ATTACHMENT A

FINAL INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION FOR THE KNIGHTS LANDING FLOOD MANAGEMENT PROJECT

Final Initial Study with Mitigated Negative Declaration

Knights Landing Flood Management Project

Small Community Flood Risk Reduction Program

State Clearinghouse # 2024050218

Yolo County, CA

September 2024

Prepared for:

Yolo County

Prepared by:

HDR

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Mitigated Negative Declaration

Project: Knights Landing Flood Management Project

Lead Agency: Yolo County

Project Description: Yolo County is proposing the Knights Landing Flood Management Project to reduce flood risks associated with flooding from the Sacramento River and the Knights Landing Ridge Cut in and around the community of Knights Landing. The proposed flood improvements would strengthen approximately 3.78 miles of the surrounding levees of the Knights Landing Basin and build resiliency into the Knights Landing Basin levees. The Proposed Project intends to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability. The proposed improvements along the Sacramento River Right Bank Levee include addressing under-seepage and through-seepage by constructing cutoff walls, drained stability berms, or combination stability-seepage berms, addressing slope stability by widening the levee crown and stabilizing/flattening the landside slopes and addressing freeboard deficiencies by widening and raising the levee. The proposed Knights Landing Ridge Cut improvements include approximately 1.2 miles of improvements to the existing landside levee to improve stability.

The Draft Initial Study/Mitigated Negative Declaration (IS/MND) was submitted to the Yolo County Clerk and State Clearinghouse on May 6, 2024 for a 30-day public review period ending June 5, 2024. During the public review period, the Draft IS/MND was made available for review on the County's website, https://www.yolocounty.org/government/general-government-departments/county-administrator/county-administrator-divisions/natural-resources/knights-landing-flood-management-project.

Findings: An IS was prepared to assess the Proposed Project's impacts on the environment and the significance of those impacts. Using the results of the IS, the Proposed Project would not result in any significant impacts on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- The Proposed Project would result in no impacts related to Energy, Minerals, Public Services, Recreation, and Wildfire.
- The Proposed Project would result in less than significant impacts related to Aesthetics, Agriculture and Forestry Resources, Air Quality, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Population and Housing, Transportation, and Utilities and Service Systems.
- The Proposed Project could result in significant impacts related to Biological Resources, Cultural Resources, Geology and Soils, Noise, and Tribal Cultural Resources. However, with the implementation of avoidance, minimization, and mitigation measures, impacts related to these resources would be less than significant.
- The Proposed Project would not 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, reduce or restrict the range of rare or endangered plants or animals, or eliminate important examples of the

major periods of California history or prehistory. Mitigation measures are proposed to reduce all potentially significant impacts to Biological Resources, Cultural Resources, Geology and Soils, Noise, and Tribal Cultural Resources to a less than significant level.

- No past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would cause cumulatively considerable impacts. The incremental effects of the Proposed Project are not cumulatively considerable when viewed in connection with the effects of past, current, and probable future projects.
- No project-related environmental impacts were identified that would cause substantial adverse effects on human beings after mitigation is incorporated.

The following mitigation measures shall be implemented as part of the Proposed Project to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the Proposed Project to a less than significant level.

MM-BIO-1: Minimizing Footprint

MM-BIO-2: Supplementary Worker Environmental Awareness Training

MM-BIO-3: Special-status Plant Surveys

MM-BIO-4: Special-status Plant Avoidance

MM-BIO-5: Restoration of Temporarily Disturbed Areas

MM-BIO-6: Biological Monitor

MM-BIO-7: Construction Hours

MM-BIO-8: Best Management Practices

MM-BIO-9: Special-status and Migratory Bird Surveys

MM-BIO-10: Nest Avoidance

MM-BIO-11: Bat Avoidance

MM-BIO-12: American Badger Detection Surveys

MM-BIO-13: No Net Loss of Sensitive Natural Communities and Aquatic Resources

MM-CUL-1: Cultural Resources Awareness Training

MM-CUL-2: Unrecorded Cultural Resources Discovery

MM-CUL-3: Inadvertent Discovery Plan

MM-CUL-4: Inadvertent Discovery of Human Remains

MM-GEO-1: Paleontological Resources

MM-NOI-1: Construction Noise and Vibration Reduction

MM-NOI-2: Surveys to Assess Architectural Damage

MM-TCR-1: Discovery of Tribal Cultural Resources

Elisa Sabatini

Manager of Natural Resources

Yolo County

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Acronyms

Cal OES	California Governor's Office of Emergency Services
CEQA	California Environmental Quality Act
CSA	County Service Area
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
DOC	Department of Conservation
DWR	California Department of Water Resources
EA/IS	environmental assessment/initial study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
IS	initial study
KLRDD	Knights Landing Ridge Drainage District
LM	levee miles
MND	mitigated negative declaration
NOI	notice of intent
SCFRRP	Small Community Flood Risk Reduction Program
SRFCP	Sacramento River Flood Control Project
USACE	U.S. Army Corps of Engineers
VHFHSZ	Very High Fire Hazard Severity Zone

1 Introduction

Yolo County is proposing the Knights Landing Flood Management Project to reduce flood risks associated with flooding from the Sacramento River and the Knights Landing Ridge Cut in and around the community of Knights Landing. The proposed flood improvements would strengthen approximately 3.78 miles of the surrounding levees of the Knights Landing Basin and build resiliency into the Knights Landing Basin levees. The Proposed Project intends to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability (Proposed Project).

The Proposed Project is part of the State of California, Department of Water Resources (DWR) Small Communities Flood Risk Reduction Program (SCFRRP). Yolo County is the lead agency under the California Environmental Quality Act (CEQA) and is leading preparation of this Draft Initial Study with Mitigated Negative Declaration (IS/MND). The Knights Landing Ridge Drainage District (KLRDD), DWR, Central Valley Flood Protection Board (CVFPB), and the California Governor's Office of Emergency Services (Cal OES), are responsible agencies under CEQA.

The Proposed Project aligns with the State's Systemwide Investment Approach described in the State's Central Valley Flood Protection Plan (CVFPP) and would improve levee resiliency to enhance the function of the region's flood system. The CVFPP strongly supports and encourages the planning and implementation of projects that provide multiple benefits, including increasing flood system resilience by protecting and restoring important ecosystems, and improving water supply, water quality, recreation, and public education related to integrated water management. According to the CVFPP, a multi-benefit approach more efficiently and effectively leverages flood infrastructure to achieve a broader array of public benefits and may potentially increase access to more funding sources (DWR 2022a). Once completed, the Knights Landing Flood Management Project would reduce the frequency and severity of flooding from the Sacramento River and the Knights Landing Ridge Cut and decrease the resulting flood damages in the Knights Landing Basin.

1.1 Purpose of this Document and Overview of the Draft IS/MND Public Review Process

On May 6, 2024, the County distributed to public agencies and the general public the Draft IS/MND for the Proposed Project. The Draft IS/MND was prepared on behalf of the County in accordance with the requirements of the CEQA Statutes (Public Resources Code Sections 21000 et seq.) and the State CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations).

In accordance with the CEQA Statutes (PRC Section 21092) and Section 15072 of the State CEQA Guidelines, public notice of the Draft IS/MND and the beginning of the public review period was provided by the County through notification by direct mailing, posting on the County's website, and newspaper publication in the Woodland Daily Democrat on May 5, 2024. In accordance with Section 15105(b) of the State CEQA Guidelines, the County provided a 30-day public review period for the Draft IS/MND, which ended on June 5, 2024.

The direct mailing, posting on the County website, and newspaper publication included the notice of intent (NOI) to adopt a proposed MND for the Proposed Project. The NOI included information on how to obtain copies of the Draft IS/MND and how to provide comments on the document.

The County received three comment letters on the Draft IS/MND during the 30-day public comment period. The comment letters are addressed in this Final IS/MND. This Final IS/MND has been prepared to respond to the comments received by the County on the Draft IS/MND, in accordance with the State CEQA Guidelines.

As specified in Section 15064(f) of the state CEQA Guidelines, the lead agency may prepare an MND if, in the course of the IS analysis, the agency recognizes that the project could have a significant impact to the environment but that implementing specific mitigation measures would reduce any such impacts to a less than significant level. The comment letters submitted during the public review period did not provide substantial evidence that the project could cause a significant impact to the environment or that any proposed mitigation measures would not effectively reduce impacts to a less than significant level. Only minor changes to the text of the IS/MND are required in response to comments. Therefore, a MND has been prepared for this project.

1.2 Document Organization

This document is divided into the following sections:

- **Introduction.** This section describes the purpose of this Final IS/MND and describes the document organization. This section also describes the project location, general background, and project objective, and provides a summary of proposed improvements and anticipated project schedule.
- **Comments and Responses to Comments on the Draft IS/MND.** This section reproduces comment letters received on the Draft IS/MND and provides responses to those comments.
- **Appendix A. Mitigation Monitoring and Reporting Plan.** This appendix includes the Mitigation Monitoring and Reporting Plan for the Proposed Project.
- **Appendix B. Initial Study with Mitigated Negative Declaration.** This appendix includes the updated IS/MND for the Proposed Project. This document together with the updated IS/MND constitute the Final IS/MND for the Proposed Project.

1.3 Summary of Proposed Project

Background

The Knights Landing Basin is surrounded by levees originally built in the 1800s by local parties who did not build them to current engineering, hydrologic or geotechnical standards. These levees were incorporated into the Sacramento River Flood Control Project (SRFCP), authorized under the Flood Control Act of 1917, 1928, and 1941, and the Rivers and Harbors Act of 1937. The levees were constructed to United States Army Corps of Engineers (USACE) project standards by the late 1940s and turned over to the CVFPB in the late 1950s. These levees include the existing Sacramento River Right Bank Levee, the Knights Landing Ridge Cut Levee, the Sycamore Slough Levee (Colusa Basin Drain), and the Yolo Bypass Right Bank Levee. Repairs and improvements to the system have been constructed, as needed, since then.

In 2017, Yolo County received a grant from the DWR SCFRRP to complete a Feasibility Study to evaluate structural and non-structural actions that could reduce flood risk to Knights Landing. Subsequently, Yolo County prepared the 2019 Knights Landing SCFRRP Feasibility Study, which analyzed several alternatives, and ultimately identified a recommended alternative, for levee

improvements along the Knights Landing Basin. Additional details on the Feasibility Study are located in Section 1.1.1 in Appendix B. Subsequently, DWR approved the Feasibility Study for further implementation and funding and awarded additional grant funding to Yolo County in 2020 as part of the SCFRRP Phase 2 agreement.

The SCFRRP Phase 2 agreement includes the following components: the design and permitting of levee improvements along the Sacramento River Right Bank, to include construction of the Mid-Valley Levee Reconstruction, Sites 9 and 10; the design and permitting of levee improvements along the Knights Landing Ridge Cut; completion of Phase 1 concepts for the Portuguese Bend and Grays Bend Habitat enhancement projects; the design, permitting, and construction of the drainage infrastructure improvements in the community of Knights Landing; and the design of a new cross levee.

As a result of these aforementioned feasibility analyses and preliminary engineering efforts, the Proposed Project, as summarized in this section and explained in further detail in Appendix B, was carried forward and is focused on improvements along the Sacramento River Right Bank Levee and the Knights Landing Ridge Cut.

Other Related Previous Environmental Documentation and Projects

Other, related and previous studies and environmental documentation developed in support of the Proposed Project include the following:

- The Sacramento River Flood Control System Evaluation, Phase II-V, Programmatic Environmental Impact Statement/Environmental Impact Report (EIR/EIS), dated May 1992 (USACE 1992).
- The Sacramento River Flood Control System Evaluation, Phase III, Mid-Valley Area, Environmental Assessment/Initial Study, dated March 1996 (USACE 1996).
- The Environmental Assessment/Initial Study (EA/IS) for the Sacramento River Flood Control System Evaluation, Phase III, Mid-Valley, Contract Area 3, in Yolo County, California (USACE 2013) tiers off the programmatic EIR/EIS for the system evaluation completed by USACE in May 1992.
- Initial Study with Mitigated Negative Declaration, Knights Landing Flood Management Project, Sacramento River, Mid-Valley Levee Reconstruction Sites 9, 10, 11, and Widened Parking Area Near Wild Irishman Bend, Small Communities Flood Risk Reduction Program, dated February 2022 (SCH # 2021120063) (Yolo County 2022).

  Although Mid-Valley Sites 9, 10, and 11 were covered by this separate IS/MND, the Proposed Project Area also includes these sites. Levee improvements at Sites 9 and 10 have been constructed. Levee improvements at Site 11 are anticipated to be carried out by Yolo County through coordination with the Federal Emergency Management Agency (FEMA) under the Hazard Mitigation Grant Program.
- Initial Study with Mitigated Negative Declaration, Knights Landing Flood Management Project, Drainage Infrastructure Improvements, dated March 2022 (SCH # 2022030394).

- Supplemental Environmental Assessment for the Sacramento River Flood Control System Evaluation Phase III Mid-Valley Contract Area 3 Levee Reconstruction Sites 9 and 10 Project, dated September 2022, and the Supplemental Environmental Assessment for the Sacramento River Flood Control System Evaluation Phase III Mid-Valley Contract Area 3 Levee Reconstruction Site 11 Project, dated November 2022 (U.S. Army Corps of Engineers and Yolo County).

Project Objectives

The objectives of the Proposed Project as stated in the SCFRRP are to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability. The Proposed Project aligns with the State's Systemwide Investment Approach described in the State's CVFPP and would improve levee resiliency to enhance the function of the region's flood system.

Project Location

The Proposed Project is located in and around the community of Knights Landing in eastern Yolo County, CA. The Proposed Project area is generally bound by the Sacramento River on the north and east, Sycamore Slough on the north, the Knights Landing Ridge Cut on the west, and the intersection of County Road 116B and the Sacramento River levee in the southern portion of the Knights Landing Basin. The Proposed Project area includes the existing levees of the Sacramento River and Knights Landing Ridge Cut as well as some adjacent rural, agricultural areas. Figure 1.1-1 in Appendix B shows the Project Location. The Proposed Project area footprints, staging areas, and access routes are shown in Figures 2.1 1 through Figure 2.1 5 in Appendix B.

The Proposed Project consists of two elements: the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements. The Sacramento River Right Bank Levee improvements start in the community of Knights Landing at levee mile (LM) 0.0, just before the Knights Landing Outfall structure, and continues downstream along the Sacramento River Right Bank Levee for approximately 4 miles to LM 4.3. Mid-Valley Site 11 picks up at approximately levee mile 4.3. Although Mid-Valley Sites 9, 10, and 11 were covered by a separate IS/MND and Supplemental Environmental Assessments, the Proposed Project area also includes these sites and has been updated to include all of Site 11 for consistency purposes with Yolo County's efforts with FEMA.

The Knights Landing Ridge Cut Levee improvements are located along the Knights Landing Ridge Cut levee beginning on the south side of Knights Landing and continuing downstream for approximately 2 miles.

Proposed Improvements

This section describes the two elements of the Proposed Project: the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements.

Sacramento River Right Bank Levee

The proposed improvements along the Sacramento River Right Bank Levee include addressing under-seepage and through-seepage by constructing cutoff walls, drained stability berms, or combination stability-seepage berms, addressing slope stability by widening the levee crown and

stabilizing/flattening the landside slopes, and addressing freeboard deficiencies by widening and raising the levee. As a result of geotechnical explorations and analyses, a through seepage concern was identified from approximately LM 0.21 to LM 0.34. No seepage or levee stability issues were identified from LM 0.0 to LM 0.21 and LM 0.34 to LM 0.9. However, from LM 0.0 to LM 0.9, freeboard requirements are generally not met, and the existing levee would be modified from LM 0.0 to LM 0.9 to meet the freeboard requirements for the 100-year water surface elevation.

To address seepage between LM 0.21 and LM 0.34, an up to 65-foot deep seepage cutoff wall will be installed from approximately LM 0.26 to LM 0.34. The levee extents from LM 0.21 to LM 0.26 have an existing wide levee prism which should sufficiently address the through seepage concern. If the design process identifies the need to extend remediation into this area, a berm type fill is expected to be considered to limit disturbance in the area.

Additional improvement actions to address seepage, stability and freeboard deficiencies along the Sacramento River Right Bank Levee are planned and where applicable, the basis of design for improvement actions would be based on the 100-year water surface elevation plus 3 feet. Since the composition of the levee is mostly sandy material, a drain may need to be installed on the landside slope to meet current criteria for reducing seepage, stability, and/or freeboard concerns in levees constructed of sandy material between LM 0.9 to LM 4.3. Between LM 0.9 and LM 4.3, either a drained seepage berm, stability berm, or a cutoff wall would be constructed to address under and through seepage along the landside of the levee. Freeboard improvements will also be constructed where needed. The drain height would be approximately two-thirds of the existing levee height. The drained seepage stability berm would be 5 feet thick at the levee toe and 3 feet thick at the berm toe and would be constructed to address through and under seepage and landside stability.

For the construction of cutoff walls, the existing levee would need to be degraded by half its height for the installation of the cutoff wall, and then rebuilt. Large earthmoving construction equipment would be used to complete the improvements. The levee will be reconstructed to meet current levee standards and attain a 100-year design surface water elevation. The construction work area would include an access corridor on the landside toe of the existing levee. All construction staging and material stockpiling would occur along the levee as construction progresses down the levee and would take place within the construction work areas. Access to the Proposed Project areas would be from the levee or working farm roads, County Road 116B, SR 113, SR 45, Front Street, Reed Street, 9th Street, 6th Street, 3rd Street, 2nd Street, and Railroad Street. The construction work area would include an access ramp up onto the existing levee. No residents would be displaced as a result of the proposed seepage improvements. While some private parcels may be affected, no buildings or structures would be removed. The Project Area includes existing subsurface utility lines that encroach or cross through the levee. Pending final design and the need for seepage improvements, these utilities may need to be modified to allow for the cutoff wall construction.

Knights Landing Ridge Cut Improvements

The proposed Knights Landing Ridge Cut improvements would occur southwest of Knights Landing and would include clearing and grubbing of trees and vegetation, excavating the face of the existing landside levee slope, and reconstructing the levee with imported fill to widen the levee crown and create a consistent elevation along the levee. The proposed improvements on the landside of the Knights Landing Ridge Cut Levee would also include remediation of existing levee encroachments, including but not limited to modifications to levee pipe penetrations, relocation of PG&E power poles, and replacement of levee gates. The reconstructed stability berm would widen the existing levee and

the reconstructed levee crown would be designed to meet the 100-year water surface elevation with at least 3 feet of freeboard.

