BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lewis's Woodpecker

BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-billed Curlew

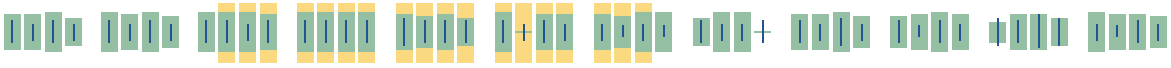
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nuttall's Woodpecker

BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Oak Titmouse

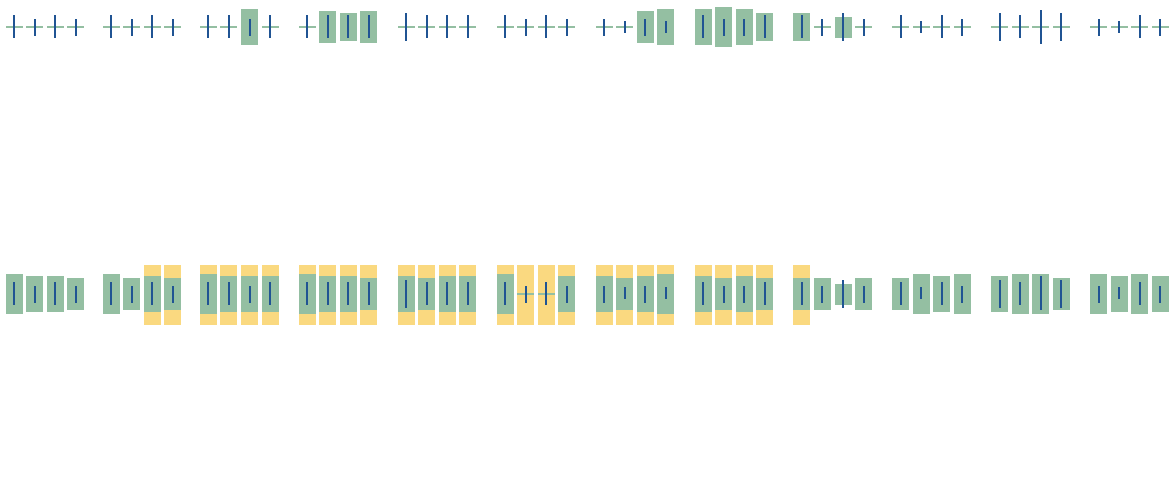
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION

Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

NOT FOR CONSULTATION

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

- PFOA
- PSS/EM1C
- PFO/EM1C

FRESHWATER POND

- PUBK
- PUBH

RIVERINE

- R2UBH
- R5UBFx
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

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inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX C

Wetland Delineation Map

FILE SPEC: P:\2402_Lodi_Lake_Riverbank_Stabilization\08_Civil\400_Plans\020_CAD\Sheets\Wetland_Delineation_Map.dwg
PLOT DATE: Mar 31, 2020 – 9:21am

CALL BEFORE YOU DIG 1-800-227-2600 UNDERGROUND SERVICE ALERT

SUBMITTAL	
%	Date

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY MSK
DRAWN BY MSK
CHECK BY JAM
HORIZONTAL DATUM CCS83, ZONE 3
VERTICAL DATUM NAVD88

DRAWING SCALE 1" = 50'
ORIGINAL DRAWING SCALE 0 ½" 1"

KSN inc. KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Drive, Suite 212
West Sacramento, CA 95691
916-403-5900

LODI LAKE RESTORATION PROJECT
RIVERBANK STABILIZATION
CITY OF LODI

WETLAND DELINEATION MAP

DATE FEBRUARY 2019
SHEET IDENTIFICATION C-100
SHEET 1 OF 1
KSN PROJECT FILE NO. 2402-0010

APPENDIX D

Photographs

Eroding bank near Station 3+00, looking northwest; 04/09/19. The erosion has resulted in trees being undercut, leaning over, and then falling in to the water. The bank stabilization is necessary to prevent the further loss of riparian trees.

Eroding bank near Station 4+00, looking west; 04/09/19. The erosion has resulted in the loss of parkland adjacent to the gazebo and the stabilization is necessary to prevent further erosion that would damage the structure.

Eroding bank near Station 14+50, looking north; 04/09/19. The erosion has resulted in trees being undercut, leaning over, and then falling in to the water.

Tree that has fallen in to the water near Station 15+50, looking northeast; 04/09/19. The bank stabilization is necessary to prevent further erosion that would lead to the loss of additional trees along the shoreline.

Eroding bank near Station 16+00, looking north; 04/09/19. The erosion has resulted in the failure of the retaining wall adjacent to an amphitheatre; stabilization is necessary to prevent further erosion that would render amphitheatre unsafe.

Eroding bank near Station 10+00, looking west; 04/09/19. The erosion has resulted in trees being undercut and falling in to the water. The stabilization is necessary to prevent further erosion that would result in the loss of trees.

Retaining wall along the shoreline near Station 3+00, looking north; 02/03/20. The lake was drained a few days prior to the February 3, 2020 survey for annual maintenance of the dam.

Concrete rubble and debris on the bank near Station 3+50, looking northwest; 02/03/20. The unsuitable bank stabilization in the lakebed will be removed in the exposed areas during construction, which will occur in February.

Eroding bank near Station 4+00, looking southwest; 02/03/20. The erosion has resulted in the loss of parkland adjacent to the gazebo and the stabilization is necessary to prevent further erosion that would damage the structure.

Eroding bank near Station 5+00, looking west; 02/03/20. The patch of tules is just beyond the limits of work; the tules will not be disturbed during construction.

=

Eroding bank near Station 10+00, looking west; 02/03/20. The erosion has resulted in trees being undercut and falling in to the water. The stabilization is necessary to prevent further erosion that would result in the loss of trees.

Patch of emergent wetland vegetation near Station 13+00, looking northwest; 02/03/20. While this patch of vegetation would be impacted by the project, similar emergent wetland vegetation will be created, for a net increase of 0.27 acres of wetlands.

Concrete rubble and debris near Station 16+00, looking north; 02/03/20. The erosion has resulted in the failure of a retaining wall adjacent to an amphitheatre; stabilization is necessary to prevent further erosion that would render amphitheatre unsafe.

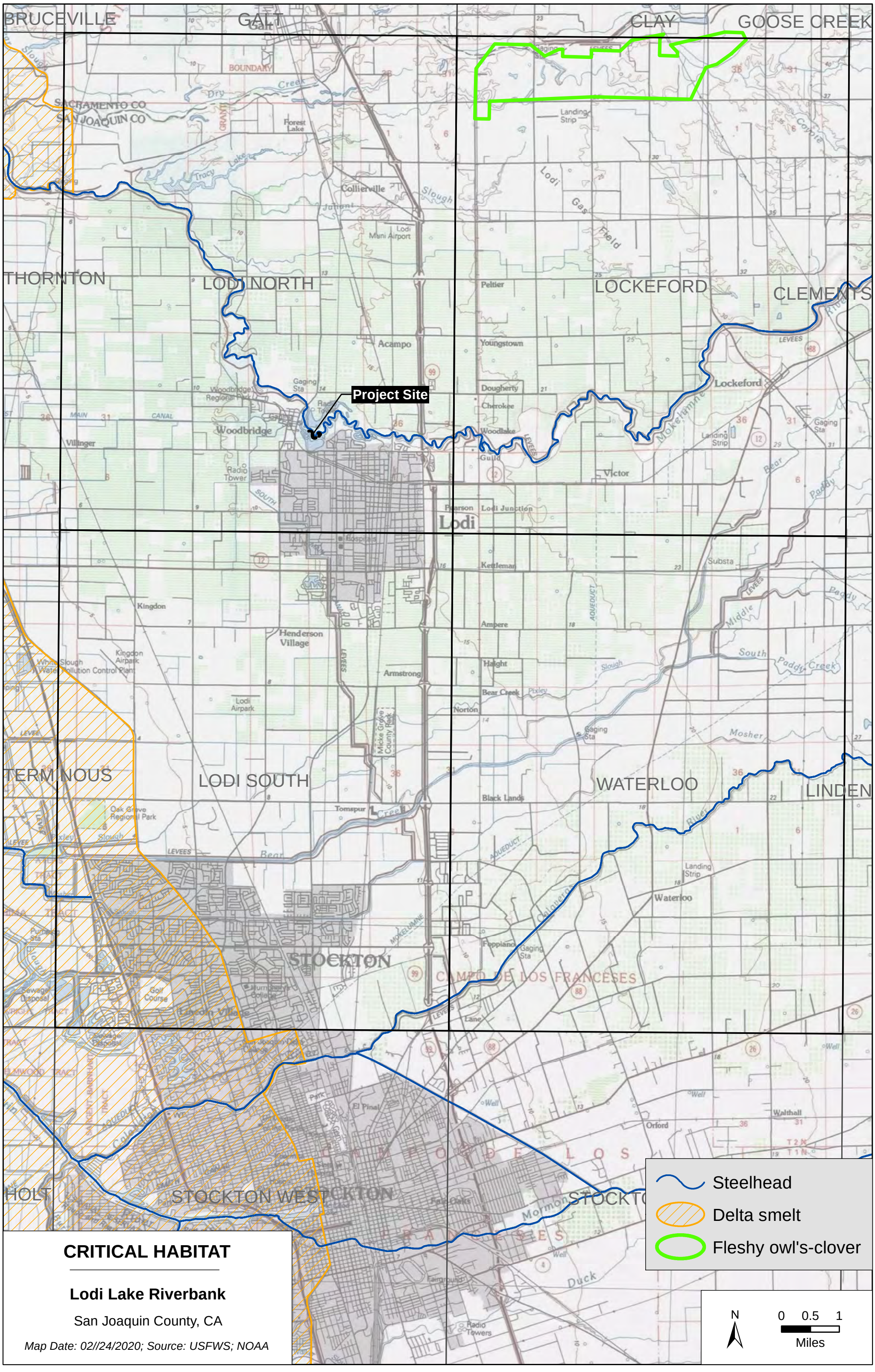
Eroding bank near Station 19+00, looking northwest; 02/03/20. The erosion has resulted in trees being undercut and falling in to the water. The stabilization is necessary to prevent further erosion that would result in the loss of trees.

Construction access and staging area on the eastern peninsula, looking north; 02/03/20.

Construction access and staging area on the western peninsula, looking north; 02/03/20. Areas generally to the east of the patch and in close proximity to the shoreline will be used for access and staging.