Large earthmoving construction equipment would be used during construction. The proposed improvements can be accessed via existing levee ramps and temporary earthen ramps. Access routes to the Project Area include SR 113, CR 16, and CR 102. Proposed haul routes include Locust Street and existing agricultural/farm roads. These access routes would be used by two-way traffic. The proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles. Construction staging areas would be located, to the extent practicable, away from sensitive resource areas and known cultural resources. Construction staging and material stockpiling would occur along the levee as construction progresses down the levee. A wider area within the northwest portion of the proposed construction area would likely be used for parking construction trailers and vehicles. No residents would be displaced as a result of the proposed improvements to the Knights Landing Ridge Cut Levee. While some private parcels may be affected, no buildings or structures would be removed.

Project Schedule

The Proposed Project would be constructed over a three-to-five-year period. Construction work would be limited to daytime hours only. The anticipated construction sequence of proposed levee improvements would consist of constructing the Knights Landing Ridge Cut improvements in the first season and then constructing the Sacramento River Right Bank Levee improvements in the second and third seasons. Construction is anticipated to begin in 2025 and last through approximately 2029, depending on permit approvals and conditions.

Any necessary tree trimming, tree removal, and shrub removal should occur between August and January and would be dependent on appropriate biological surveys and clearances for nesting raptors and other species but would be complete prior to January 31 of the construction year to limit disturbance of nesting birds. The construction window for major construction activities is between April 15 and November 1, however time variances could be granted by the permitting agencies outside of this window. Site cleanup, hydroseeding, and demobilization could also occur after November 1 based on variances granted by the permitting agencies and are anticipated to be complete by December 31. All appropriate approvals from the Central Valley Flood Protection Board would be obtained for late season work.

Operations and Maintenance

Upon completion of construction, Yolo County Service Area No. 6 (CSA 6) would continue to perform routine maintenance in the area of the Sacramento River Right Bank Levee improvements. The KLRDD would continue to perform routine operation and maintenance activities in the area of the Knights Landing Ridge Cut improvements. Routine operation and maintenance activities may include vegetation control, rodent control, grading the levee crowns and slopes, mechanical mastication/limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5 to 10 years by importing gravel for roads.

Permits and Approvals

Table 1-1 lists the potential permits and approvals anticipated for the Proposed Project.

Table 1-1. Potential Permits and Approvals

Agency	Type of Approval
California Department of Fish and Wildlife	Fish and Game Code Section 1602 Streambed Alteration Agreement
California Native American Heritage Commission	Consultation for effects on Native American burials or artifacts
Central Valley Flood Protection Board	Encroachment Permit, approval for late season levee work
Regional Water Quality Control Board	Clean Water Act Section 402 National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activities
U.S. Army Corps of Engineers	Rivers and Harbors Act, Section 408 Authorization
Yolo County	Hauling Permit, Drilling Permit
Yolo Habitat Conservancy	Yolo Habitat Conservation Plan and Natural Community Conservation Plan compliance
Yolo-Solano Air Quality Management District	Consultation for Authority to Construct/Permit to Operate

2 Comments and Responses to Comments on the Draft IS/MND

Yolo County received three comment letters on the Draft IS/MND during the public comment period from May 6, 2024 through June 5, 2024. The commenters are listed below. The comment letters received on the Draft IS/MND, and the responses to the significant environmental issues raised are included in the following section.

List of Comments/Letters	
Commenter	**Date of Letter**
Glen, Brian, and Bruce Barton	June 1, 2024
Debbie and Jerry Rose	June 4, 2024
Central Valley Flood Protection Board	June 5, 2024

Comment letter from Glen, Brian, and Bruce Barton:

June 1, 2024

Elisa Sabatini
Yolo County
292 West Beamer Street
Woodland, CA 95695

Dear Elisa,

This letter contains our comments on the "Draft Initial Study with Mitigated Negative Declaration for the Knights Landing Flood Management Project" (IS/MND) document dated May 2024. The document that we reviewed can be located at this link: https://www.yolocounty.org/home/showpublisheddocument/80068/638503274843530000. For reference, our property is located on APN 056-160-008, roughly between project levee mile 1.1 and 1.8.

1 In general, we feel that this project is converting too much of our prime farmland under cultivation to agriculturally unproductive levee and berm, and that the IS/MND understates the impacts of this project. Some of these adverse impacts could be mitigated by expanding the levee where there is excess space on the river side rather than the land side. We are skeptical that the proposed stability and seepage berm will have the
2 desired effect in reducing seepage, and rather result in rainy season water ponding on the landside of the levee. This skepticism comes from the fact that the seepage berm drain appears to drain to the landside of the levee. We are also very concerned about the potential for the proposed stability and seepage berm to have a negative impact on the flow rates of our new well which was completed in May 2024.

Specifically, our detailed comments on the IS/MND are listed below.

3 In the cross section diagrams in figures 2.3-1 (PDF Page 30, document page 17) and 2.3-2 (PDF Page 31, document page 18), it is a bit vague in each case about exactly how much the width of the existing levee would be expanded. Further, the document (PDF Page 32, document page 19 starting at bottom) states: "a drain may need to be installed on the landside slope to meet current criteria for reducing seepage, stability, and/or freeboard concerns in levees constructed of sandy material between levee mile 0.9 to 4.3". Still further, the document (PDF Page 33, document page 20) states: "Between levee mile 0.9 and 4.3, either a drained seepage berm, stability berm, or a cutoff wall would be constructed". These diagrams and this wording leaves a lot of room for conjecture as to exactly how the levee will change at any given location. Anyone would need a finer granularity to be able to accurately access the quantity of impact in converting prime farmland to uncultivated levee and berm. That said, in our meeting with you and your project staff on May 22, 2024, you communicated that the exact project designs weren't finalized at the time the draft IS/MND was published, and we were shown more precise designs for multiple levee cross sections for the project. We thank you for being forthcoming with the fluidity of the design process and sharing the current designs at that time. That did answer many of our questions, though we still have a concern with the quantity of farmland being converted to levee and berm. From our discussions, we believe that the proposed levee modifications may overlap our old well and electric panel near the new well site. We would expect that Yolo County or its contractors would be responsible for obtaining permits and paying for the well closure and electric panel relocation without any loss of irrigation during the growing season.

4 The IS/MND document (PDF Page 33, document page 20) states: "construction areas would extend approximately 20 feet from the proposed levee toe or proposed berm toe. The Proposed Project area would include an access corridor on the landside toe of the existing levee." This "construction area" directly contradicts the "construction limit" of 30 feet mentioned in figures 2.3-1 and 2.3-2 if they are indeed the same

4 thing. Further, the term "access corridor" was never defined in the document. In our May 22, 2024 meeting a permanent 15 foot wide "Operation & Maintenance (O&M)" corridor was mentioned as being required beyond the landside toe, and it sounded like this was the access corridor. In this discussion it was mentioned that construction equipment could encroach on cultivated crop land outside that O&M corridor. The distance of this encroachment was not clear. These references to expansions directly contradict the document wording (PDF Page 58, document page 45 last paragraph) stating: "However, improvements would occur on existing levees and would not disturb or convert adjacent agricultural land or change long-term agricultural land uses.".

5 The IS/MND document (PDF Page 41, document page 28) shows a number of check boxes at the top of the page. We believe that the "Agriculture and Forestry Resources" box should be checked because of the conversion of our prime farmland to agriculturally unproductive levee and berm land.

The IS/MND document (PDF Page 51, document page 38) shows a table with the potential impacts to Agriculture and Forestry Resources. Rows a and b have "less than significant impact" checked. Due to the amount of prime farmland that we are losing to levee and berm, we believe that the agriculture impact has been understated. We also believe that the conversion of prime farmland to agriculturally unproductive levee and berm land conflicts with existing agriculture zoning, the Yolo County General Plan goal of preservation of prime agriculture land, and possibly our Williamson Act contract. Our beliefs are supported by the IS/MND document (PDF Page 57, document page 44) wording in Section 3.2.3 in the paragraphs under the heading "CEQA SIGNIFICANCE CRITERIA".

Figure 3.2-1 (PDF Page 53, document page 40) shows roughly the northeast quarter of our property as "Grazing Land", while the remaining three quarters are shown as "Prime Farmland". This is inaccurate. All of our property on the land size of the existing levee should be designated as "Prime Farmland" since it is all cultivated. It is also worth noting that the parcel immediately west of our parcel is also designated incorrectly as "Grazing Land"; it has been continuously cultivated for many years.

Figure 3.2-2 (PDF Page 54, document page 41) correctly shows our property as being under Williamson Act contract.

We would point out the IS/MND document (PDF Page 58, document page 45 bottom) wording: "However, improvements would occur on existing levees and would not disturb or convert adjacent agricultural land or change long-term agricultural land uses.". We would further point out document (PDF Page 59, document page 46 top paragraph) wording: "during construction the Proposed Project would only temporarily use land that is designated as Prime Farmland and would not result in the conversion of Prime Farmland...". These wordings imply no permanent expansion beyond existing levee toe, which conflicts with the construction cross section diagrams in figures 2.3-1 (PDF Page 30, document page 17) and 2.3-2 (PDF Page 31, document page 18) and various other levee and berm expansion wording in the document.

Given the impacts and inconsistencies that we have pointed out in this letter, we think that the conclusions reached in Section 3.2.4 "Impact Analysis" are understated. It is our belief that the assessment of "less than significant impact" in AG-1 AG-2 and "no impact" in AG-5 are incorrect and they should be upgraded and mitigation should be required. Significantly less impact would be noted if the levee and berm expansion would be constructed on the river side of the existing levee where possible. Easements already exist in that area that would not conflict with the Williamson Act goals (sections 51290 and 51292) of not unnecessarily converting prime farmland.

6 The IS/MND document Impact BIO-5(PDF Page 126, document page 113) indicates that the project is consistent with the policies outlined in the *Yolo County Oak Woodland Conservation and Enhancement Plan* (2007). We disagree that the proposed project is "consistent" with policies in that plan, and we further disagree with the statement "no conflict during either construction or O&M is anticipated." With the removal of over 30 oak trees, including one Heritage Oak, within the area from LM1 to LM2 as shown on figure 2.3.1 on page 25 of the IS/MND, we feel that the statement "Therefore, this impact would be less than significant" does not accurately reflect the environmental effects, nor adhere to the YCOWCE plan.

7 The IS/MND document (PDF Page 197, document page 184) shows a table with the potential impacts to Land Use and Planning. Row b has "less than significant impact" checked. Due to the amount of prime farmland that we are losing to levee and berms, we believe that the agriculture impact has been understated. In our opinion, row b in the table should have significant impact checked because expansion of levee width will cause loss of prime farmland, which conflicts with the Yolo County General Plan goal to save prime farmland.

8 The IS/MND document (PDF Page 220, document page 207) shows a table with the potential impacts to Population and Housing. Row a has "less than significant impact" checked. Row a in the table should have more significant impact checked because any conversion of land under cultivation to land not under cultivation (extension of infrastructure: levee access) will impact the farmer and promote the occupation by homeless on uncultivated land. This is a significant impact to the landowner, the farmer, law enforcement, fire and medical personnel, and homeless services demand within Yolo Co.

9 The IS/MND document (PDF Page 226, document page 213) shows a table with the potential impacts to Public Services. Row a.i, a.ii and a.v have "no impact" checked. These rows should all have a higher impact checked because of the expansion of flat uncultivated infrastructure land and its attractiveness to occupation by homeless as the prior paragraph pointed out.

10 The IS/MND document (PDF Page 264, document page 261) shows a table with the potential impacts to Wildfire. Row b has "no impact" checked. Row b should have impact for more wildfire risks due to less cultivated farmland and increased grass levee and berm surface area. Further, any occupation by homeless will increase this risk significantly.

11 The IS/MND document (PDF Page 269, document page 256) lists the project impacts in the last paragraph. We feel that the potential impact to farmland should be included in this list of impacts. Also, it is our feeling that row c in the table at the top of this page should show impact consistent with our comments above for the table on PDF page 220, document page 207.

The IS/MND document (PDF Page 270, document page 257) states: "...would not directly or indirectly cause a substantial adverse impact on human beings.". As human beings, our family, our family's descendants, and tenant farmer are potentially adversely affected. We feel that the wording in this last paragraph does not adequately express that as an impact.

Sincerely,

Glen Barton gcp6k@att.net
36 Grand Ave
Woodland, CA 95695

Brian Barton bbcr258@gmail.com
1728 Cox PL
Woodland, CA, 95776

Bruce Barton b_barton_3@hotmail.com
1701 Lindenwood Dr
Concord, CA 94521

Response to comment from Glen, Brian, and Bruce Barton:

Barton Comment 1

The Project team appreciates your comments and communication of your concerns, and thank you for meeting with the County and Project team on May 22, 2024. We understand your concerns regarding the proposed seepage/stability berm's impact on your agricultural activities within the existing flood easement. While expanding the levee waterward may seem like a potential option to help avoid the proposed seepage/stability berm's impact on your agricultural activities within the existing flood easement, it is not possible to realign just the levee segment adjacent to your property. In fact, realigning the levee segment adjacent to your property would require realigning the entire levee segment and shifting it waterward, which would constrain, rather than expand the floodway and not meet the Project objective to provide 100-year level flood protection. This realignment could also potentially lead to greater risk of erosion on the waterside of the levee and habitat loss. Therefore, after the reviewing your request to realign the levee segment near your property waterward, the Project team and County have determined that this option would result in increased biological and hydrologic impacts and would not meet the Project objectives and thus is not feasible.

Barton Comment 2

The seepage/stability berm option was selected adjacent to your property to address both seepage going through the levee and seepage going under the levee. The seepage/stability berm will also provide stability to the landside slope of the levee to reduce the risk of levee failure. A deep cut-off wall, deeper than 120 feet, would address both seepage and through seepage adjacent to your property, however, the Project team did not analyze this further because the cutoff wall would need to be greater than 120 feet. A cutoff well greater than 120 feet would potentially affect the supply for your well. Also, the cutoff wall option would not address the levee slope stability issues and therefore, the County would still need to correct the levee slope stability and freeboard deficiencies. In this stretch of the Sacramento River Right Bank levee the County will be raising the levee to provide more freeboard and creating a 2.5 feet to 1 foot landside slope. Based on the Project team's assessments the seepage-stability berm will not affect flow rates for your well.

Barton Comment 3

As you noted in your comment letter and as was discussed on May, 22, 2024, the Project design is not finalized and some of the details are still evolving as the design plans progress to 100%. The Draft IS/MND was prepared when the Project team had 65% design plans therefore, it was not possible to include the fine granularity of detail as you indicated in your comment. The Project team will continue to be as forthcoming with the design process as possible. The figures and cross-sections included in Chapter 2 of the Draft IS/MND are intended to be representative of the various improvements proposed along the entirety of the Sacramento River Right Bank levee in the Project Area and along the Knights Landing Ridge Cut. The levee design plans and profiles vary based on the onsite conditions and it would not be prudent to include all of the various plans and profiles in the Draft IS/MND.

As discussed in our meeting on May 22, 2024, we are trying to keep the proposed levee improvements within the existing flood easements that are in place and have been for over 75 years (although they have been modified over time). If additional flood easements are needed, they will be acquired through negotiation and fair market value will be provided.

Barton Comment 4

As stated in response to comment #3, in total there are six acres along and adjacent to the Sacramento River Right Bank levee that will need to be added to the flood easement. On your parcel, currently, the project design does not indicate a need to obtain additional flood easements beyond what already exists. The construction limits from the landside toe of the seepage-stability

berm will be up to 30 feet and may vary in some portions of the Sacramento River Right Bank levee alignment because the levee crown and berm width vary and the levee is not straight. The 15-foot O&M corridor will not be constructed and complete until the seepage-stability berm is constructed however, during construction this same area will be used for construction access. Therefore, construction activities beyond the landside seepage-stability berm toe would be within the 30-foot designated construction limits and while activities may not require use of the entire 30-foot construction limits some buffer is built in for safety considerations. No construction activities would occur beyond the 30-foot limit. The construction limits have been set to be consistent with the existing flood easements, which are not intended to be actively farmed. The proposed seepage-stability berm as designed intends to minimize impacts and conflicts to existing, adjacent agricultural lands.

Barton Comment 5

The Project team appreciates your comments and communication of your concerns. Adjacent to your property, the constructed seepage-stability berm and O&M corridor would be within the existing levee footprint and the existing flood easement. As stated above, all construction activities would occur within the construction limits established for the project that are set at 30 feet beyond the proposed seepage-stability berm toe on the landside. Any construction impacts beyond the proposed seepage-stability berm and O&M corridor that are within the 30-foot construction limits would be temporary and would not require acquisition of property or additional flood easement. The project team has developed real estate maps that have overlaid the proposed levee improvements and footprints along with the existing flood easements and have identified areas along the Sacramento River Right Bank levee that will require additional flood easements to be obtain. In total there are six acres along and adjacent to the Sacramento River Right Bank levee that will need to be added to the flood easement. On your parcel, currently, the project design does not indicate a need to obtain additional flood easements beyond what already exists. The proposed seepage-stability berm as designed intends to minimize impacts and conflicts to existing, adjacent agricultural lands.

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) designates areas of prime farmland and farmland of statewide importance and publishes this data for the public to use. The FMMP GIS data for the project area was obtained from the DOC FMMP and overlaid on an aerial base map with the proposed levee improvements area outlined. Due to the coloring of the DOC FMMP dataset on the aerial base map, there appear to be areas that are not shown as prime farmland and instead appear to be grazing land, this is not accurate. We have adjusted the coloring of the FMMP dataset and reproduced Figure 3.2-1. Important Farmland in the Proposed Project Area in Appendix B of this Final IS/MND. We acknowledge that your property contains prime agricultural land per the FMMP designation.

CEQA requires a Lead Agency to determine the significance of all environmental impacts (California Public Resources Code [PRC] § 21082.2; 14 CCR [State CEQA Guidelines] § 150641). A threshold of significance for a given environmental impact defines the level of effect above which the Lead Agency will normally consider impacts to be significant, and below which it will normally consider impacts to be less than significant. The determination by a Lead Agency of whether a project may have a significant effect on the environment calls for careful judgment, based to the extent possible on scientific and factual data (State CEQA Guidelines § 15064(b)(1)). It therefore falls to the discretion of Yolo County to appropriately evaluate the impacts of the Project. While an exact quantitative threshold for impacts to agricultural and prime farmland has not been set by Yolo County for the Proposed Project, the threshold of less than significant is higher than the no impact or zero impact threshold. That means a less than significant impact is not the same as no impact; rather, that it would or may cause a minor, but acceptable change in the physical environment. Therefore, Yolo County has determined that the Proposed Project's less than significant impact on agricultural lands is acceptable and offset by meeting the Proposed Project's objective and providing 100-year flood protection for the community of Knights Landing and the Basin.