APPENDIX E

Designated Critical Habitat



CRITICAL HABITAT

Lodi Lake Riverbank

San Joaquin County, CA

Map Date: 02//24/2020; Source: USFWS; NOAA

TO: Diane Moore, Moore Biological Consultants

FROM: Patrick Cuthbert

DATE: April 14, 2020

SUBJECT: Biological Assessment of the Lodi Lake Erosion Repair Project

FISHBIO was contracted by Moore Biological Consultants to assess potential impacts of the Lodi Lake Erosion Repair Project on protected fish species near and within the project area. The repair site occurs along the south bank of the Mokelumne River in Lodi Lake Park in Lodi, CA. The Mokelumne River has been designated as critical habitat for Central Valley steelhead (*Oncorhynchus mykiss*). There are no critical habitat designations for the multiple runs of Chinook salmon (*Oncorhynchus tshawytscha*) typically encountered in the Central Valley but fall-run Chinook salmon regularly occur there. Additionally, a California Department of Fish and Wildlife hatchery for Chinook salmon and steelhead is operated approximately 23 miles upstream of the project area, at the base of Camanche Dam. The southern Distinct Population Segment (sDPS) of green sturgeon (*Acipenser medirostris*) do not have designated critical habitat in the Mokelumne River near the project area. However, due to its proximity to the San Joaquin River, findings on each of the aforementioned protected species, their critical habitat, and recommendations to avoid and mitigate project effects are presented below.

Project Description

The project proposes to construct approximately 1,600 linear feet of riverbank stabilization and habitat restoration of two work areas shown in Figure 1. The work areas consist of steep riverbank areas that have been eroded, particularly during high stream flow events occurring over the last decade, causing loss of recreational land and oversteepening of the banks, and loss of wetland and riparian habitats.

The project area encompasses 3.34 acres, with the majority of the area consisting of developed parkland that will be used for construction access and staging. The project would involve bank stabilization and wetland restoration in approximately 1.13 acres of riverbank located below the ordinary high-water mark (OHWM) of the Mokelumne River and 0.14 acres above the OHWM. Existing concrete debris used as rip-rap and bank armoring up to approximately two feet deep would be removed from these areas, which would then be graded and protected from further erosion with a blanket of rock slope protection.

Wetland habitat restoration would occur in approximately 0.29 acres of riverbank spanning the OHWM, between areas of riverbank stabilization and existing upland park areas. Approximately 0.02 acres of existing wetlands would be impacted by this work, for a net increase in 0.27 acres of wetlands. In these habitat restoration areas, soil would be placed and planted with native emergent wetland species. A small fraction of the area

Figure 1. The defined project area along the southern bank of the Mokelumne River near Lodi Lake, Lodi, CA. Map provided by Moore Biological Consultants.

above the OHWM (0.05 acres) would be restored to upland turf area, which would be returned to park use. Fill areas and material quantities associated with the project with reference to areas above and below the OHWM are shown in Table 1.

Of the total work area, the majority (2.07 acres) would consist of lands subject to only temporary impacts, as required for construction access and staging. The majority of this area (1.67 acres) would be existing upland park area located above the OHWM. The "construction access" lands also include a strip approximately 10 feet in width located outside the proposed riverbank stabilization area that may require minor disturbance in conjunction with placement of rock slope protection.

Rock slope protection (RSP) materials would consist of ≤18-inch quarry stone obtained from off-site commercial sources. RSP materials would be composed of various sizes and weights, primarily of rocks 12 to 18 inches in diameter, with smaller rock used to fill in the gaps between the larger rocks. As shown in Table 1, nearly all the RSP would be placed below the OHWM.

Table 1. Quantities of area affected and material used for the Lodi Lake erosion repair site.

Quantity (Area or Volume)	Uplands	Waters of the U.S.	Total
Work Area (acres)	0.14	1.13	1.27
Temporary Disturbance (acres)	1.67	0.40	2.07
TOTAL ACRES	**1.81**	**1.53**	**3.34**
Excavation: Rubble (cubic yards)	13	569	582
TOTAL EXCAVATION (cubic yards)	**13**	**569**	**582**
Fill: Soil (cubic yards)	93	569	662
Fill: RSP (cubic yards)	115	4,116	4,281
TOTAL FILL (cubic yards)	**208**	**4,735**	**4,943**

Note: Waters of the U.S. includes 1.51+/- acres of open waters below the ordinary high water mark (OHWM, elevation = 42.0 feet) and 0.024+/- acres of wetlands spanning the OWHM; RSP – rock slope protection

Construction of erosion protection in riverbank stabilization areas would begin with removal of existing concrete rubble along the riverbank at the project site with excavators and other construction equipment operating from the riverbank and disposed off-site. The underlying slopes would be regraded as required to establish a uniform bed for RSP, which would be placed with long-reach excavators. Rock material would initially be placed at the lower limit of the protected area then stacked working from the bottom back up to the top of the slope. The RSP would be stabilized and secured in place by bucket tamping and pressing by the excavator. Although some minor regrading of the slope would be required, no soil would be removed from the site.

The project would also involve the removal of approximately 25 non-native trees along the riverbank and the trimming of a few native trees. These trees would be replaced by native oaks and native riparian tree species, which would be planted along the bank in approximately the same locations as where the trees were removed.

Fill soil would be imported from off-site commercial sources and placed in specified areas above and below the OHWM in areas above proposed RSP placement. Most of this soil (569 cubic yards) would be placed in proposed emergent wetland restoration areas immediately below the OHWM. Small portions of the fill soil (93 cubic yards) would be placed in areas planned to support installation of grass sod.