The Proposed Project would not convert a substantial amount of prime farmland, unique farmland, or farmland of statewide importance land in the Project Area. An existing flood easement runs along the Sacramento River Right Bank levee and the proposed levee improvements are intended to remain within the limits of the existing flood easement. The existing flood easement is not intended to be actively farmed. As stated above, in total there are six acres along the Sacramento River Right Bank levee that will need to be added to the flood easement. On your parcel the Project team does not show the need to obtain additional flood easements beyond what already exists. Therefore, the determination was made in the Draft IS/MND that the Project would result in a less than significant impact on prime farmland, unique farmland, or farmland of statewide importance because the Project would not convert land that is supposed to be actively farmed.

The proposed project would not conflict with your Williamson Act contract nor any other Williamson Act contract in or adjacent to the Project Area. As stated above, an existing flood easement runs along the Sacramento River Right Bank levee and the proposed levee improvements are intended to remain within the limits of the existing flood easement. The existing flood easement is not intended to be actively farmed. Therefore, as stated in the Draft IS/MND the proposed project would result in a less than significant impact to Williamson Act lands and would be consistent with the Yolo County General Plan's policies and objectives.

The County will continue to coordinate with you regarding the existing flood easement and uses as well as temporary construction impacts that should be anticipated.

Barton Comment 6

Similarly, as described above under response to comment #5, Yolo County has developed thresholds of significance under the CEQA guidelines for the Proposed Project. While an exact quantitative threshold for impacts to oak trees has not been set by Yolo County for the Proposed Project, the threshold of less than significant is higher than the no impact or zero impact threshold. That means a less than significant impact is not the same as no impact; rather, that it would or may cause a minor, but acceptable change in the physical environment. Therefore, Yolo County has determined that the Proposed Project's less than significant impact on oak trees and oak woodland habitat is acceptable and offset by meeting the Proposed Project's objective and providing 100-year flood protection for the community of Knights Landing and the Basin.

As outlined in Impact Bio-5 of the Draft IS/MND, it was determined that the Proposed Project is consistent with the *Yolo County Oak Woodland Conservation and Enhancement Plan* (2007), which promotes voluntary efforts to preserve and protect oak trees and oak woodlands. The various proposed levee improvements, including the proposed seepage-stability berm, as designed, intend to minimize impacts and conflicts to oak trees and oak woodland habitat. In addition, Yolo County will implement the avoidance and minimization measures from the Yolo County HCP/NCCP, supplemented with mitigation measures described in Section 3.4 Biological Resources of the Draft IS/MND, where needed to minimize impacts to oaks trees and oak woodland habitat. All trees to be preserved during construction would be fenced or flagged prior to the start of construction and avoided during the duration of project activities. As a result of compliance with the Yolo County HCP/NCCP, and implementation of supplemental mitigation measures the Proposed Project would result in a less than significant impact to oak woodland habitat.

Barton Comment 7

Please refer to response to Comment #5 above.

In addition to Yolo County 2030 Countywide General Plan *Goal AG-1: Preserve and defend agriculture as fundamental to the identity of Yolo County*, *Goal LU-1: Maintain an appropriate range and balance of land uses to maintain the variety of activities necessary for a diverse, healthy, and sustainable society* must also be considered in this environmental analysis. As stated in Table 3.11-1. Consistency with State and Local Plans, Policies, and Regulations, the Proposed Project would

not change the existing agricultural land uses in the Proposed Project Area. Rather, the Proposed Project intends to allow economic and agricultural stability, improve river access, and improve riverine habitat viability. The Proposed Project would improve flood protection for the surrounding agricultural areas, which would help preserve and defend agricultural-designated lands.

Barton Comment 8

Please refer to response to Comment #5 above.

The impact under Population and Housing you refer to, Impact POP-1 (Would the Project induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?), specifically asks about population growth due to construction of new dwelling units or through infrastructure that leads to population growth, such as expanding roads. As analyzed in Section 3.14.4, the Project does not involve that kind of construction. The opinion that unlawful occupation would occur if the land cover changes is speculative, and not within the scope of analysis of this specific impact.

Barton Comment 9

Please refer to response to Comment #5 above.

As stated in response to Comment #8 above, the opinion that unlawful occupation would occur if the land cover changes is speculative, and not within the scope of analysis of this specific impact.

Barton Comment 10

Please refer to response to Comment #5 above.

The impact under Wildfire you refer to, Impact WILD-2 (Would the Project 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?), has specific impact thresholds to consider under CEQA analysis. As stated in Impact WILD-2, the Proposed Project is not located in a Very High Fire Hazard Severity Zone (VHFHSZ). The Project team holds consistent the determination that the Project would have no impact on wildfire as it relates to the exacerbation of wildfire risks or the exposure of occupants to increased pollutant concentrations of uncontrolled wildfire. As stated in response to Comment #8 above, the opinion that unlawful occupation would occur if the land cover changes is speculative, and not within the scope of analysis of this specific impact.

Barton Comment 11

We appreciate that this Project is personal to you. As provided in responses to your other comments above, the analysis of the Proposed Project's impacts is subject to the CEQA Guidelines and thresholds as established by Yolo County. The Proposed Project's impacts on the environment – both physical and human environments, are examined directly, indirectly, and cumulatively and analyzed accordingly in the Draft IS/MND.

As stated in the Draft IS/MND, the Proposed Project would not result in any significant, unmitigable impacts to environmental resources, and was developed and designed to aid in achieving long-term flood management goals for Yolo County and the community of Knights Landing. Construction of the proposed levee improvements would be spread over the three-year construction schedule. Specifically, construction of the proposed seepage-stability berm adjacent to your property will result in some short-term and temporary impacts (i.e. air quality and dust emissions, noise, and construction traffic), as well as the other proposed levee improvements, and was determined to not directly or indirectly cause a substantial adverse impact on human beings given the short-term nature of the activities and the various mitigation measures that are proposed in the Draft IS/MND to offset and minimize construction impacts.

We understand that construction will be an inconvenience, and we will try to minimize the construction effects of the Project to the greatest extent possible. However, your property is located adjacent to infrastructure that provides flood protection to the region, not just your property. The purpose of the flood maintenance easement enveloping the levee and maintenance corridor is specifically to allow for maintenance, inspection, and improvements as needed for this critical infrastructure. The Proposed Project will address identified, critical deficiencies in the flood control infrastructure, which has been in place for over 60 years and has not been improved substantially during that time. The proposed levee improvements will enhance flood protection and reduce flood risks for over 1,000 residents. Once construction of the proposed levee improvements, are complete in the Project Area (Knights Landing Ridge Cut and the Sacramento River Right Bank) they will provide 100-year flood protection for people and their property in the Knights Landing Basin. This is a measurable benefit. We acknowledge that the Proposed Project may temporarily inconvenience landowners and residents adjacent to the levee during construction. However, Yolo County has determined that the Proposed Project's collective short term impacts during construction on human beings are offset by meeting the Proposed Project's objective and providing 100-year flood protection for the community of Knights Landing and the Knights Landing Basin.

Comment letter from Debbie and Jerry Rose:

From: rh125giants@aol.com
To: Yolo County Natural Resources Division
Cc: Angel Barajas
Subject: Knights Landing Flood Management Project
Date: Tuesday, June 4, 2024 8:58:22 AM

Elisa Sabatini,

1 Hello, we are writing in response to your May 3, 2024 letter regarding this Project. While we appreciate the summary provided, without an engineering degree we are having a difficult time understanding the 700+ page Initial Study. Specifically, the summary states 'no residents would be displaced' which is hard to comprehend when it appears a 10 foot wide-80 foot deep wall would be installed inside of the levee right in front of our driveway. It would be extremely helpful to have a lay persons description (preferably in person) so that we may fully understand the potential impact(s). We are not the only household apparently impacted.

2 Also, could you please provide the names and contact information of the primary responsible persons for each of the entities involved in the Project. Army Corps of Engineers, St. Lands Commission, Reclamation District, the contractors (I believe I seen the initials MBK somewhere)+...

Thank You for your time,
Debbie and Jerry Rose
42435 Front Street
Knights Landing

[THIS EMAIL ORIGINATED FROM OUTSIDE YOLO COUNTY. PLEASE USE CAUTION AND VALIDATE THE AUTHENTICITY OF THE EMAIL PRIOR TO CLICKING ANY LINKS OR PROVIDING ANY INFORMATION. IF YOU ARE UNSURE, PLEASE CONTACT THE HELPDESK (x5000) FOR ASSISTANCE]

Response to comment from Debbie and Jerry Rose:

Rose Comment 1

As discussed in our meeting on August 6, 2024, the proposed levee improvements in front of your property include raising the existing levee to remedy the freeboard deficiencies that have been identified at this location. Geotechnical investigations and analyses have occurred since the Draft IS/MND was published and have concluded that a cutoff wall is no longer needed in front of your property since no seepage deficiencies have been identified in this location. Updates to the text of Section 2.3.1 Proposed Project have been made to reflect this change and are included in Appendix B of this Final IS/MND.

Construction of the proposed levee improvements in front of your property would involve utilizing levee fill to raise the levee approximately 3 feet. The water side slope of the levee would be at a 3 foot to 1 foot ratio and the landside slope of the levee would be at a 2.5 foot to 1 foot ratio that would meet your existing driveway and front yard. Front Street runs along the levee crown in this location and would be reconstructed to be 20 feet wide with an asphalt base, per Yolo County standards. The raised levee would impact the waterside of the existing levee/street, which contains your garden area. The County intends to abide by the California Relocation Assistance Act (California Government Code 7269 et seq.) and will work with you regarding the impacts to your garden area through negotiation and a fair market value will be provided.

Rose Comment 2

Yolo County is the lead agency carrying out the Project. Elisa Sabatini is the point of contact and her title is Manager of Natural Resources for Yolo County. Elisa's contact information is:

Elisa Sabatini
292 West Beamer Street
Woodland, CA 95695
(530) 406-5773
naturalresources@yolocounty.org

Comment letter from Central Valley Flood Protection Board:

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STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY GAVIN NEWSOM, GOVERNOR
CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Ste. 170
SACRAMENTO, CA 95821
(916) 574-0609

June 5, 2024

Elisa Sabatini
Natural Resources Manager
Yolo County
292 West Beamer Street
Woodland, CA 95695
NatrualResources@yolocounty.org

Subject: Comments for the Draft Initial Study with Mitigated Negative Declaration, Knights Landing Flood Management Project, SCH# 2024050218, Yolo County

Dear Elisa Sabatini,

The Central Valley Flood Protection Board (Board) appreciates the opportunity to comment on the Draft Initial Study with Mitigated Negative Declaration (IS/MND) for the proposed Knights Landing Flood Management Project (proposed project).

The proposed project involves reconstructing the levees along the Knights Landing Basin. The proposed project is located in the Colusa Basin Drainage Canal, Knights Landing Ridge Cut, and Sacramento River, all of which are federally regulated streams that are within the Board's permitting authority, thereby requiring an encroachment permit.

1 California Code of Regulations (CCR) Title 23, Division 1, Chapter 1, Article 8 (Title 23 Standards) provides standards that govern the design and construction of projects that affect the flood control works and floodways. Board staff recommends that you review the proposed project's compliance with Title 23 Standards, including Sections 120 (Levees), 121 (Erosion Control), and 131 (Vegetation). Any deviation or variation from these standards will require approval from the Board.

Please include references to CCR Title 23, Division 1, Chapter 1 in Sections 3.4.2 and 3.10.2 of the IS/MND. Specifically, please refer to CCR Title 23, Division 1, Chapter 1, Section 131 (Vegetation) in the IS/MND Section 3.4.2. And, consider changing text in Section 3.10.2 of the IS/MND under the subheading "Central Valley Flood Protection Board":

> *The Central Valley Flood Protection Board exercises regulatory authority within its jurisdiction to maintain the integrity of the existing flood control system and designated floodways by issuing permits for encroachments* (CCR Title 23, Division 1, Chapter 1). *The jurisdiction of the Central Valley Flood Protection Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River, the San Joaquin River, and designated floodways (23 CCR Section ~~2~~112). Projects that encroach in a designated floodway or regulated stream, or within 10 feet of the toe of a state-federal flood control structure*

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1 *(levee), require an encroachment permit and the submission of an associated application, including an environmental assessment questionnaire. A project must demonstrate that it will not reduce the channel flow capacity and that it will comply with channel and levee safety requirements* (23 CCR Section 120). *In cooperation with USACE, the Central Valley Flood Protection Board enforces standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods.*

Responsibility of the Central Valley Flood Protection Board

The Board is the State's regulatory agency responsible for enforcing appropriate standards for the construction, maintenance, and operation of the flood control system that protects life, property, and habitat in California's Central Valley. The Board serves as the State coordinator between local flood management agencies and the federal government, with the goal of providing the highest level of flood protection possible to California's Central Valley.

The Board operates under authorities as described in California Water Code (Water Code), which requires the Board to oversee future modifications or additions to facilities of the State Plan of Flood Control (SPFC). In addition, pursuant to assurances provided to the United States Army Corps of Engineers (USACE) by the Board on behalf of the State, the USACE Operation and Maintenance Manuals, Code of Federal Regulations, Title 33, Section 208.10, and United States Code, Title 33, Section 408, the Board is responsible for the operation and maintenance of the SPFC facilities. The USACE requires the Board to serve as the lead non-Federal sponsor for projects to improve or alter facilities of the SPFC pursuant to Code of Federal Regulations, Title 33, Section 408. The State's objectives include fulfilling the USACE's expectations pursuant to the assurances provided to the USACE.

Encroachment Permit

Per California Code of Regulations, Title 23, Waters, Division 1 (Title 23), Section 6, approval by the Board is required for all proposed work or uses, including the alteration of levees within any area for which there is an Adopted Plan of Flood Control within the Board's jurisdiction. In addition, Board approval is required for all proposed encroachments within a floodway, on adjacent levees, and within any Regulated Stream identified in Title 23, Table 8.1. Specifically, Board jurisdiction includes the levee section, the waterward area between project levees, a minimum 10-foot-wide strip adjacent to the landward levee toe, the area within 30 feet from the top of bank(s) of Regulated Streams, and inside Board's Designated Floodways. Activities outside of these limits which could adversely affect Federal-State flood control facilities, as determined by Board staff, are also under the Board's jurisdiction. Permits may also be required for existing unpermitted encroachments or where it is necessary to establish the conditions normally imposed by permitting, including where responsibility for the encroachment has not been clearly established or ownership or uses have been changed.

2 Federal permits, including USACE Section 404 and Section 10 regulatory permits and Section 408 Permission, in conjunction with a Board permit, may be required for the proposed project. In addition to federal permits, state and local agency permits, certification, or approvals may also be required. State approvals may include, but are not limited to, California Department of Fish and Wildlife's Lake and Streamed Alteration Agreement and Central Valley Regional Water Quality Control Board's Section 401 Water Quality Certification and/or Waste Discharge

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2 Requirement. The Applicant must obtain all authorizations that the proposed project may require.

Flood Impacts Analysis
Pursuant to Section 15 of Title 23, the Board may deny an encroachment permit if the proposed project could:

- Jeopardize directly or indirectly the physical integrity of levees or other works
- Obstruct, divert, redirect, or raise the surface level of design floods or flows, or the lesser flows for which protection is provided
- Cause significant adverse changes in water velocity or flow regimen
- Impair the inspection of floodways or project works
- Interfere with the maintenance of floodways or project works
- Interfere with the ability to engage in flood fighting, patrolling, or other flood emergency activities
- Increase the damaging effects of flood flows
- Be injurious to, or interfere with, the successful execution, functioning, or operation of any adopted plan of flood control
- Adversely affect the State Plan of Flood Control, as defined in the California Water Code

The Board, as a Responsible Agency under the California Environmental Quality Act (CEQA), will review and consider the environmental effects of the proposed project identified in the IS/MND, and will reach its own conclusions on whether and how to approve the project involved (14 CCR 15096, subd. (a)). This includes direct impacts to facilities under construction, as well as indirect impacts from the proposed project to surrounding facilities. Accordingly, the comments herein are intended to assist in the development of a robust CEQA document capable of supporting the Board's permitting process.

Closing
The potential risks to public safety, including increased flood risks, need to be considered when developing proposed projects that seek to modify flood control works or the hydrology of the water ways. Board staff is available to discuss any questions you have regarding the above comments. Please contact Jordan Robbins at (916) 524-3454, or via email at Jordan.Robbins@CVFlood.ca.gov if you have any questions.

Sincerely,

Andrea Buckley

Andrea Buckley
Deputy Executive Officer

cc: Office of Planning and Research
State.Clearinghouse@opr.ca.gov

Response to comment from Central Valley Flood Protection Board:

Central Valley Flood Protection Board Comment 1

As a result of this comment, revisions have been made to Section 3.10.2 and are reflected in Appendix B of this Final IS/MND.

> **Central Valley Flood Protection Board**
> The Central Valley Flood Protection Board exercises regulatory authority within its jurisdiction to maintain the integrity of the existing flood control system and designated floodways by issuing permits for encroachments **(CCR Title 23, Division 1, Chapter 1)**. The jurisdiction of the Central Valley Flood Protection Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River, the San Joaquin River, and designated floodways (23 CCR Section **112**). Projects that encroach in a designated floodway or regulated stream, or within 10 feet of the toe of a state-federal flood control structure (levee), require an encroachment permit and the submission of an associated application, including an environmental assessment questionnaire. A project must demonstrate that it will not reduce the channel flow capacity and that it will comply with channel and levee safety requirements **(23 CCR Section 120)**. In cooperation with USACE, the Central Valley Flood Protection Board enforces standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods.

Central Valley Flood Protection Board Comment 2

The Proposed Project will require an encroachment permit from the Central Valley Flood Protection Board, as well as other permits and approvals that are identified in Table 2.3-7 of the Draft IS/MND. Yolo County will obtain all of the identified permits and approvals for the Project prior to construction.

Appendix A. Mitigation Monitoring and Reporting Plan

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Mitigation Monitoring and Reporting Plan

Knights Landing Flood Management Project

Small Community Flood Risk Reduction Program

State Clearinghouse # 2024050218

Yolo County, CA

September 2024

Prepared for:

Yolo County

Prepared by:

HDR

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Mitigation Monitoring and Reporting Plan

This Mitigation Monitoring and Reporting Plan (MMRP) for the Knights Landing Flood Management Project has been prepared pursuant to the California Environmental Quality Act (CEQA – Public Resources Code, Section 21000 *et seq*.), the CEQA Guidelines (Cal. Code Regs., Title 14, Chapter 3, Sections 15074 and 15097).

Mitigation measures are shown in Table 1. This program corresponds to the Initial Study/Mitigated Negative Declaration (IS/MND) for the project. For each mitigation measure, the frequency of monitoring and the responsible monitoring entity is identified. Mitigation measures may be shown in submittals and may be checked only once, or they may require monitoring periodically during and/or after construction. Once a mitigation measure is complete, the responsible monitoring entity shall date and initial the corresponding cell, and indicate how effective the measure was. Avoidance and Minimization Measures (AMMs) from the Yolo County Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) that are part of the Proposed Project are attached.

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**Table 1. Mitigation Monitoring and Reporting Plan
Knights Landing Flood Management Project**

Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
Biological Resources					
MM-BIO-1: Minimizing Footprint	During construction, the work areas shall be reduced to the smallest possible footprint. All project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities shall be confined, to the greatest extent possible, to previously disturbed areas or sited away from sensitive biological resources. Additionally, the project footprint/area shall be clearly defined and marked to avoid working in areas outside of the approved project boundary.	Define and mark project footprint and work areas, and confine surface-disturbing activities away from sensitive biological resources.	Prior to and during construction	Contractor	
MM-BIO-2: Supplementary Worker Environmental Awareness Training	A qualified biologist shall be retained to conduct mandatory contractor/worker awareness training for construction personnel. The training would supplement the training required under Yolo HCP/NCCP AMM6 (Conduct Worker Training) and shall cover special-status species and other sensitive biological resources not covered by the Yolo HCP/NCCP. The awareness training shall be provided to all construction personnel to brief them on the identified location of sensitive biological resources, including how to identify species (visual and auditory) most likely to be present, the need to avoid impacts on biological resources (e.g., plants, wildlife, and jurisdictional waters), and to brief construction personnel on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor will ensure that new construction personnel receive the mandatory training before starting work.	Training shall be performed by the qualified biologist and shall include topics specified in the measure.	Prior to commencement of any Project-related activities and for new all workers	Yolo County/ Contractor	Worker Environmental Awareness Training forms
MM-BIO-3: Special-status Plant Surveys	A qualified botanist shall be retained to perform focused surveys for special-status plants. These surveys shall serve to document the presence/absence of these species in and adjacent to (within 100 feet, where appropriate) proposed impact areas, including new construction access routes. These surveys shall be conducted in accordance with CDFW *Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities* (2018) or other current protocols. These guidelines require that special-status plant surveys be conducted at the proper time of year when target species are both evident and identifiable. Surveys shall be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.	Surveys shall be performed by the qualified botanist in the timeframes specified in the measure	Prior to commencement of any Project-related activities	Yolo County	Pre-Construction Survey Report
MM-BIO-4: Special-status Plant Avoidance	If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species shall be avoided to the greatest extent possible and one the following shall be implemented: • Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, shall be protected by flagging, signage, orange construction fence,	Species identified then protection established. If loss greater than specified would occur, develop and establish and implement a mitigation plan or off-site preservation as specified in the measure.	Prior to commencement of any Project-related activities and during project related activities	Yolo County/ Contractor	

**Table 1. Mitigation Monitoring and Reporting Plan
Knights Landing Flood Management Project**

Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
	and/or silt fence as appropriate based on site conditions to limit the effects of project-related activities and material stockpiles on any special-status plant species. • If project-related activities would result in the loss of greater than 10% of a population or occupied habitat for a special-status plant species, a mitigation plan would be developed that describes a program to transplant, salvage, cultivate, and re-establish the species at suitable sites (if feasible). Alternatively, mitigation could be satisfied through off-site preservation or via payment to an in-lieu fee program, if available. If the mitigation plan is chosen, it would include means and methods to propagate affected special-status plants via vegetative or reproductive means (e.g., harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation would occur prior to construction. The receiving location would be evaluated and chosen based on similarity to conditions at the transplant source location, to the extent feasible. Site conditions to consider when choosing a receiving site would include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants would be monitored for at least one year following construction. If preservation option is chosen, preservation areas may include undisturbed areas of the site that will be preserved and managed in perpetuity, offsite mitigation lands, or a combination of both. The preserved habitat shall be of equal or greater habitat value to the areas affected in terms of soil features, extent of disturbance, vegetation structure, and contain extant populations of the same or greater size as the area affected. The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat will be replaced at a minimum 1:1 ratio (individuals or acreage of occupied habitat).				
MM-BIO-5: Restoration of Temporarily Disturbed Areas	All exposed and/or disturbed areas resulting from project-related activities shall be returned to their original contour and grade, and restored using locally native grass and forb seeds, plugs or a mix of the two. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.	Restore and re-seed disturbed areas.	After conclusion of Project-related ground disturbance	Yolo County/ Contractor	

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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
MM-BIO-6: Biological Monitor	A qualified biologist(s) shall monitor construction activities that could potentially cause significant impacts on sensitive biological resources, which may include but is not limited to riparian vegetation removal or work within the buffers for active bird nests, elderberry shrubs or covered species, as defined in the Yolo HCP/NCCP. The amount and duration of monitoring would depend on the activity and would be determined by the qualified biologist. The biological monitor shall advise construction personnel on BMP installation and avoidance and minimization of sensitive biological resources. Other duties could include conducting preconstruction and clearance surveys, providing environmental awareness training, and monitoring active nests in the vicinity of construction activities. The biological monitor shall have the authority to stop work at any time if wildlife wanders into the work area or if they identify disturbance to special-status wildlife in the area resulting from project-related activities.	Biological monitoring during construction.	Duration of Project-related activities	Yolo County/ Contractor	
MM-BIO-7: Construction Hours	All construction would be conducted during daylight hours to allow for an extended period of inactivity (that is, nighttime) for salmonids and other special-status fish, if present, to migrate undisturbed through the Project area. All construction lighting will be pointed away from the Sacramento River and Knights Landing Ridge Cut.	Limit construction to daylight hours and direct any lighting away from special-status fish habitat.	Duration of Project-related activities	Yolo County/ Contractor	
MM-BIO-8: Best Management Practices	No fueling of construction equipment would occur within 100 feet of waterways. BMPs would be employed on site to prevent degradation to on- and off-site aquatic resources. Methods would include the use of appropriate measures to intercept and capture sediment prior to entering aquatic resources, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs would be in place prior to initiation of any construction activities and would remain until construction activities are completed. All erosion control methods would be maintained until all on-site soils are stabilized. Mitigation as required in regulatory permits issued through CDFW and the RWQCB may be applied to satisfy this measure.	Employ BMPs as specified in the measure, including mitigation as required in regulatory permits.	Prior to commencement of any Project-related activities and during project related activities	Yolo County/ Contractor	
MM-BIO-9: Special-status and Migratory Bird Surveys	If feasible, tree and vegetation clearing would be conducted outside the migratory bird nesting season (March 1 through August 31). However, if clearing and/or construction activities would occur during the migratory bird nesting season, then preconstruction surveys to identify active migratory bird and/or raptor nests would be conducted by a qualified biologist within 7 days of construction initiation. Focused surveys must be performed by a qualified biologist for the purposes of determining presence or absence of active nest sites within the proposed impact area, including construction access routes and a 500-foot buffer, where feasible.	Surveys are to be conducted by a qualified biologist in the timeframes specified in the measure.	Prior to commencement of any Project-related activities	Yolo County	Pre-Construction Survey Report
MM-BIO-10: Nest Avoidance	If active nest sites are identified within the survey areas, a no disturbance buffer would be established for all active nest sites prior to commencement of any Proposed Project construction activities to	Nests identified then buffers established, monitoring if buffers cannot be established by a qualified	Prior to commencement of any Project-related	Yolo County/ Contractor	

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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
	avoid construction or access-related disturbances to migratory bird nesting activities. A no disturbance buffer constitutes a zone in which proposed project related activities (that is, vegetation removal, earth moving, noise generation, and construction) cannot occur. The size of the no disturbance buffers would be determined by a qualified biologist based on the species, activities proposed near the nest, and topographic and other visual barriers. If suitable no-disturbance buffers cannot be established for any reason, then a qualified biologist shall monitor the nest until it is deemed inactive or until construction activities move out of the no-disturbance buffer. The qualified biologist has the right to stop work should disturbance to breeding be observed.	biologist; qualified biologist can stop work if disturbance is observed.	activities and during project related activities		
MM-BIO-11: Bat Avoidance	At least 30 days prior to tree removal, a qualified biologist shall conduct a daytime reconnaissance of the trees. The biologist shall look for bats and bat signs, including existing roost sites and bat guano deposits, and will listen for roosting bats. If potential roost sites are identified, a Project-specific avoidance and minimization plan shall be prepared by a qualified biologist to be reviewed and approved by CDFW prior to the start of Project activities. Removal of trees or snags containing roosting bats or evidence thereof shall only occur during seasonal periods of bat activity (prior to maternity season from approximately March 1 (or when night temperatures are above 45ºF and when rains have ceased) through April 15 (when females begin to give birth to young); and prior to winter torpor – from September 1 (when young bats can fly and feed on their own) until October 15 (before night temperatures fall below 45ºF and rains begin). If surveys do not identify the presence of potential bat roosts, no further mitigation is required.	The qualified biologist and CDFW are to develop and review any project-specific avoidance and minimization plans for roosting bats. Removal of trees or snags containing evidence of roosting bats shall be in the timeframes specified in the measure.	Prior to tree removal activities	Yolo County/ Contractor	Pre-Construction Survey Report
MM-BIO-12: American Badger Detection Surveys	Prior to implementation of Proposed Project related activities, a qualified biologist would be retained to determine if suitable denning habitat for American badger occurs within 500 feet of the proposed impact area, including construction access routes. If suitable habitat exists, focused surveys would be performed by a qualified biologist for the purposes of determining presence or absence of active den sites within the proposed impact area, including construction access routes, and a 250-foot buffer (if feasible). If active breeding sites are identified within 250 feet of Proposed Project activities, a no disturbance buffer would be established prior to commencement of any project construction activities to avoid construction or access-related disturbances to breeding activities for American badger. Activities permitted within and the size of the no disturbance buffers may be adjusted based on an evaluation by the qualified biologist. The buffer would be imposed until a qualified biologist determines breeding activities have ended.	Suitable American badger denning habitat is to be determined by the qualified biologist. Buffers shall be established and allowable activities are to be determined by the qualified biologist according to distances specified in the measure.	Prior to commencement of any Project-related activities	Yolo County	Pre-Construction Survey Report

**Table 1. Mitigation Monitoring and Reporting Plan
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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
MM-BIO-13: No Net Loss of Sensitive Natural Communities and Aquatic Resources	No net loss of sensitive natural communities, including aquatic resources, would be achieved through impact avoidance, minimization, and/or compensatory mitigation. Mitigation for permanent impacts on sensitive natural communities shall be provided at a minimum 1:1 ratio. Mitigation can be achieved through on-site restoration, in-lieu fee payment, payment of Yolo HCP/NCCP land cover fees, or purchase of mitigation credits at a USACE-, USFWS-, and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, USFWS, and/or the RWQCB, may be applied to satisfy this measure.	Mitigate for permanent impacts on sensitive natural communities at a minimum 1:1 ratio.	Prior to commencement of any Project-related activities and during project related activities	Yolo County	
Cultural Resources					
MM-CUL-1: Cultural Resources Awareness Training	Before any ground-disturbing work (including vegetation clearing, grading, and equipment staging) commences, a qualified archaeologist will conduct a mandatory cultural resources awareness training for all construction personnel. The training will cover the cultural history of the area, characteristics of archaeological sites, applicable laws, and the avoidance and minimization measures to be implemented. Proof of personnel attendance will be provided to overseeing agencies as appropriate. If new construction personnel are added to the Proposed Project, the contractor will ensure that the new personnel receive the mandatory training before starting work.	Training shall be performed by the qualified archaeologist and a representative from the Yocha Dehe Wintun Nation and shall include topics specified in the measure.	Prior to commencement of any Project-related activities and for new all workers	Yolo County/ Contractor	Training forms
MM-CUL-2: Unrecorded Cultural Resources Discovery	If unrecorded cultural resources are encountered during Project-related ground-disturbing activities, even in the absence of an onsite archaeological monitor, a qualified cultural resources specialist shall be contacted to assess the potential significance of the find. If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, bottle glass, ceramics, structure/building remains) is made during Project-related construction activities, ground disturbances in the area of the find will be halted, and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist will determine whether the resource is potentially significant per the CRHR and, in consultation with the County and Native American Tribes as appropriate, develop appropriate additional mitigation measures, such as avoidance and protection measures or data recovery. If the find is determined to be an important cultural resource, the County will make available contingency funding and a time allotment sufficient to allow recovery of an archaeological sample or to implement an avoidance measure. Construction work can continue in other parts of the Proposed Project while archaeological mitigation takes place.	Significance of potential unrecorded cultural resources/material encountered is to be determined by the qualified cultural resources specialist/professional archaeologist, the County and Native American Tribes.	Duration of Project-related and ground disturbing activities	Yolo County/ Contractor	

**Table 1. Mitigation Monitoring and Reporting Plan
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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
MM-CUL-3: Inadvertent Discovery Plan	Prior to implementation of the Proposed Project, a formalized *Archaeological and Tribal Monitoring and Inadvertent Discovery Plan* will be prepared which details the Proposed Project's inadvertent discovery protocol, archaeological site definitions, archaeological and tribal monitoring procedures and responsibilities, provisions for additional identification efforts if deemed necessary, and requirements for dealing with the inadvertent discovery of human remains including coordination with the Yolo County Coroner and the designation of a Most Likely Descendant (detailed further in MM-CUL-4). The Plan will be developed in consultation with the County and participating Native American Tribes, particularly the Yocha Dehe Wintun Nation, will be afforded an opportunity to review and comment on the Plan prior to implementation. The Plan may include provisions for Native American Tribes to conduct additional analyses, if requested.	Formalize an *Archaeological and Tribal Monitoring and Inadvertent Discovery Plan* with details specified in the measure.	Prior to commencement of any Project-related activities	Yolo County	*Archaeological and Tribal Monitoring and Inadvertent Discovery Plan*
MM-CUL-4: Inadvertent Discovery of Human Remains	In accordance with the California Health and Safety Code Sections 7050.5 and 7052, Public Resources Code Section 5097.98, and CEQA Section 15064.5; if human remains are uncovered during ground-disturbing activities, all such activities in the vicinity of the find would be halted immediately, and Yolo County's designated representative would be notified. The County's representative would immediately notify the Yolo County Coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The County's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The County or its appointed representative and the professional archaeologist would contact the Most Likely Descendent (MLD), as determined by the NAHC (presumably a representative from the Yocha Dehe Wintun Nation), regarding the remains. The MLD, in cooperation with Yolo County and the landowner, would determine the ultimate disposition of the remains.	In the event of inadvertent discovery of human remains, follow all regulations and protocols as specified in the measure.	Duration of Project-related and ground disturbing activities	Yolo County/ Contractor	
Geology and Soils					
MM-GEO-1: Paleontological Resources	Before the start of construction activities, construction personnel involved with earth-moving activities would be informed of the proper notification procedures if fossils are encountered. If paleontological resources are encountered during earth-moving activities, the construction crew would immediately stop work, and a qualified paleontologist would evaluate the resource and prepare a proposed mitigation plan based on the discovery.	The qualified paleontologist is to evaluate any paleontological resources and prepare mitigation plans based on the situation.	Prior to commencement of any Project-related activities and during project related activities	Yolo County/ Contractor	

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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
Noise					
MM-NOI-1: Construction Noise and Vibration Reduction	Prior to construction, Yolo County will incorporate the following measures into all construction plans and agreements to reduce noise and vibration levels during construction: • Maintain and tune all equipment in accordance with the manufacturer's recommendations to minimize noise emissions. • Equip all internal combustion engine-driven equipment with mufflers, silencers, or engine shrouds. • Locate stationary equipment (e.g., generators, pumps, idling trucks) as far as possible from noise-sensitive receptors. • Limit, to the extent feasible, the simultaneous operation of multiple construction equipment within 50 feet of residences. • Prohibit unnecessary idling of internal combustion engines. • Install temporary construction noise barriers such as paneled noise shields, blankets, and/or enclosures adjacent to all equipment. • Notify adjacent residents about the type, duration, and frequency of construction activities before the start of construction. Distribute the name and phone number of a designated Yolo County representative to be contacted for noise-related concerns due to construction. Noise-related concerns during construction would be evaluated by the County on a case-by-case basis. • Post the days and hours of construction at the perimeter of the construction site.	Reduce construction noise levels by incorporating noise-reducing measures into the construction scope of work.	Duration of Project-related activities	Yolo County/ Contractor	
MM-NOI-2: Surveys to Assess Architectural Damage	A voluntary pre- and post-construction survey will be conducted by Yolo County to assess potential architectural damage from construction vibration at each residence within 50 feet of construction activities. Should damage from construction vibration be detected, Yolo County and affected landowners would engage in mediation to remedy this situation.	Complete pre- and post-construction survey and remedy any damage found	Prior to and after conclusion of Project-related activities	Yolo County	
Tribal Cultural Resources					
MM-TCR-1: Discovery of Tribal Cultural Resources	If any suspected tribal cultural resources are discovered during ground disturbing activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the Proposed Project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and cultural affiliated with the geographic area shall be immediately notified and shall determine if the find is a tribal cultural resource. The Tribal Representative will make recommendations for further evaluation and treatment as necessary. When avoidance is infeasible, preservation in place is the preferred option for mitigation of tribal cultural resources under CEQA protocols and every effort shall be made to preserve the resource in place,	Significance of potential unrecorded cultural resources/material encountered is to be determined by a Tribal Representative from a California Native American tribe that is traditionally and cultural affiliated with the geographic area, as well as recommendations for further evaluation and treatment as necessary.	Duration of Project-related and ground disturbing activities	Yolo County/ Contractor	

**Table 1. Mitigation Monitoring and Reporting Plan
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Mitigation Measure Title and Number	Mitigation Measure	Performance Criteria	Timing	Responsible Party	Reporting Requirements & Verification of Compliance
	including through Project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the Proposed Project area where they will not be subject to further impacts. Permanent curation of tribal cultural resources will not take place unless approved in writing by the California Native American Tribe that is traditionally and culturally affiliated with the Proposed Project area. The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include Tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil. Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of CEQA, including AB 52, have been satisfied.				