Access for construction equipment and vehicles would be provided from existing road along the northern shoreline of Lodi Lake. It is expected that project construction would use a long-reach excavator, a front-end loader/backhoe, two to three pickups, and six to ten double-bottom trailer haul trucks, none of which would be required to enter the stream to complete project activities.

Construction is anticipated to occur in February 2021 during the annual draining of the lake and when river levels are at their lowest. Work is anticipated to take no longer than one month.

Environmental Setting

The proposed project is located along the south bank of the Mokelumne River within Lodi Lake Park, a municipal park in the northwestern portion of the City of Lodi in San Joaquin County, California. The project site is shown on the U.S. Geological Survey's Lodi North, California, 7.5-minute quadrangle map as within Section 35, Township 4 North, Range 6 East, Mt. Diablo Base and Meridian. The approximate latitude and longitude of the project site are 38º 08' 46" North and 121º 17' 46" West, respectively. The project location lies approximately 0.5 miles upstream of the Woodbridge Irrigation District Diversion Dam.

On February 6, 2019, FISHBIO and Moore Biological Consultants staff conducted a site visit to inspect the project area and observed the severity and extent of the south bank erosion. The location consisted of fairly similar habitat along the entirety of the south bank: little over head vegetation to provide shaded riparian areas; silt, sand, and/or rip-rap dominated substrates providing little spawning habitat for salmonids; and minimal emergent vegetation to provide cover for rearing juveniles. To exemplify the need for erosion repair, much of the area above the ordinary high-water mark has eroded to sandy beaches and is now undercutting upland habitats while also leading to the collapse of previously constructed concrete armoring due to cavitation; the rootballs of trees are being exposed and several trees are leaning or have fallen in to the river. During the time of the survey, river stage was at the typical level during draw down and would be representative of conditions expected during the repair project. Site photos documenting the available habitat within the project area are provided in Attachment A.

Fisheries Resources

Based on data available from the UC Davis PISCES database (UC Davis 2017), native fish known to currently occur or were historically present near the project area include multiple runs of Chinook salmon, Central Valley steelhead, threespine stickleback, prickly sculpin, riffle sculpin, Sacramento blackfish, Sacramento hitch, Sacramento pikeminnow, speckled dace, Sacramento splittail, Sacramento sucker, and thicktail chub (Table 2).

Non-native species that may be present include black bullhead, black crappie, bluegill sunfish, brown bullhead, brown trout, channel catfish, common carp, golden shiner, goldfish, green sunfish, largemouth bass, redear sunfish, smallmouth bass, spotted bass, threadfin shad, white catfish, western mosquitofish, and white crappie.

Two readily accessible government websites were used to determine the occurrence of critical habitat designations and fish species listed as threatened or endangered by the Endangered Species Act (ESA). The first source was a project-planning tool (Information for Planning and Conservation; IPaC) provided by the U.S. Fish and Wildlife Service (USFWS 2015; accessed February 27, 2020). The location used in the planning tool was a 1.5-square mile area encompassing the designated project area in the Mokelumne River and near Lodi, CA. The IPaC data viewer and automated reporting system confirmed that there is no critical habitat designation for delta smelt located within the project boundaries.

Table 2. Non-ESA-listed native fish species that may potentially utilize habitat within the project area, irrespective of temporal distribution.

Common Name	Species	Origin	Demersal/Pelagic
Chinook salmon – Central Valley fall/late fall-run ESU	*Oncorhynchus tshawytscha*	Native	Pelagic
Prickly sculpin	*Cottus asper*	Native	Demersal
Riffle sculpin	*Cottus gulosus*	Native	Demersal
Sacramento blackfish	*Orthodon microlepidotus*	Native	Pelagic
Sacramento hitch	*Lavinia exilicauda*	Native	Pelagic
Sacramento perch	*Archoplites interruptus*	Native	Pelagic
Sacramento pikeminnow	*Ptychocheilus grandis*	Native	Pelagic
Speckled dace	*Rhinichthys osculus*	Native	Demersal
Sacramento splittail	*Pogonichthys macrolepidotus*	Native	Pelagic
Sacramento sucker	*Catostomus occidentalis*	Native	Demersal
Thicktail chub	*Gila crassicauda*	Native	Pelagic
Threespine stickleback	*Gasterosteus aculeatus*	Native	Pelagic

The second source utilized was the NOAA Fisheries website (NOAA 2015a; accessed on February 27, 2020). GIS shapefiles were downloaded from the website and viewed using Google Earth Pro software. All shapefiles of critical habitat designations for listed Chinook salmon stocks, Central Valley steelhead, and sDPS green sturgeon were downloaded. Examination of the shape files revealed that no critical habitat designations exist for Chinook salmon or green sturgeon in the project area or the Mokelumne River at large, however critical habitat does exist for Central Valley steelhead.

Based on this information, this technical memorandum focuses on the following species (Table 3):

- Chinook salmon (*Oncorhynchus tshawytscha*)
- Central Valley steelhead (*Oncorhynchus mykiss*)
- sDPS Green Sturgeon (*Acipenser medirostris*)

Table 3. Federal/State endangered or threatened species summary table for the project area.