Attachment 1 Yolo County Habitat Conservation Plan Avoidance and Minimization Measures

Yolo HCP AMMs Identified for the Proposed Project

General Project Design

AMM1, Establish Buffers. Project proponents will design projects to avoid and minimize direct and indirect effects of permanent development on the sensitive natural communities specified in Table 4-1 (herein referred to as *sensitive natural communities*) and covered species habitat specified in Table 4-1 by providing buffers, as stipulated in the relevant sensitive natural community AMMs (Section 4.3.3) and covered species AMMs (Section 4.3.4). On lands owned by the project proponent, the project proponent will establish a conservation easement, consistent with Section 6.4.1.3, *Land Protection Mechanisms,* to protect the buffer permanently if that land is being offered in lieu of development fees, as described in Section 4.2.2.6, *Item 6: HCP/NCCP Fees or Equivalent Mitigation*.

The project proponent will design buffer zones adjacent to permanent residential development projects to control access by humans and pets (*AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces*).

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full buffer), the development will not encroach farther into the space between the development and the sensitive natural community.

This AMM does not apply to seasonal construction buffers for covered species, which are detailed for each species in Section 4.3.4, *Covered Species*.

A lesser buffer than is stipulated in the AMMs may be approved by the Conservancy, US Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW) if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose (e.g., if the purpose of the project is to provide a stream crossing or replace a bridge, the project may encroach into the buffer and the natural community or species habitat to the extent that is necessary to fulfill the project purpose).

General Construction and Operations and Maintenance

***AMM3, Confine and Delineate Work Area*.** Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

AMM4, Cover Trenches and Holes during Construction and Maintenance. To prevent injury and mortality of giant garter snake, western pond turtle, and California tiger salamander, workers will cover open trenches and holes associated with implementation of

covered activities that affect habitat for these species or design the trenches and holes with escape ramps that can be used during non-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

AMM5, Control Fugitive Dust. Workers will minimize the spread of dust from work sites to natural communities or covered species habitats on adjacent lands.

AMM6, Conduct Worker Training. All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities and covered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the Federal Endangered Species Act (FESA) and Natural Community Conservation Planning Act (NCCPA) Permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

AMM7, Control Nighttime Lighting of Project Construction Sites. Workers will direct all lights for nighttime lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas. Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species or are easily restored to prior or improved ecological functions (e.g., grassland and agricultural land).

Construction staging and other temporary work areas located outside of project footprints will be sited in areas that avoid adverse effects on the following:

- Serpentine, valley oak woodland, alkali prairie, vernal pool complex, valley foothill riparian, and fresh emergent wetland land cover types.
- Occupied western burrowing owl burrows.[6]
- Nest sites for covered bird species and all raptors, including noncovered raptors, during the breeding season.

Project proponents will follow specific AMMs for sensitive natural communities (Section 4.3.3, Sensitive *Natural Communities*) and covered species (Section 4.3.4, *Covered Species*) in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint, project proponents will conduct surveys to determine if any of the biological resources listed above are present.

Within one year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

Sensitive Natural Communities

AMM9, Establish Buffers around Sensitive Natural Communities. The buffers for each sensitive natural community are as follows:

- *Alkali prairie and vernal pools:* The area necessary to provide the hydrologic conditions needed to support the wetlands within these natural communities (250 feet). Covered activities will avoid vernal pools or alkali seasonal wetlands by 250 feet, or other distance based on site specific topography to avoid indirect hydrologic effects.[7] A buffer of less than 250 feet around vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Other considerations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to pre-project conditions prior to the following rainy season.
- *Valley foothill riparian:* One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in *AMM1*. Transportation or utility crossings may encroach into this sensitive natural community provided effects are minimized and all other applicable AMMs are followed.
- *Lacustrine and riverine:* Outside urban planning units, 100 feet from the top of banks.[8] Within urban planning units, 25 feet from the top of the banks.
- *Fresh emergent wetland:* Fifty feet from the edge of the natural community.

AMM10, Avoid and Minimize Effects on Wetlands and Waters. Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Fish and Game Code Section 1602, and Regional Board regulations. Other than requirements for buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species, this HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the USACE, State Board, Regional Board, and CDFW.

Covered Species

AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle. The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greater than one inch in diameter at ground level. *AMM1, Establish Buffers,* above, describes circumstances in which a lesser buffer may be applied.

For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle*. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.

The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve system that has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.

Transplanting will follow the following measures:

1. Monitor: A qualified biologist will be on-site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.
2. Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.
3. Transplantation procedure:
    a. Cut the plant back three to six feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.
    b. Relocate plant to approved location in the reserve system, and replant as described in Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle.*

AMM14, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle. There are no specific design requirements for western pond turtle habitat, however, project proponents must follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities described in AMMs 9 and 10, which require a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, based on the outer boundary of the tree canopy). If

modeled upland habitat will be impacted, a qualified biologist must be present and will assess the likelihood of western pond turtle nests occurring in thedisturbance area (based on sun exposure, soil conditions, and other species habitat requirements).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtlenests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings found.

AMM15, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake. The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat forgiant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance bufferfrom the outer edge of potentially occupied aquatic habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent uplandhabitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for directmortality is reduced because snakes are expected to move and avoid danger.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat mustremain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.
- A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.
- If a live giant garter snake is encountered during construction activities, immediately notify theproject's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to

ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.

- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.

Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable to take because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction- related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, *Covered Species Accounts*) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when resloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW.

AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite. The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initialtemporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks.

For covered activities that involve pruning or removal of a potential Swainson's hawk or white- tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistentwith the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

AMM17, Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo. The project proponent will retain a qualified biologist to conduct planning-level surveys and assess whether habitat for western yellow-billed cuckoo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of western yellow-billed cuckoo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding (or nesting)season records for the species within one-quarter mile of the covered activity within the previous three years, a qualified biologist will conduct planning-level surveys for active nests, consistent withUSFWS protocol (Appendix N), during the period from June 1 to August 30. Operations and maintenance activities that do not occur during the breeding season (June 1 to August 30) and do not remove western yellow-billed cuckoo habitat are not required to conduct surveys or record searches; no further avoidance or minimization is necessary for such activities.

If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat,unless the Conservancy, USFWS, and CDFW approve a shorter distance.

If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not a qualified biologist detected the species during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction

surveys that are consistent with USFWS protocol (Appendix N) during the same season when the activity will occur. If the biologist finds active territories (i.e., presence of a singing male), the project proponentwill avoid activity within 500 feet of suitable habitat that is contiguous with the territory from June 1 to August 30. Adjacent parcels under different land ownership will be surveyed only if accessis granted or if the parcels are visible from authorized areas.

AMM19, Minimize Take and Adverse Effects on Least Bell's Vireo. The project proponent will retain a qualified biologist to conduct planning-level surveys and determine if habitat for least Bell's vireo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of least Bell's vireo habitat. If the activity will encroach within 500 feet of habitat andthere are no breeding season records for the species within one-quarter mile of the covered activity within the previous three years, the qualified biologist will conduct planning-level surveys for activeterritories, consistent with USFWS (2001) guidelines, during the breeding season (April 1 to July 15). Operations and maintenance activities that do not occur during the breeding season and do not affect least Bell's vireo habitat are not required to conduct surveys or record searches, and no further avoidance or minimization is necessary for such activities.

- If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitablehabitat, unless the Conservancy, USFWS, and CDFW approve a shorter distance.
- If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not the species was detected during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys, consistent with USFWS (2001) guidelines, during the same season when the activity will occur. If active territories are found, the project proponent will avoid activity within 500 feet of the habitat from April 1 to July 15. This buffer may be reduced with approval from the Conservancy, USFWS,and CDFW.
- The project proponent will avoid disturbance of previous least Bell's vireo territories (up to three years since known nest activity) during the breeding season, unless the disturbance is tomaintain public safety. Least Bell's vireo uses previous territories; disturbance during the breeding season may preclude birds from using existing unoccupied territories.
- The required buffer may be reduced in areas where barriers or topographic relief features are adequate for protecting the nest from excessive noise or other disturbance. Conservancy staff members will coordinate with the wildlife agencies and evaluate exceptions to the minimum nondisturbance buffer distance on a case-by-case basis. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorizedareas.
- If occupied territories are identified, a qualified biologist will monitor construction activities inthe vicinity of all active territories to ensure that covered activities do not affect nest success.

AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow. The project proponent will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat (as defined in Appendix A, *Covered Species Accounts*) within 500 feet of the project footprint. If a 500- foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy and CDFW to determine if bank swallow nesting colonies have been

active on the site within the previous five years. If there are no records of nesting bank swallows onthe site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

For operations and maintenance activities or other temporary activities that do not remove nestinghabitat and occur outside the nesting season (September 1 to February 28), it is not necessary to conduct a record search, planning and preconstruction surveys, or any additional avoidance measures. If activities will occur during the nesting season, surveys will be necessary as for other covered activities, but the 500-foot survey distance and buffer distance may be reduced upon Conservancy and wildlife agency approval based on site-specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony.

If an active bank swallow colony is present or has been present within the last 5 years within the planning-level survey area, the Conservancy, USFWS and CDFW will be notified in writing within 15working days, and the project proponent will design the project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

The reserve system management plan including bank swallow habitat will provide examples of additional measures that may apply to activities on reserve system lands to avoid and minimizeeffects on bank swallow.

AMM21, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird. The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Appendix A, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.

If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

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Appendix B. Initial Study with Mitigated Negative Declaration

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Initial Study with Mitigated Negative Declaration for the Knights Landing Flood Management Project

September 2024

Prepared By:
HDR Engineering, Inc.

Prepared For:
Yolo County

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NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE KNIGHTS LANDING FLOOD MANAGEMENT PROJECT

Yolo County (County), as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), has prepared an Initial Study with Proposed Mitigated Negative Declaration (IS/MND) for the Knights Landing Flood Management Project (Proposed Project). The California Department of Water Resources, California Governor's Office of Emergency Services, Central Valley Flood Protection Board, and Knights Landing Ridge Drainage District are Responsible Agencies under CEQA.

The County proposes to reduce flood risks associated with flooding from the Sacramento River and the Knights Landing Ridge Cut in and around the community of Knights Landing in Yolo County, California. The proposed flood improvements would strengthen approximately 3.78 miles of the surrounding levees of the Knights Landing Basin and build resiliency into the Knights Landing Basin levees. The objectives of the Proposed Project, as stated in the Small Communities Flood Risk Reduction Program, are to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability. The Proposed Project aligns with the State's Systemwide Investment Approach described in the State's Central Valley Flood Protection Plan and would improve levee resiliency to enhance the function of the region's flood system.

The Draft IS/MND found that implementation of the Proposed Project may result in potentially significant environmental impacts to: biological resources; cultural resources; geology and soils; noise; and, tribal cultural resources. However, with the implementation of avoidance, minimization, and mitigation measures, any potentially significant environmental impacts of the Proposed Project would be reduced to less than significant levels as described in the Draft IS/MND.

The Draft IS/MND is being circulated for public review and comment for a 30-day period starting on May 6, 2024, through June 5, 2024. Comments on the Draft IS/MND must be received in writing via e-mail or U.S. mail to the contact listed below by 5:00 p.m. on June 5, 2024. For e-mailed comments, please include the project title in the subject line and include the commenter's name and U.S. Postal Service mailing address.

Elisa Sabatini
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During the 30-day public review period the Draft IS/MND will be available for review on the CEQAnet web portal at: https://ceqanet.opr.ca.gov/ and on the Yolo County Natural Resources Division's webpage at: www.yolonaturalresources.org.

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Acronyms

AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AG	agriculture
ALUCP	*Sacramento International Airport Land Use Compatibility Plan*
AMMs	avoidance and minimization measures
ARB	California Air Resources Board
BART	San Francisco Bay Area Rapid Transit District
BERD	Build Environment Resources Directory
BMP	Best Management Practices
B.P.	Before present
BSA	biological study area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
Cal	Calibrated
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Governor's Office of Emergency Services
CalEEMod	California Emissions Estimator Model
CALNAGPRA	California Native American Graves Protection and Repatriation Act
Caltrans	California Department of Transportation
CAP	*Yolo County Climate Action Plan*
CBC	California Building Code
CC	Community Character
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGC	California Government Code
CGP	Construction General Permit

CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CHSC	California Health and Safety Code
CIWMP	*County Integrated Waste Management Plan*
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CPUC	California Public Utility Commissions
CR	County road
CRHR	California Register of Historical Resources
CSA	County Service Area
CSD	Community Service District
CVPPB	Central Valley Flood Protection Board
CVPPP	Central Valley Flood Protection Plan
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWB	Certified Wildlife Biologist
dB	decibels
dBA	A-weighted decibel
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EA/IS	Environmental Assessment/Initial Study
EFH	essential fish habitat
EIR/EIS	Environmental Impact Statement/Environmental Impact Report
EO	Executive Order
EOP	*Yolo County Emergency Operations Plan*
ESA	Endangered Species Act
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FGC	Fish and Game Code
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program

FPD	Fire Protection District
FTA	Federal Transit Administration
GEI	GEI Consulting, Inc.
GHG	Greenhouse gases
GIS	geographic information system
HCP	Habitat Conservation Plan
HDR	HDR Engineering, Inc.
HMP	2018 *Yolo County Operational Area Multi-Jurisdictional Hazard Mitigation Plan*
Hot Spots Act	Air Toxics “Hot Spots” Information and Assessment Act of 1987
in/sec	inch per second
IPaC	Information for Planning and Consultation System
IPCC	Intergovernmental Panel on Climate Change
IRWMP	*Integrated Regional Water Management Plan*
IS/MND	Initial Study with Mitigated Negative Declaration
ITAs	Indian Trust Assets
KLRC	Knights Landing Ridge Cut
KLRDD	Knights Landing Ridge Drainage District
kV	kilovolt
L_{dn}	Day-Night Average Sound Level
L_{eq}	Community Noise Equivalent Level
LM	Levee mile
L_{max}	Maximum Sound Level
LRA	Local Responsibility Area
LU	Land Use
LUST	Leaking Underground Storage Tank
L_V	Vibration Velocity Level
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MM	Mitigation measure
mpg	miles per gallon
MPOs	metropolitan planning organizations
MTP/SCS	*2020 Metropolitan Transportation Plan/Sustainable Communities Strategy*
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act

NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic and Safety Administration
Nisenan	Miwok and Maidu
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
NO_X	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWIC	Northwest Information Center
O_3	ozone
OES	Office of Emergency Services
O&M	Operations and maintenance
OHP	Office of Historic Preservation
OHWM	ordinary high water mark
Pb	lead
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas & Electric
PM	Particulate matter
ppb	parts per billion
PPV	Peak Particle Velocity
PRC	Public Resources Code
PWS	Professional Wetland Scientist
RACT	Reasonably Available Control Technology
RMS	Root Mean Square
ROG	Reactive organic gases
ROW	rights-of-way
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments

SAFE	Safer Affordable Fuel Efficient
SB	Senate Bill
SCFRRP	Small Communities Flood Risk Reduction Program
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SR	State Route
SRA	State Responsibility Area
SRFCP	Sacramento River Flood Control Project
SVAB	Sacramento Valley Air Basin
SWMP	Yolo County Stormwater Management Program
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
Tanner Act	Toxic Air Contaminant Identification and Control Act
TCL	Traditional cultural landscapes
TCP	Traditional Cultural Property
TCR	tribal cultural resource
THPO	Tribal Historic Preservation Officer
THRIS	Tribal Historic Information System
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
UAIC	United Auburn Indian Community
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCE	Valley Clean Energy
VdB	vibration velocity
VELB	valley elderberry longhorn beetle

VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compounds
Williamson Act	California Land Conservation Act of 1965
WRA	Water Resources Association of Yolo County
WYBC	western yellow-billed cuckoo
YCTD	Yolo County Transportation District
YSAQMD	Yolo Solano Air Quality Management District
YSGA	Yolo Subbasin Groundwater Agency

1 Introduction

Yolo County is proposing the Knights Landing Flood Management Project to reduce flood risks associated with flooding from the Sacramento River and the Knights Landing Ridge Cut in and around the community of Knights Landing. The proposed flood improvements would strengthen approximately 3.78 miles of the surrounding levees of the Knights Landing Basin and build resiliency into the Knights Landing Basin levees. The Proposed Project intends to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability (Proposed Project).