Species	Listing Status[1]	Listing Agency	Potentially Present During Construction	Potential Habitat Present	Potential to be Impacted
Central Valley steelhead (adult)	FT	USFWS	Y[m2]	Y	Y
Central Valley steelhead (juvenile)	FT	USFWS	Y[m3]	Y	Y
Central Valley spring-run Chinook salmon (adult)	FT / ST	USFWS / CDFW	N[4]	N	N
Central Valley spring-run Chinook salmon (juvenile)	FT / ST	USFWS / CDFW	N[5]	N	N
Sacramento River winter-run Chinook salmon (adult)	FE / SE	USFWS / CDFW	N[6]	N	N
Sacramento River winter-run Chinook salmon (juvenile)	FE / SE	USFWS / CDFW	N[7]	N	N
Green sturgeon (adult)	FT	USFWS	N[8]	N	N
Green sturgeon (juvenile)	FT	USFWS	N[9]	N	N

[1] Listing status: F = Federal, S = State, T= Threatened, E = Endangered; [m] Species is migratory and may be present short-term during migration; [2] Hallock 1989, [3] Moyle et al. 2008, [4] Cramer and Demko 1997, [5] Yoshiyama et al. 1998, [6] Hallock and Fisher 1985, [7] Stevens 1989, [8] Hueblein et al. 2009, [9] USFWS 1995

Chinook salmon

While critical habitat designations were not found for winter- or spring-run (WR or SR) Chinook salmon near the location of the project, we chose to provide brief descriptions of each run's potential to occur near the project. Sacramento River Evolutionarily Significant Unit (ESU) WR Chinook were listed as "endangered" under the ESA in January 1994 (NOAA 1994) and this designation is maintained to this day (NOAA 2016a). WR Chinook salmon exclusively rely on the upper Sacramento River system for spawning, rearing, and migration and are highly unlikely to occur in the project area.

Central Valley Spring-run (SR) Chinook salmon were originally listed as "threatened" under the ESA in September 1999 (NOAA 1999). An updated review in April 2016 maintained the "threatened" designation (NOAA 2016b). The NOAA ESU definition specifically refers to naturally spawned SR Chinook salmon originating from the Sacramento River and its tributaries, and SR Chinook salmon from the Feather River Hatchery Spring-Run Chinook Program. Additionally, the Mokelumne River is not included in CDFW Fisheries Branch Anadromous Escapement Assessment (GrandTab) for Spring-run Chinook salmon adult escapement totals.

SR Chinook salmon are also primarily relegated to the Sacramento River system throughout the freshwater portion of their lifecycle. In recent years, the San Joaquin River Restoration Program (SJRRP) has taken steps to reintroduce SR Chinook salmon to the nearby San Joaquin River, and portions of the San Joaquin River has since been designated critical habitat for SR Chinook salmon (NOAA 2005a). As part of the SJRRP,

juvenile SR Chinook salmon have been released into the San Joaquin River just upstream of the confluence with the Merced River annually since 2015. The released San Joaquin River SR Chinook salmon are considered an "experimental population" under Section 10(j) of the Endangered Species Act. However, progeny of individuals that survive to adulthood and successfully reproduce are considered protected as though they were naturally spawned. Given so few juveniles are released on an annual basis and poor survival during juvenile migration, the likelihood of adults returning is very low. The likelihood of impacting juveniles, if any are produced, is even more unlikely given (1) an expectation of low adult returns; (2) poor juvenile survival from the spawning grounds in the tributaries to the migratory corridor; and (3) the overall distance of the project area from the primary spawning and rearing habitat available in the San Joaquin River Restoration Area.

Fall-run (FR) Chinook salmon are the most abundant run in the San Joaquin Basin and are not currently listed under the ESA. They are, however, listed as a Species of Special Concern (SSC) under the California Endangered Species Act (CESA) due to concerns regarding population size and their dependence on hatcheries. The San Joaquin River, to which the Mokelumne River drains, acts as a migratory corridor for FR Chinook salmon, and fish would be quickly passing through the corridor. Fall-run Chinook salmon will utilize the Mokelumne River in the areas above the project area for spawning and rearing. There is a substantial FR Chinook salmon population that utilizes the Mokelumne River and annual monitoring of adult migration occurs at the fish ladder at the Woodbridge Irrigation District Diversion Dam. Data acquired from CDFW's GrandTab since 2007 show significant improvement in adult escapement from the first several years of monitoring (e.g., 2007-2010) to a stabilized rate of return in the most recent years, excluding the final year of the drought in 2016 (Figure 2).

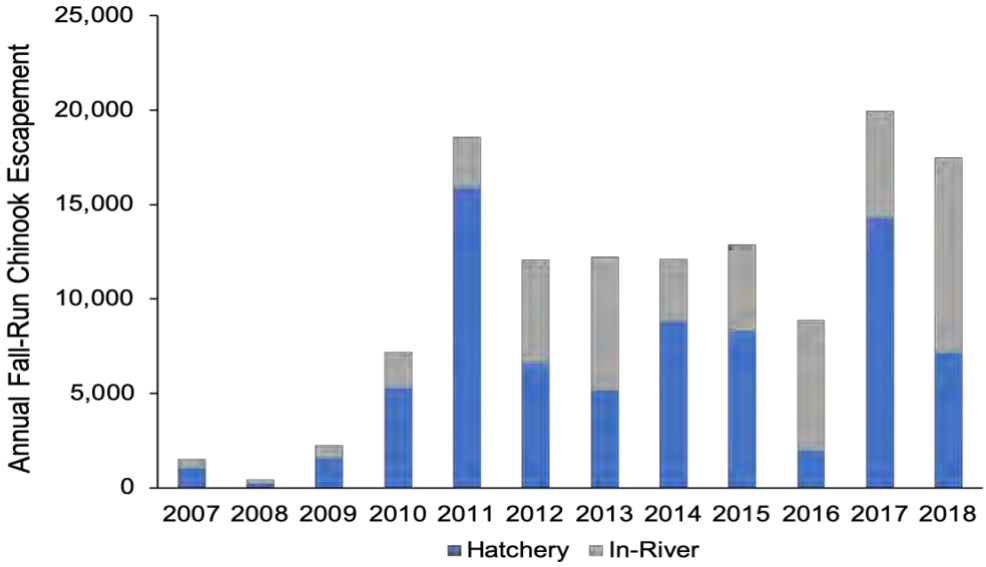


Figure 2. Fall-run Chinook salmon adult escapement totals for the Mokelumne River from 2007-2018. Data acquired from CDFW's GrandTab

Potential to be exposed to project changes

ESA-listed Chinook salmon (e.g., WR and SR) are unlikely to occur in the affected area as the project area offers low habitat value for rearing and little potential spawning habitat for anadromous salmonids due to overall depth and substrate composition. WR Chinook salmon are highly unlikely to be exposed to project changes or activities due to their heavy reliance on the upper Sacramento River system for spawning, rearing, and migration.

FR Chinook salmon utilize the Mokelumne River for spawning and rearing as evidenced by the presence of the hatchery upstream in Clements, CA. Observations of adult migration in the Mokelumne typically occurs between September and February (EBMUD 2015). Data from rotary screw traps in the tributaries, including the Mokelumne (EBMUD 2013), and from the Mossdale Trawl show that most juvenile Chinook salmon outmigrate between late January and early June. Given the intended timing of the project (e.g., February), it is possible that juvenile fall-run Chinook salmon may be affected by the project, however, exposure may be limited, as the majority of migrating juveniles during this time period would consist of the sac-fry to fry life stage and may still be rearing further upstream away from the project area. Appropriate mitigation measures to ensure salmonid safety during the intended work window are to limit the amount of instream work to avoid the interaction of construction vehicles and equipment with fisheries resources.

Central Valley Steelhead

Steelhead (*Oncorhynchus mykiss*) are a species of salmonid native to California, commonly known by two names: steelhead (the anadromous form) and rainbow trout (the resident/freshwater form). The California Central Valley steelhead has been listed as "threatened" under the ESA since January 2006. A recent review of their listing status maintained this designation (NOAA 2016c). Adult anadromous steelhead are known to enter freshwater streams between August and November; however, spawning generally takes place between December and April. Juveniles begin to emerge from late winter to summer and will then spend between one and three years in freshwater before emigrating in the spring (Williams 2006). Recent habitat modeling conducted by Lindley et al. (2006) suggests that waterways on the floor of the Central Valley are unfavorable spawning and rearing locations for steelhead due to their excessively high summer temperatures. This same study also noted that many of the small tributaries of the San Joaquin are generally too degraded to support viable populations.

Abundance data reveal that populations in the Central Valley are relatively low for naturally occurring steelhead. *O. mykiss* counts at the Red Bluff Diversion Dam from 1967 to 1993 revealed a precipitous decline in returns to the upper Sacramento River. While more recent data are scarce, an updated report from NOAA Fisheries (Good et al.

2005) estimated an average of 3,628 naturally spawning female steelhead occurring in the Central Valley between 1998 and 2000 based on the adipose-fin-clip ratio.

As noted in the 2014 Salmonid Recovery Plan (NMFS 2014), a hatchery helps to support a population of steelhead in the Mokelumne River. The annual production for *O. mykiss* at the Mokelumne Fish Hatchery targets the production of 100,000 fish but may fluctuate on annual basis due to instream conditions. It also notes that while there was no natural historic population in the river below Camanche Reservoir, one currently exists, and that the Mokelumne itself is classified as a Core 2 watershed. Core 2 populations are assumed to have the potential to meet the moderate risk of extinction criteria described in the recovery plan. The moderate risk of extinction criteria is defined as having a census population size of 250 to 2,500 adults or an effective population size of 50 to 500 adults; no apparent decline in population growth rate resulting from catastrophic events within the past 10 years; and a moderate level of hatchery influence. These dependent populations are of secondary importance when considering recovery actions

Potential to be exposed to project changes

Project operations, if performed during February, have the potential to impact both juvenile and adult *O. mykiss*. Adult migration monitoring at the fish ladder in the Woodbridge Irrigation District Dam have documented the presence of adult *O. mykiss* in the lower Mokelumne River, being observed between September and March (EBMUD 2015). Juvenile outmigrants have been observed in the Mokelumne between mid-December and mid-June in recent years (EBMUD 2013). However, considering the predominate midchannel habitat utilization of migrating adult *O. mykiss*, as well as the poor-quality habitat available for spawning and rearing within the project area, it can be assumed that any *O. mykiss* use of areas affected by the project would be highly limited to use as a migratory corridor for both adult and juvenile *O. mykiss*. The timing of adult migration to spawning grounds and juvenile emigration may potentially overlap with the timing of the project activities. However, if steelhead were to occur in the area, the adult and intermediate life stages of these fish are active swimmers and would likely avoid any area impacted by erosion repair activities.