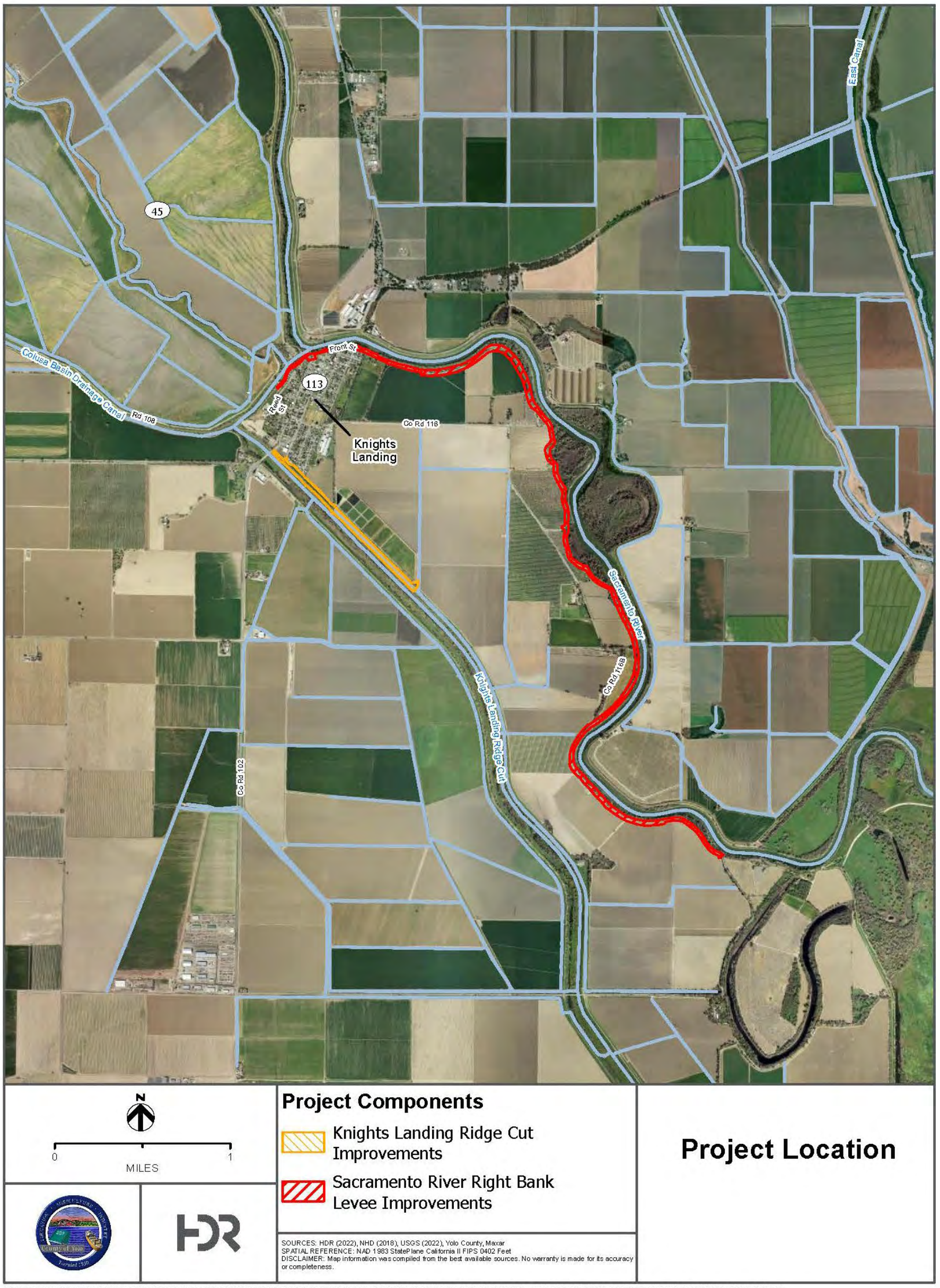
The Proposed Project is part of the State of California, Department of Water Resources (DWR) Small Communities Flood Risk Reduction Program (SCFRRP). Yolo County is the lead agency under the California Environmental Quality Act (CEQA) and is leading preparation of this Draft Initial Study with Mitigated Negative Declaration (IS/MND). The Knights Landing Ridge Drainage District (KLRDD), DWR, Central Valley Flood Protection Board (CVFPB), and the California Governor's Office of Emergency Services (Cal OES), are responsible agencies under CEQA.

The Proposed Project aligns with the State's Systemwide Investment Approach described in the State's *Central Valley Flood Protection Plan* (CVFPP) and would improve levee resiliency to enhance the function of the region's flood system. The CVFPP strongly supports and encourages the planning and implementation of projects that provide multiple benefits, including increasing flood system resilience by protecting and restoring important ecosystems, and improving water supply, water quality, recreation, and public education related to integrated water management. According to the CVFPP, a multi-benefit approach more efficiently and effectively leverages flood infrastructure to achieve a broader array of public benefits and may potentially increase access to more funding sources (DWR 2022a). Once completed, the Knights Landing Flood Management Project would reduce the frequency and severity of flooding from the Sacramento River and the Knights Landing Ridge Cut and decrease the resulting flood damages in the Knights Landing Basin. Figure 1.1-1 shows the Project Location.

1.1 Project Background

The Knights Landing Basin is surrounded by levees originally built in the 1800s by local parties who did not build them to current engineering, hydrologic or geotechnical standards. These levees were incorporated into the Sacramento River Flood Control Project (SRFCP), authorized under the Flood Control Act of 1917, 1928, and 1941, and the Rivers and Harbors Act of 1937. The levees were constructed to United States Army Corps of Engineers (USACE) project standards by the late 1940s and turned over to the CVFPB in the late 1950s. These levees include the existing Sacramento River Right Bank Levee, the Knights Landing Ridge Cut Levee, the Sycamore Slough Levee (Colusa Basin Drain), and the Yolo Bypass Right Bank Levee. Repairs and improvements to the system have been constructed, as needed, since then.

Figure 1.1-1. Project Location.



In 2017, Yolo County received a grant from the DWR SCFRRP to complete a Feasibility Study to evaluate structural and non-structural actions that could reduce flood risk to Knights Landing. Subsequently, Yolo County prepared the 2019 Knights Landing SCFRRP Feasibility Study, which analyzed several alternatives and ultimately identified a recommended alternative, for levee improvements along the Knights Landing Basin.

1.1.1 Feasibility Study

In July 2019, Yolo County completed a feasibility study under the DWR SCFRRP Phase 1 for the community of Knights Landing. The objectives of the feasibility study were flood risk reduction, sustaining agriculture, and improving riverine habitat viability. The feasibility study looked at structural and non-structural actions that can reduce flood risks in Knights Landing. Prepared as part of the SCFRRP Phase I grant, the feasibility study documents the planning process, identifies and evaluates an array of alternatives for flood risk reduction, identifies multiple-benefit alternatives, and recommends a flood risk reduction plan for the Knights Landing Basin.

In addition to identifying the levee improvements needed surrounding the basin, hydrologic and hydraulic modeling revealed that if there is ever a levee overtop or breach from the Sacramento River right bank, water in the basin would flow from north to south towards the Yolo Bypass. However, due to the topography of the area, the Basin acts as a bathtub with water backing up from Yolo Bypass in the south to the community of Knights Landing in the north. To protect the community from these floodwaters, a new cross levee south of the community was examined. Several locations were identified for this new cross levee based on available historical levee performance, recommendations of previous studies, and stakeholder input. All alternatives with the new cross levee options in the Feasibility Study would also require adequate strengthen-in-place levee improvement measures on the Sacramento River right bank levee and the Knights Landing Ridge Cut levee to ensure adequate protection within the new, smaller basin created by the cross-levee. However, the new cross levee would only protect a portion of the Knights Landing Basin and community feedback recognized that the community thrives on adjacent agricultural operations in the basin. Therefore, alternatives in the Feasibility Study that include the new cross levee options also include levee improvements to reduce the highest identified areas of risk to the remaining levees outside of the new, smaller leveed basin to ensure economic vitality of the community (Yolo County 2019).

The approach used to identify potential habitat restoration concepts for the feasibility study initially focused on what could possibly be implemented without regard for existing land use or infrastructure constraints. As an example, the geographic scope was not limited to the Knights Landing Basin in recognition of the high value habitats that are located directly outside of the Basin such as along the Sacramento River. This approach allowed the project team to initially identify opportunities with high restoration potential. Ten preliminary habitat restoration concepts were identified through the use of aerial maps, high-resolution topography, and local knowledge related to land-use, infrastructure, target species, and habitats. Target species included, but were not limited to, salmonids (Chinook salmon and steelhead), numerous avian species (Swainson’s Hawk, Tri-colored Blackbird, Western Yellow-billed Cuckoo, etc.), and reptiles (e.g., Giant Garter Snake). The following are the ten preliminary habitat restoration concepts identified

during the initial development process: 1. Sutter Bypass Triangle Property Enhancement Concept; 2. Grays Bend Channel Connection Concept; 3. Grays Bend Riparian Enhancement Concept; 4. Grays Bend Levee Setback Concept; 5. Hog Farm Levee Setback Concept; 6. Sacramento River Left Bank Levee Setback Concept; 7. Sacramento River Right Bank Levee Setback Concept; 8. Portuguese Bend Enhancement Concept; 9. KLRC Enhancement Concept; and, 10.New Cross levee Adjacent Borrow Site Enhancement Concept.

Following the identification of the preliminary restoration concepts, the study included a qualitative evaluation of each concept. This evaluation process included assessing each concept's ability to provide ecological uplift, whether they include or support recreational activities, their cost to construct and operate, the estimated permitting complexity, their effects on agricultural sustainability, the overall feasibility of implementing the improvements, and their contribution to reducing flood risks. The review focused on identifying realistic and feasible restoration concepts that would merit more detailed review due to their potential ability to be planned and implemented in the near future in connection with the identified flood improvement alternatives. Categories were scored low, moderate, or high representing potential or relative values associated with each category.

Using this screening process, the preliminary habitat restoration concepts were narrowed to those that would have at least a moderate feasibility of implementation. Five of the ten concepts met this criterion. Of these five concepts, two were eliminated from more detailed review due to various factors including, low flood risk reduction benefit, high permitting efforts due to location, and low local acceptability. The three remaining concepts included the Grays Bend Riparian Enhancement Concept, the Portuguese Bend Enhancement Concept, and the KLRC Enhancement Concept. These concepts were identified as having the highest potential to be implementable in connection with the flood improvement alternatives.

To address identified deficiencies in the levee system around Knights Landing, 13 alternatives were formulated using a combination of Cross Levee and improvements to the existing levee system in the Knights Landing Basin. Based on the results of the screening process completed for the Feasibility Study the initial alternatives were first screened qualitatively based on the performance measures of flood risk reduction, agricultural sustainability, costs, stakeholder acceptability, and if applicable, ability to include any multi-benefit concepts. Alternatives that provided a high level of flood risk reduction were carried forward. Six alternatives were carried forward in the evaluation in the feasibility study: Alternative 1, Alternative 3, Alternative 6, Alternative 11, Alternative 12, and Alternative 13. After further evaluation, four additional alternatives were screened out due to low stakeholder acceptability and economically infeasibility. The remaining two alternatives (Alternatives 12 and 13) provide similar levels of flood protection to the community and the Knights Landing Basin. Based on the criteria established in the Feasibility Study, Alternative 12 ranked highest and was carried forward for further analysis and preliminary engineering. DWR approved the Feasibility Study for further implementation and funding and awarded additional grant funding to Yolo County in 2020 as part of the SCFRRP Phase 2 agreement.

1.1.2 Preliminary Engineering Phase

The SCFRRP Phase 2 agreement includes the following components: the design and permitting of levee improvements along the Sacramento River Right Bank, to include construction of the Mid-Valley Levee Reconstruction, Sites 9 and 10; the design and permitting of levee improvements along the Knights Landing Ridge Cut; completion of Phase 1 concepts for the Portuguese Bend and Grays Bend Habitat enhancement projects; the design, permitting, and construction of the drainage infrastructure improvements in the community of Knights Landing; and the design of a new cross levee.

After completion of the Feasibility Study, Yolo County and the project team reviewed Alternative 12 and components of the other Feasibility Study alternatives to determine the best way for the goals and objectives to achieve flood risk reduction in the Knights Landing Basin to be accomplished. Engineering techniques, potential environmental impacts, minimizing landowner conflicts, and economic feasibility were all considered during the preliminary engineering phase. Ultimately, Yolo County and the project team determined an alternate version of Alternative 12 from the Feasibility Study – Alternative 12A, including both the cross levee and Grays Bend should be carried forward for evaluation in the preliminary engineering phase.

During the preliminary engineering phase, the feasibility of the cross levee was evaluated by the project team. Through evaluation, it was determined that the cross levee, while effective, would result in substantial environmental impacts, including realignment of County Road 116 and several ditches and disruption to productive agricultural lands. Furthermore, the flood protection benefits from the new cross levee are not warranted at this time since levee improvements along the Sacramento River right bank levee downstream of the proposed new cross levee are feasible and being implemented. Therefore, the project team and County determined that limiting the proposed levee improvements to the Sacramento River right bank levee and the Knights Landing Ridge Cut Levee would achieve the key flood protection goals and objectives and result in less environmental impacts. The new cross levee would also result in substantial construction costs, which may be economically infeasible for the County to implement. The option of the new cross levee was presented at the public scoping meeting for the Proposed Project on August 3, 2022. Feedback received from the public and stakeholders during the scoping meeting was that the community of Knights Landing preferred improvements to the existing Sacramento River right bank levee and the Knights Landing Ridge Cut levee system over construction of the new cross levee because of the additional impacts to agriculture and County Road 116 in Knights Landing (see Appendix A *Scoping Meeting Report* for public scoping comments).

Therefore, while Alternative 12A - including the new cross levee and Grays Bend Habitat Enhancement Project would reduce flood risk, it would result in greater effects, was not favorable with the community, and provides flood protection benefits that are not warranted at this time to meet the project objectives and goals. As such, the new cross levee and Grays Bend improvements were not carried forward and are not analyzed further in this document.

The Portuguese Bend multi-benefit enhancement area would protect and restore habitat in line with the objectives identified in the CVFPP *2022 Conservation Strategy Update* (DWR 2022b).

The Portuguese Bend multi-benefit enhancement element is an approximately 24.41-acre area located between the levees of the Sacramento River known as Portuguese Bend. Situated southeast of Knights Landing and along the eastern perimeter of the Knights Landing Basin, the habitat improvements within Portuguese Bend would include controlling invasive plant species, planting native species, implementing an ongoing management and monitoring program, and enhancing connectivity of riverine habitat for fish species. The Portuguese Bend multi-benefit enhancement would increase ecosystem processes and habitats and contribute to species recovery by planting native species and implementing an ongoing management and monitoring program that would reduce stressors by controlling invasive plant species. By naturally enhancing flood zone ecosystem function, the Portuguese Bend multi-benefit enhancement would meet the objectives listed in the 2022 CVFPP Update and the overall objectives of the Proposed Project to enhance flood protection in the area. Although the Portuguese Bend multi-benefit enhancement area would provide additional benefits and functions for the basin, it would result in greater effects within the Sacramento River and work would cross into Sutter County as well. While conceptual plans have been developed for the Portuguese Bend area, a sponsor has not been identified to carry out this work. Therefore, the Portuguese Bend multi-benefit enhancement component is not analyzed further in this document and will be analyzed in a separate document in the future once a sponsor and lead agency under CEQA have been identified.

As a result, the Proposed Project carried forward and described in Chapter 2 and analyzed further in Chapter 3 is the result of these aforementioned feasibility analyses and preliminary engineering efforts and is focused on improvements along the Sacramento River Right Bank Levee Improvements and the Knights Landing Ridge Cut Improvements.

1.1.3 Other Related Previous Environmental Documentation and Projects

Other, related and previous studies and environmental documentation developed in support of the Proposed Project include the following:

- The Sacramento River Flood Control System Evaluation, Phase II-V, Programmatic Environmental Impact Statement/Environmental Impact Report (EIR/EIS), dated May 1992 (USACE 1992).
- The Sacramento River Flood Control System Evaluation, Phase III, Mid-Valley Area, Environmental Assessment/Initial Study, dated March 1996 (USACE 1996).
- The Environmental Assessment/Initial Study (EA/IS) for the Sacramento River Flood Control System Evaluation, Phase III, Mid-Valley, Contract Area 3, in Yolo County, California (USACE 2013) tiers off the programmatic EIR/EIS for the system evaluation completed by USACE in May 1992.
- Initial Study with Mitigated Negative Declaration, Knights Landing Flood Management Project, Sacramento River, Mid-Valley Levee Reconstruction Sites 9, 10, 11, and Widened Parking Area Near Wild Irishman Bend, Small Communities Flood Risk Reduction Program, dated February 2022 (SCH # 2021120063) (Yolo County 2022).

Although Mid-Valley Sites 9, 10, and 11 were covered by this separate IS/MND, the Proposed Project Area also includes these sites. Levee improvements at Sites 9 and 10 have been constructed. Levee improvements at Site 11 are anticipated to be carried out by Yolo County through coordination with Federal Emergency Management Agency (FEMA) under the Hazard Mitigation Grant Program.

- Initial Study with Mitigated Negative Declaration, Knights Landing Flood Management Project, Drainage Infrastructure Improvements, dated March 2022 (SCH # 2022030394).
- Supplemental Environmental Assessment for the Sacramento River Flood Control System Evaluation Phase III Mid-Valley Contract Area 3 Levee Reconstruction Sites 9 and 10 Project, dated September 2022, and the Supplemental Environmental Assessment for the Sacramento River Flood Control System Evaluation Phase III Mid-Valley Contract Area 3 Levee Reconstruction Site 11 Project, dated November 2022 (U.S. Army Corps of Engineers and Yolo County).

1.2 Purpose of this IS/MND

This Draft IS/MND has been prepared according to California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3) to evaluate the potential environmental impacts associated with implementing the Proposed Project (see Chapter 2, *Project Description*). CEQA requires public agencies to consider the potential adverse environmental impacts, both direct impacts and reasonably foreseeable indirect impacts, of projects under an agency's consideration. According to Section 15002 of the State CEQA Guidelines, the basic purposes of CEQA include the following:

- Inform government decision makers and the public about the potential significant environmental effects of proposed activities;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible; and,
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

CEQA establishes a process for analyzing a project's potential environmental impacts. CEQA's purposes are to ensure that public agencies make a good-faith effort at disclosing the potential environmental impacts of projects to decision makers, the public, and other agencies, and implement actions that will reduce or avoid potential significant impacts (i.e., mitigation measures).

An IS/MND presents the environmental analysis and substantial evidence supporting its conclusions regarding the significance of environmental impacts. Substantial evidence can include expert opinion based on facts, technical studies, or reasonable assumptions based on

facts. The purpose of an IS/MND is not to recommend either approval or denial of a project. CEQA requires decision makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project. The County will consider the Draft IS/MND, comments received on the Draft IS/MND, and responses to those comments, which combined constitute the Final IS/MND, before deciding on project approval.

As specified in Section 15064(a) of the state CEQA Guidelines, if there is substantial evidence (such as the results of an IS) that a project, either individually or cumulatively, could potentially have a significant effect on the environment that cannot effectively be mitigated to a less than significant level, the lead agency must prepare an Environmental Impact Report (EIR). The lead agency may instead prepare an IS if it determines that there is no substantial evidence that the project could cause a significant impact to the environment. The lead agency may prepare an MND if, in the course of the IS analysis, the agency recognizes that the project could have a significant impact to the environment but that implementing specific mitigation measures would reduce any such impacts to a less than significant level (state CEQA Guidelines, Section 15064[f]).

1.3 Scoping and Public Involvement Process

Public involvement is an integral part of the CEQA environmental review process. CEQA requires the disclosure of information about proposed projects to the public and agency decision-makers and seeks to foster public participation and informed decision making.

A Notice of Preparation (NOP) was prepared for the Proposed Project and published for a 30-day public review and comment period beginning on July 22, 2022, and ending on August 22, 2022 (Appendix A Scoping Meeting Report). Notification was sent to agencies and interested parties, as well as directly mailed to property owners within Knights Landing.