It should be noted the intended February work window occurs after primary migration timing for steelhead (i.e., August to November) and while in the midst of the typical spawning period (i.e., December to April), adult *O. mykiss* should be congregated further upstream toward the hatchery and more suitable spawning grounds. While the work window occurs during the middle of the juvenile outmigration, as most juveniles migrate after rearing between one and three years, these fish are anticipated to be much larger and resilient to potential impacts than smaller sized fry that would be found further upstream in suitable rearing habitats.

The relative footprint of the project area should have negligible impacts on habitat available for *O. mykiss* smolts that may be entering or leaving the project area. Therefore,

the proposed project should have a less than significant impact on local *O. mykiss* populations. Following project implementation, aquatic habitats adjacent to the project areas will be comparable to or better those under existing conditions, as habitats nearest the river's edge at the current river stage would likely remain unaffected, and therefore will provide minimal quality habitat for *O. mykiss*. Improvements to the nearshore habitat, removal and replacement of historic riprap, and restoration of wetlands would prove beneficial to salmonids at higher river stages.

Green Sturgeon

Green sturgeon (*Acipenser medirostris*) are an iteroparous, anadromous species that reproduces from March to July in California, with a peak spawning period from mid-April to mid-June (Emmett et al. 1991, Poytress et al. 2009). Spawning adults prefer deep (>10 ft.), cool (46–57°F), and fast-flowing water (Moyle 2002). Eggs usually hatch within two weeks (Moyle 2002) and larvae likely reside near natal sites (Kynard et al. 2005). Freshwater rearing juveniles prefer elevated flows and temperatures between 52–64°F (Cech et al. 2000; Van Eenennaam et al. 2005). Juveniles migrate downstream to the estuary during summer and fall after typically spending one year in the freshwater environment. Juveniles rear in estuarine nursery grounds, usually until Age 3, before migrating to marine waters (Nakamoto et al. 1995). Subadults require approximately 6–10 years to become sexually mature (Nakamoto et al. 1995). Post-spawned adults likely require a two to four-year period before their next reproductive effort (NOAA 2005b).

The southern Distinct Population Segment (sDPS) of North American green sturgeon was listed as "threatened" under the ESA in 2006 (NOAA 2006). This listing status was recently reviewed and found that no change was needed (NOAA 2015b). Its designated critical fresh- and brackish-water habitat in California includes portions of the Sacramento, lower Feather, and lower Yuba rivers; the Sacramento-San Joaquin Delta; and the Suisun, San Pablo, and San Francisco bays (NOAA 2009). The mainstem San Joaquin River above the Stanislaus River confluence is not considered critical freshwater habitat because sturgeon do not appear to occupy the area in a viable manner (NOAA 2009). According to the CDFW Sturgeon Report Card data, only six green sturgeon were reported between 2008 and 2012 upstream of Stockton (Jackson and Van Eenennaam 2013). However, what appeared to be a single green sturgeon was recently observed in upstream habitats of the Stanislaus River, a tributary of the San Joaquin River far upstream of the project location (observed by FISHBIO staff, November 2017); this siting was confirmed by Cramer Fish Sciences using eDNA analysis (Anderson et al. 2018). Furthermore, no green sturgeon eggs were detected from March to May 2012 using egg mats positioned at four sites between Sturgeon Bend (downstream of confluence with Stanislaus River) and Grayson Road Bridge (upstream of the confluence with Tuolumne River; Jackson and Van Eenennaam 2013).

Potential to be exposed to project changes

The project is highly unlikely to impact sDPS green sturgeon. As previously stated, little to no spawning occurs in the San Joaquin Basin. The project area is located well outside the primary Sacramento River migratory corridor used by both juveniles and adults and far from previously recorded observations within the San Joaquin Basin. It should also be noted that both adults and juveniles are mobile swimmers that would largely be able to leave any area disturbed by project implementation.

The mainstem San Joaquin River, to which the Mokelumne River is tributary, would appear to have locations suitable for green sturgeon, but recent research calls this into question. Israel and Klimley (2008) note that channelization of the estuary has likely negatively impacted the amount of subtidal and intertidal habitat available for green sturgeon foraging. Furthermore, they note that only 4.6% of total river kilometers in the Central Valley have suitable spawning habitat characteristics, of which only 12% is currently utilized by these fish. Therefore, the presence of adult or juvenile green sturgeon in the upper tributaries and the project area is highly unlikely.

In the highly unlikely event that adults were present, they would likely occupy the deepest portion of the river channel to seek cooler temperatures, of which deep pools would be limited in the project area due to the typical draw down conducted during February. Given the distance of the project area from any known recent spawning activity and that the majority of the work would occur in the nearshore area, the proposed project should have no impact on populations of sDPS green sturgeon. Following the implementation of the project, aquatic habitats adjacent to the project area will be comparable, if not surpassing those under existing conditions, though still providing minimal habitat for sDPS green sturgeon.

Avoidance and Mitigation Recommendations

The planned timing for erosion repair activities during February is a difficult work window to avoid the potential presence of special status fisheries resources that may occur near the project area. However, the presence of species of concern is expected to be minimal due to habitat type available in the project area, but juvenile outmigration of salmonids is anticipated during the month of February. Further, as described above, the species that may be present during activities (particularly *O. mykiss*) are strong swimmers that can leave the temporarily disturbed zone if they happen to enter the project area.