Yolo County held a public scoping meeting for the Proposed Project on August 3, 2022, at the Knights Landing Community Center to present information about the Proposed Project and Yolo County's decision-making process, and to listen to the views of the public on the range of issues relevant to the scope and content of the future CEQA document. At the scoping meeting, 19 community members attended, and seven written comments were received. Comments included concerns about traffic circulation, suggestions for revegetation of construction areas, and input on Project elements and alternatives.

In addition to the seven written comments received at the scoping meeting, four scoping comments were received via email from the California Department of Fish and Wildlife and the Central Valley Regional Water Quality Control Board regarding the scope of the CEQA analysis, and the Native American Heritage Commission and Yocha Dehe Wintun Nation requesting continued consultation throughout the CEQA process.

Additional project design changes have transpired since the public scoping meeting and period in July/August 2022. As a result, of public and stakeholder input as well as additional geotechnical investigations, the proposed project design adjacent to the community of Knights Landing was revised and the footprint was reduced, thus avoiding potential environmental

impacts. Therefore, based on these revisions, Yolo County determined that an IS/MND could be prepared for the Proposed Project now rather than an EIR.

The Draft IS/MND will have a 30-day public review period for individuals, interested parties, and agencies to review and comment on the Draft IS/MND. During the 30-day public review period, written comments will be received by the County electronically via email to naturalresources@yolocounty.org, or postal mail to Elisa Sabatini, Yolo County Natural Resources Manager, 292 West Beamer Street, Woodland, CA 95695. Following the public review and comment period, Yolo County will consider all comments received and will develop responses to comments before finalizing and approving the IS/MND.

1.4 Coordination and Consultation

The Proposed Project has been planned in coordination and cooperation with other local, state, and federal agencies and organization. Applicable federal, state, regional, and local laws and regulations are included in the regulatory settings for each resource topic in Chapter 3., Each resource section in Chapter 3 also includes a discussion of applicable consultation to date with various agencies.

Pursuant to PRC § 21080.3.1 and in compliance with AB 52, consultation efforts with California Native American tribal contacts have been incorporated into the cultural resource and tribal cultural resource investigations conducted for the Proposed Project. The Native American Heritage Commission and California Native American Tribes were initially contacted in Summer 2021 in support of the SCFRRP and consultation under AB 52 with the Yocha Dehe Wintun Nation, for the entire program has been ongoing since August 2021. Yolo County and the project team have been meeting monthly with the Yocha Dehe Wintun Nation and coordinating closely through AB 52 process. Yolo County has also had several meetings with community members and landowners to provide status reports on the Knights Landing Flood Management Project progress.

1.5 Responsible Agencies' Use of this IS/MND

This IS/MND is intended to be used as the CEQA document for all approvals that may be required for the Proposed Project, including by the responsible agencies listed below:

- DWR
- CVFPB
- Knights Landing Ridge Drainage District
- California Governor's Office of Emergency Services

Chapter 2, Section 2.3.4, Permits and Approvals, identifies the specific local, state, and federal approvals and permits that would be required for the Proposed Project. FEMA may consider this IS/MND in development of their National Environmental Policy Act (NEPA) documentation.

1.6 Document Overview

The format of this IS/MND is outlined below to assist the reader's review of the document.

- Chapter 1 includes the introduction to the IS/MND and Project background.
- Chapter 2 contains the description of the Proposed Project.
- Chapter 3 consists of sections containing the environmental analysis for each environmental topic (e.g., hydrology, water quality, biological resources, land use). Each section is organized according to the following framework.
    - Existing Conditions: Environmental Setting and Regulatory Setting
    - Environmental Impacts: Methods of Analysis, Thresholds of Significance, and Impacts and Mitigation Measures
- Chapter 4 lists the IS/MND preparers.
- Chapter 5 lists the references used during preparation of the IS/MND.

2 Project Description

2.1 Project Location

The Proposed Project is located in and around the community of Knights Landing in eastern Yolo County, CA. The Proposed Project area is generally bound by the Sacramento River on the north and east, Sycamore Slough on the north, the Knights Landing Ridge Cut on the west, and the intersection of County Road 116B and the Sacramento River levee in the southern portion of the Knights Landing Basin. The Proposed Project area includes the existing levees of the Sacramento River and Knights Landing Ridge Cut as well as some adjacent rural, agricultural areas. The Proposed Project area footprints, staging areas, and access routes are shown in Figure 2.1-1 through Figure 2.1-5 below.

The Proposed Project consists of two elements: the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements. The Sacramento River Right Bank Levee improvements start in the community of Knights Landing at levee mile 0.0, just before the Knights Landing Outfall structure, and continue downstream along the Sacramento River Right Bank Levee for approximately 4 miles to levee mile 4.3. Mid-Valley Site 11 picks up at approximately levee mile 4.3. Although Mid-Valley Sites 9, 10, and 11 were covered by a separate IS/MND and Supplemental Environmental Assessments, the Proposed Project area also includes these sites and has been updated to include all of Site 11 for consistency purposes with Yolo County's efforts with FEMA.

The Knights Landing Ridge Cut Levee improvements are located along the Knights Landing Ridge Cut levee beginning on the south side of Knights Landing and continuing downstream for approximately 2 miles.

The Proposed Project areas can be accessed via State Route (SR) 113 from the west/north, County Road 102 from the south, and SR 45 from the north. From Knights Landing, eastern portions of the Proposed Project can be accessed by going east on County Road 116 to 116B or by going east on County Road 16 to County Road 116B. County Roads 102 and 16 are not shown in the figures below due to scale.

Figure 2.1-1. Northwestern Extent of the Proposed Project Location.

Figure 2.1-2. Southwestern Extent of the Proposed Project Location.

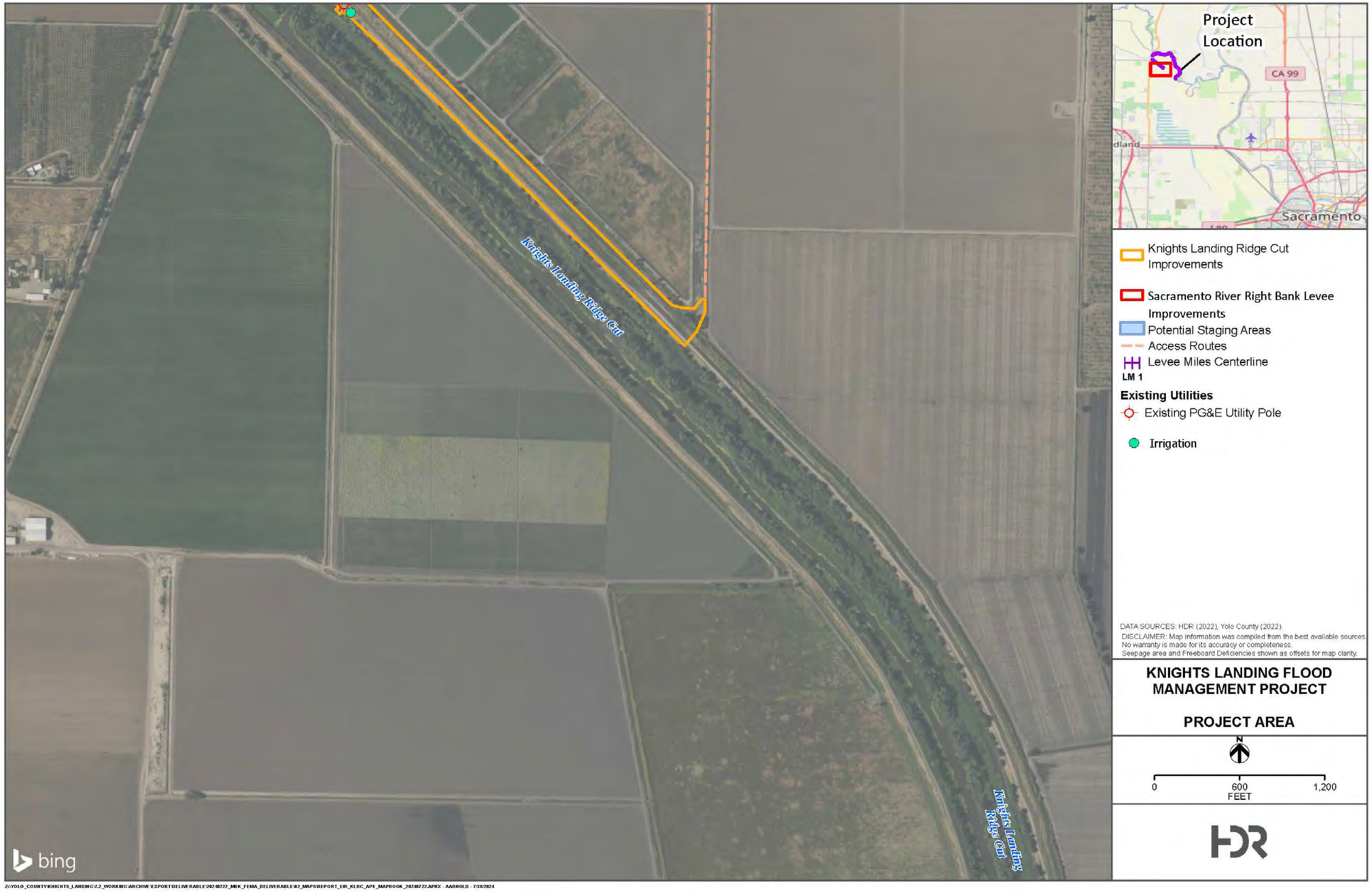


Figure 2.1-3. Northeastern Extent of the Proposed Project Location.

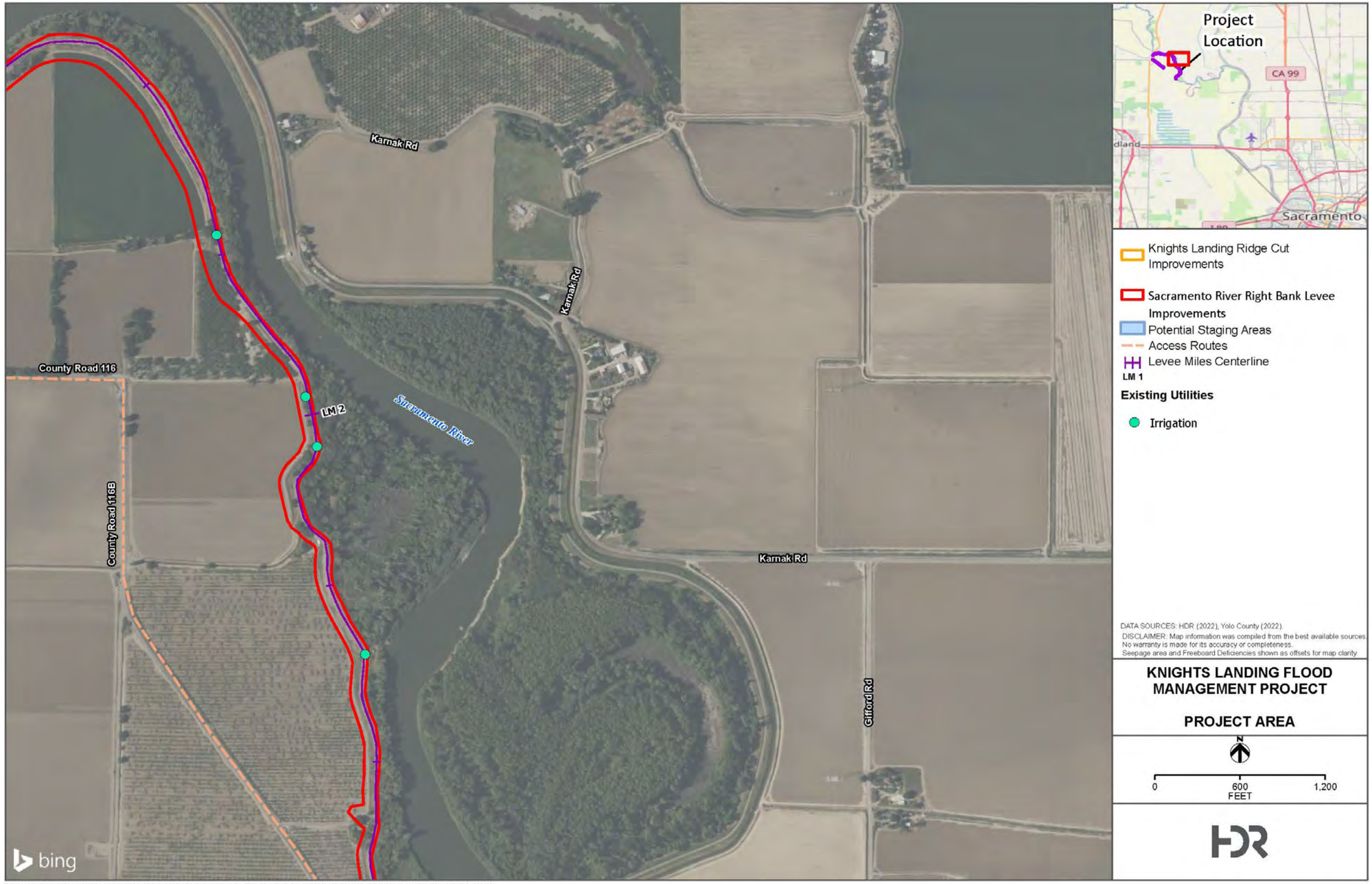
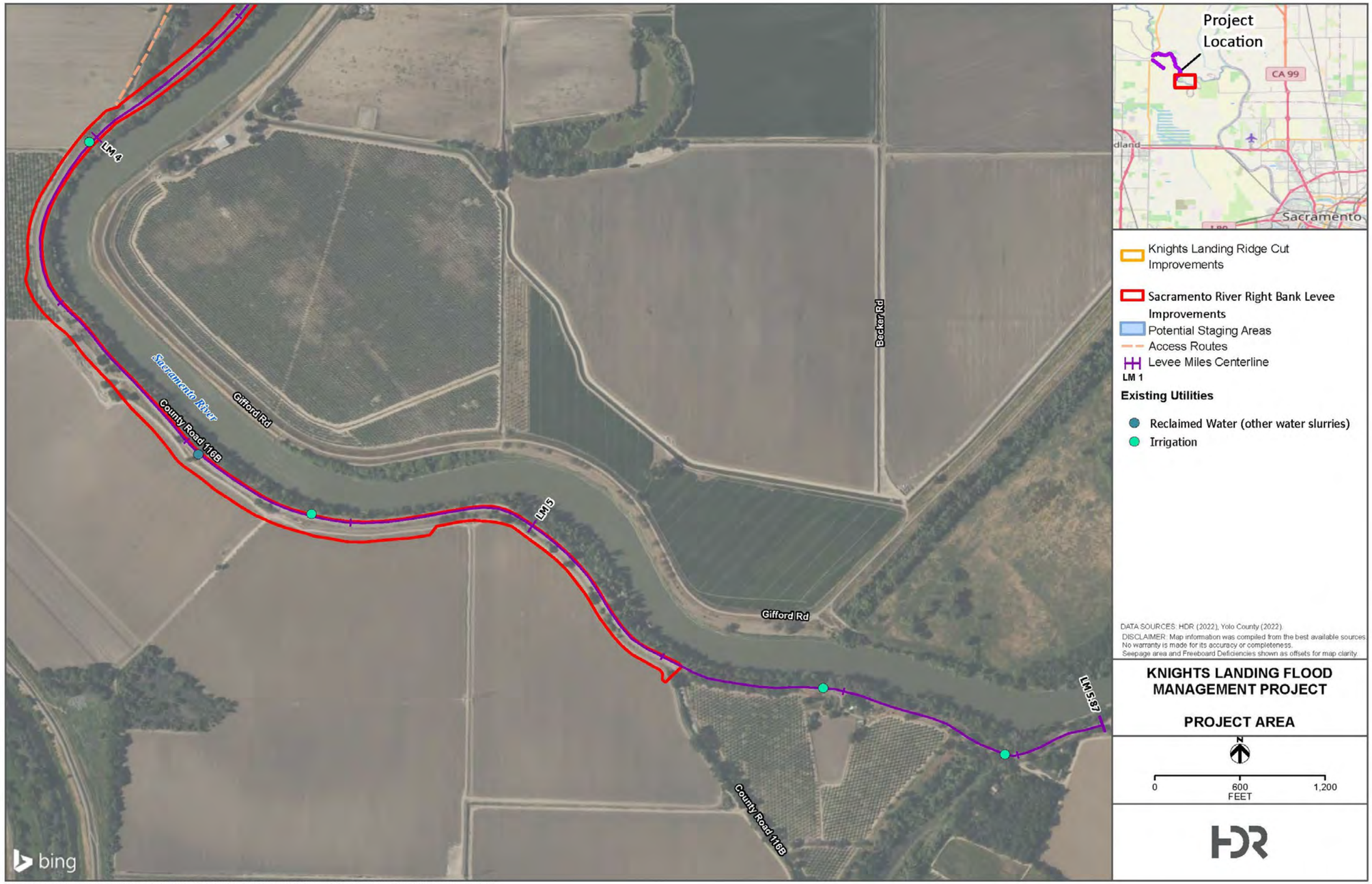


Figure 2.1-4. Southeastern Extent of the Proposed Project Location.

Figure 2.1-5. Southern Extent of the Proposed Project Location.



2.2 Project Objectives

The objectives of the Proposed Project as stated in the SCFRRP are to attain a 100-year level of flood protection for the community of Knights Landing and to reduce the flood risk to the Knights Landing Basin while sustaining the agricultural economy, providing safe access to the river, and improving the riverine habitat viability. The Proposed Project aligns with the State's Systemwide Investment Approach described in the State's CVFPP and would improve levee resiliency to enhance the function of the region's flood system.

2.3 Proposed Project

This section describes the two elements of the Proposed Project: the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements. Additional geotechnical data is being obtained to further refine project design prior to construction.

2.3.1 Construction Details

SACRAMENTO RIVER RIGHT BANK LEVEE

The proposed improvements along the Sacramento River Right Bank Levee include addressing under-seepage and through-seepage by constructing cutoff walls, drained stability berms, or combination stability-seepage berms, addressing slope stability by widening the levee crown and stabilizing/flattening the landside slopes and addressing freeboard deficiencies by widening and raising the levee. The proposed typical cross sections for the Sacramento River Right Bank Levee cutoff walls and berms are shown in Figure 2.3-1 and Figure 2.3-2 below.