Erosion repair activities take place along the southern bank and have some potential to impact nearby aquatic resources. The current habitat provided within the project area offers little utility to the primary species of concern, beyond that of a migratory corridor as much of the nearshore environment consists of degraded concrete waste debris impacted by sand/silt substrates, little emergent vegetation, and little shaded riparian habitat, particularly on the southern bank and during the observed February draw down

period that was exhibited during the initial site visit. Additionally, though historic populations of spring-run Chinook salmon and sDPS green sturgeon occurred in the nearby San Joaquin River, they are currently almost exclusively distributed throughout the Sacramento River, aside from the experimental spring-run Chinook population introduced in 2015 and several individual green sturgeon observed in the lower reaches of the Stanislaus River, a tributary of the San Joaquin River well upstream of the Mokelumne River. As previously discussed, the Mokelumne River is not included as part of CDFW GrandTab totals for spring-run Chinook, indicating that this stream is of little importance to the overall population. Fall-run Chinook do occur in the Mokelumne River; however, this population is supported by the hatchery found upstream of the project area.

Fine sediments may be incidentally introduced to the river as a result of project activities, but their effect should be negligible. Much of the work will be limited to upland areas and heavy equipment will not enter the waterway. A proposed turbidity standard for the adequate protection of fish and wildlife habitats in California states that turbidity (measured in NTUs) should not exceed 20% above natural background turbidity (Bash et al. 2001). Any increase in turbidity resulting from erosion repair activities is not likely to exceed background levels commonly observed during a rain or freshet event. If excessive turbidity is observed and persistent, work may be halted and suspended sediments will be allowed to dissipate prior to continuing work.

The table below (Table 4) provides a guideline for construction activities to best protect listed species and shows the potential for each species of concern to be present in the project area on a bi-monthly timescale. Based on timing of potential presence alone, the period between mid-June to mid-September would provide the greatest protection for ESA listed species. Understanding the constraints placed on the project proponent and the fact that most maintenance projects conducted at Lodi Lake occur during the February work window, given the environmental setting of the project, we find a less than significant increase in risk of exposure under the proposed schedule of project activities.

Table 4. The potential of each species of special concern, their pertinent life stages, and their likelihood of occurrence in the project area.

Species	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Steelhead (adult)																								
Steelhead (juvenile)																								
Spring-Run Chinook salmon (adult)																								
Spring-Run Chinook salmon (juv.)																								
Fall-Run Chinook salmon (adult)																								
Fall-Run Chinook salmon (juv.)																								
Green sturgeon																								

Note: White boxes = potentially present in the project area; Gray Boxes = unlikely to be present in the project area

Summary and Conclusions

This review assessed the potential for protected fish species to be exposed to the project, the possible effects of the project on those fish species, and recommendations to help avoid and mitigate any potential negative impacts. Overall, the project site features characteristics of a highly disturbed area, provides low amounts of suitable habitat for cold-water fishes beyond that of a migratory corridor, and is routinely drawn down to its lowest river stage during the intended work window, even in wet water year types.

Review of available reports and data regarding the project area identified three species for further assessment, including Chinook salmon, steelhead, and green sturgeon. Fall-run Chinook salmon and steelhead both utilize the Mokelumne River for spawning and rearing and are supported by a hatchery far upstream of the project location. Green sturgeon are highly unlikely to use habitat near the project areas and lack a major source population in the nearby San Joaquin River, further reducing their potential for being present.

Following project completion, aquatic habitats within the project area will surpass those currently observed under existing conditions. As part of the project, non-native plant species in the nearshore area are intended to be removed and replaced with those typically encountered in California's riparian corridors. Further, most of the vestigial rip-rap (which consists of recycled materials that contain rebar among other components) along the southern bank will be replaced with fresh RSP. The project also intends to enhance available emergent vegetation in the near-shore area with fresh plantings.

In conclusion, this review identified minimal potential for sensitive fish species to be affected by the project during the work window and found that any effects resulting from the erosion repair would likely be less than significant to listed fish populations and their habitat in the immediate term and may prove to be beneficial in the long-term due to the habitat enhancement component of the project.

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Attachment A

Site Photos from the Lodi Lake Site Visit

South Bank Mokelumne River
Adjacent to the Lodi Lake Recreation Area

February 2019

Figure 1A. Example of the nearshore area available just upstream of the downstream work area. Substrates consist of sand/silt/mud and riprap with little shaded riparian area.

Figure 2A. Sediment accretion area formed by erosion from the upstream work area has led to a reduced channel width, depth and increased areas of sand/silt substrates. View from previous position (Figure 1A) looking across the channel.

Figure 3A. Looking downstream from Figure 1A, further exemplifying the minimal about of shaded riparian habitat available in the location. Habitat features like woody debris for cover only available at highest river stages.

Figure 4A. Erosion has led to the creation of sandy beach areas at high river stage, loss of recreational area for human uses and undercutting of terrestrial area.

Figure 5A. Looking back downstream, upstream of the "upstream work area." Showing how the original concrete armoring is being undercut due to erosion.

Figure 6A. Downstream of Figure 5A, looking back upstream: Evidence of erosion of the original concrete armoring due to cavitation featured in the lower right corner of the figure. Terrestrial recreational area lost due to erosion of upland area.

Figure 7A. Example of current riprap composition within the work areas. Large chunk waste concrete and other materials.

Figure 8A. Additional example of current riprap composition within the work area.