Figure 2.3-1. Proposed typical design cross section for cutoff wall

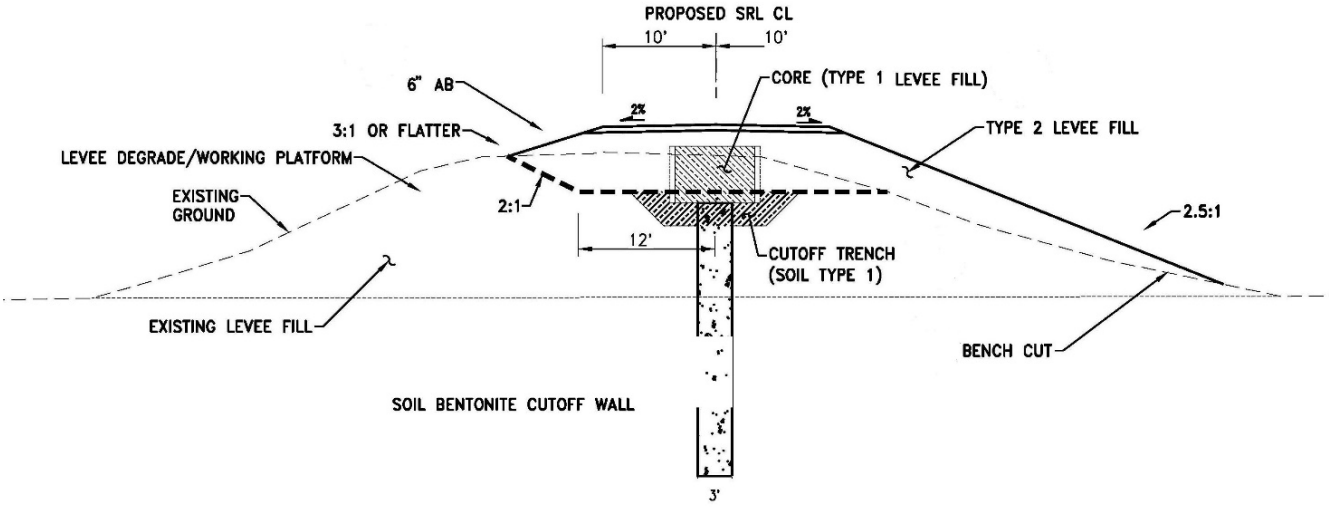
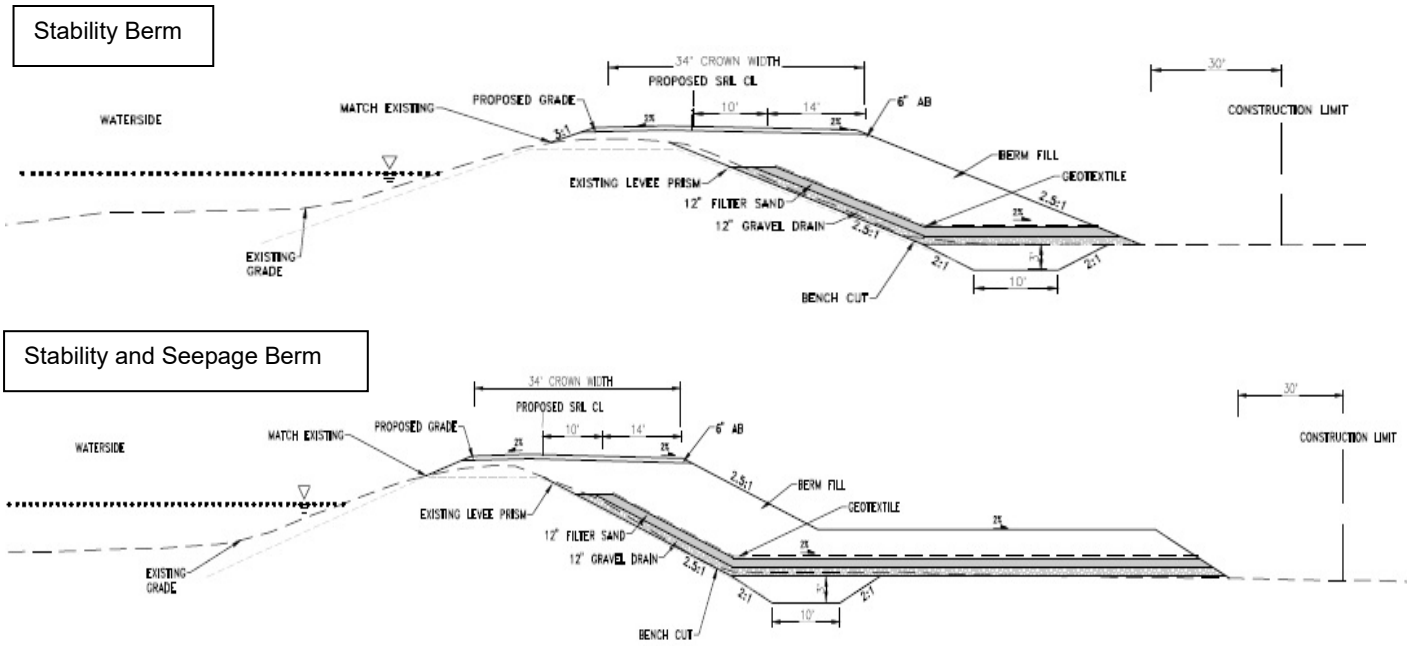


Figure 2.3-2. Proposed typical design cross section for a drained stability and seepage berm.



As a result of geotechnical explorations and analyses, a through seepage concern was identified from approximately Levee Mile (LM) 0.21 to LM 0.34. No seepage or levee stability issues were identified from LM 0.0 to LM 0.21 and LM 0.34 to LM 0.9. However, from LM 0.0 to LM 0.9, freeboard requirements are generally not met and the existing levee would be modified from LM 0.0 to 0.9 to meet the freeboard requirements for the 100-year water surface elevation.

To address seepage between LM 0.21 and LM 0.34 an up to 65-foot deep seepage cutoff wall will be installed from approximately LM 0.26 to LM 0.34. The levee extents from LM 0.21 to LM 0.26 have an existing wide levee prism which should sufficiently address the through seepage concern. If the design process identifies the need to extend remediation into this area, a berm type fill is expected to be considered to limit disturbance in the area. Construction methods would be similar to methods downstream of LM 0.9 described below. Vegetation removal would be required prior to construction. Large earthmoving construction equipment would be used to construct the proposed levee improvements. The Proposed Project areas would be accessed by a ramp leading up onto the existing levee. Staging would occur along the levee as construction progresses, at designated staging areas shown in Figure 2.1-1 through Figure 2.1-5. Borrow sources would be determined by the contractor but would be located within a 30-mile radius from the Proposed Project area. A flood easement would be extended to support the increased area required for the flood improvement and may be within a portion of the existing Boat Yard RV Park located at 42100 4th Street, requiring the relocation of several unpermitted trailers at the Boat Yard RV Park outside the levee footprint. Utility lines encountered in this area would be left in place and extended beyond the limits of the proposed seepage-stability berm, and then the berm would be constructed over the utilities to allow for continued use.

Prior to any ground disturbing activities, a *Storm Water Pollution Prevention Plan* would be implemented and suitable Best Management Practices (BMP) would be installed around work areas to address erosion and sedimentation during construction activities. To construct the

cutoff wall, the existing levee would need to be degraded by up to half its height, or an average of 7.5 feet, a cutoff wall trench would be excavated, and a bentonite slurry wall would be mixed in the staging areas or on the working platform and pumped in place in the cutoff wall trench through an above ground pipe or pushed into the cutoff wall trench with a dozer. Secondary containment berms would be constructed in addition to visual monitoring to prevent accidental spill or release of the material. After the cutoff wall slurry settles for a suitable period, the levee would be reconstructed addressing any freeboard deficiencies in the process. Prior to degrading the levee, the surface vegetation and topsoil would be removed. Water side work may be required for the construction of the cutoff wall; however, no in-water work is anticipated.

The Project Area includes existing subsurface utility lines that encroach or cross through the levee. Pending final design and the need for seepage improvements, these utilities may need to be modified to allow for the cutoff wall construction. All utility modifications would be coordinated in advance of construction with the appropriate utility providers within the Proposed Project area. Subsurface utility modifications would be conducted to avoid and minimize service interruptions. Between LM 0.0 and LM 4.3, approximately 13 underground utility penetrations exist in the levee that may need minor alteration to extend the penetration on the landward side, outside of the project footprint. The utility penetrations are primarily irrigation pipes. Known pipe diameters range from 1 to 48 inches in diameter and are owned by both privately and publicly. Some pipes have been abandoned and would be removed under a separate CSA-6 effort. CSA-6 and the KLRDD are aware of and continually survey these utility penetrations. There is one known utility pipe identified in the levee footprint adjacent to the community that may need to be modified prior to construction of the proposed levee improvements. If there are any subsurface utilities within the proposed cutoff wall extents, they may need to be modified by removing the segment at the cutoff wall construction by excavating the existing pipe then the cutoff wall would be constructed, and the utility pipe would be modified to extend up and over the cutoff wall in the top part of the levee. The top of the levee would then be finished over the pipe. Utility lines encountered in the footprint of the proposed berm may be left in place and extended beyond the limits of the proposed seepage-stability berm, and then the berm would be constructed over the utilities to allow for continued use. Additionally, approximately 10 overhead power line poles may need to be relocated outside of the levee footprint. Relocations would be coordinated with PG&E. See Figure 2.1-1 through Figure 2.1-5 for locations of utilities to be modified.

Additional improvement actions to address seepage, stability and freeboard deficiencies along the Sacramento River Right Bank Levee are planned and where applicable, the basis of design for improvement actions would be based on the 100-year water surface elevation plus 3 feet. Since the composition of the levee is mostly sandy material, a drain may need to be installed on the landside slope to meet current criteria for reducing seepage, stability, and/or freeboard concerns in levees constructed of sandy material between levee mile 0.9 to 4.3.

Between levee mile 0.9 and 4.3, either a drained seepage berm, stability berm, or a cutoff wall would be constructed to address under and through seepage along the landside of the levee. Freeboard improvements will also be constructed where needed. The drain height would be approximately two-thirds of the existing levee height. The drained seepage stability berm would be 5 feet thick at the levee toe and 3 feet thick at the berm toe and would be constructed to

address through and under seepage and landside stability. Cutoff wall construction would be similar to methods described above.

Vegetation removal would be required prior to construction. The levee would be reconstructed to meet current levee standards and attain a 100-year design water surface elevation. All berms would include a 2-foot-thick drainage layer and 3-foot-thick layer of berm fill. The construction areas would extend approximately 20 feet from the proposed levee toe or proposed berm toe. The Proposed Project area would include an access corridor on the landside toe of the existing levee. Any utilities or pipes located in the levee would be extended beyond the limits of the proposed berm, and the berm would be constructed over the utilities to allow for continued use.

Large earthmoving construction equipment would be used to construct the proposed levee improvements. Construction equipment for the proposed cutoff wall and the berms are listed in Table 2.3-1 and Table 2.3-3 below. The Proposed Project areas would be accessed by a ramp leading up onto the existing levee. Access to the Proposed Project areas would be from the levee or working farm roads, County Road 116B, SR 113, SR 45, Front Street, Reed Street, 9th Street, 6th Street, 3rd Street, 2nd Street, and Railroad Street. Existing ramps up to the levee would be used where feasible. All access routes are intended to have two-way traffic, and no road closures would be required for the proposed construction.

The proposed haul routes are currently used as local roads and agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles; however, after construction, roads would be returned to their existing condition. A traffic control plan establishing traffic circulation routes would be approved by Yolo County prior to construction. All construction staging and material stockpiling would occur along the levee as construction progresses down the levee and would take place within the Proposed Project areas. Staging areas would be located away from sensitive resource areas and known cultural resource sites. Additional potential staging areas that may be used for staging and stockpiling are shown in Figure 2.1-1 through Figure 2.1-5.

Approximately 7 acres would be needed in total for stockpiling for the proposed cutoff wall and berms. A construction trailer would be located at one of the staging areas. Estimated quantities of construction materials for construction of the cutoff wall and the berms are included below in Table 2.3-2 and Table 2.3-4. Borrow sources would be determined by the contractor but would be located within a 30-mile radius from the Proposed Project area. The proposed seepage-stability berm and extension of the flood easement between SR 45 and LM 0.3 would require the relocation of several unpermitted trailers at the Boat Yard RV Park outside the levee footprint and flood easement. . For the rest of the proposed improvements along the Sacramento River Right Bank Levee there would be no residents displaced and no buildings or structures would be removed. Hydroseed would be applied after levee construction to revegetate and stabilize the disturbed areas.

All proposed construction would be performed by Yolo County and its contractors. Construction would occur over two, 7-month construction seasons using a maximum of 30 people per crew. Construction would occur between 7 AM and 5 PM, Monday through Saturday. Water side construction would be required for the installation of the cutoff wall and would include erosion and sediment controls along the shoreline. No in-water work below the ordinary high water line

would be required for the cutoff wall along the Sacramento River Right Bank Levee. Future geotechnical explorations may be required to refine the proposed design on the Sacramento River Right Bank Levee and would be conducted within the Proposed Project area.

Table 2.3-1. Construction Equipment for Construction of the Cutoff Wall.

Equipment	Quantity
Motor Grader	2
D6 Dozer	4
Excavator	6 (including 2 long reach excavators)
Water Truck	4
Pickup Truck	15
Sheepsfoot Roller/Compactor	2
Maintenance Truck	1
Highway Haul Truck	35 (23 days of use)
Hydroseeding Truck	1 (3 days of use)
Pump	4
Generator	2
Side by Side Utility Task Vehicle	3
Scraper	4
Tractor	2
Skyhook Man Lift	2
Forklift	2

Table 2.3-2. Construction Materials for Construction of the Cutoff Wall.

Material	Quantity
Cutoff Wall	320,800 square feet
Clay Cap	5,347 cubic yards
Backfill	43,070 cubic yards
Topsoil	5,198 cubic yards
Hydroseed	12 acres
Clearing and Grubbing	12 acres

Table 2.3-3. Construction Equipment for Construction of the Berms.

Equipment	Quantity
Motor Grader	2
Dozer	8
Excavator	5
Water Truck	4
Pickup Truck	15
Sheepsfoot Roller/Compactor	4
Maintenance Truck	2
Highway Haul Truck	40 (115 days of use)
Hydroseeding Truck	1 (2 days of use)
Pump	2
Side by Side Utility Task Vehicle	4

Table 2.3-4. Construction Materials for Construction of the Berms.

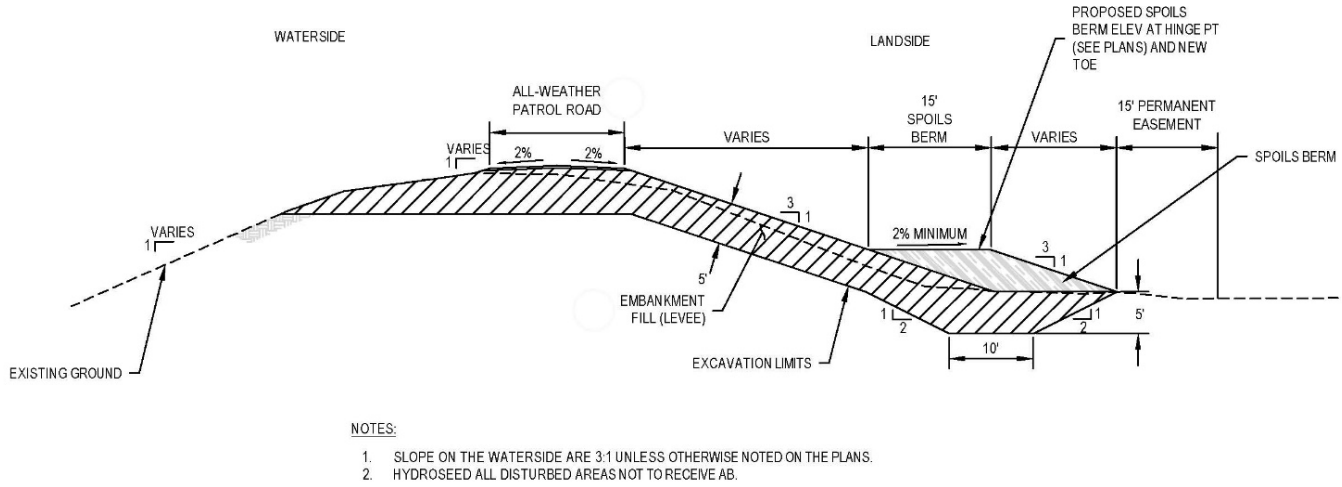
Material	Quantity
Imported Berm Fill	224,504 cubic yards
Drainage Layer	29,140 cubic yards
Topsoil	12,544 cubic yards
Hydroseed	11.9 acres
Clearing and Grubbing	12.74 acres

KNIGHTS LANDING RIDGE CUT IMPROVEMENTS

The proposed Knights Landing Ridge Cut improvements include approximately 1.2 miles of improvements to the existing landside levee southwest of the community of Knights Landing (see Figure 2.1-1 and Figure 2.1-2). Specific improvements to address stability include clearing and grubbing of trees and vegetation, excavating the face of the existing landside levee slope, and reconstructing the levee with imported fill to widen the levee crown and create a consistent elevation along the levee.

The reconstructed stability berm would widen the existing levee as shown in the project footprint in Figure 2.1-1 and Figure 2.1-2 and the reconstructed levee crown would be designed to meet the 100-year water surface elevation with at least 3 feet of freeboard. The proposed improvements would also include remediation of existing levee encroachments, including but not limited to modifications to levee pipe penetrations, relocation of a Pacific Gas & Electric (PG&E) power poles, and replacement or removal of levee gates. The proposed typical cross section for the Knights Landing Ridge Cut improvements is shown in Figure 2.3-3 below.

Figure 2.3-3. Proposed typical design cross section for the Knights Landing Ridge Cut improvements.



Two pipes have been identified for modification. Modification of these pipe penetrations would be coordinated with utility owners and landowners. Utility lines encountered in the footprint of the proposed berm may be left in place and extended beyond the limits of the proposed stability berm, and then the berm would be constructed over the utilities to allow for continued use. See Figure 2.1-1 through Figure 2.1-5 for locations of utilities to be modified.

PG&E utility pole relocations would be designed and performed in coordination with PG&E. All relocations would be at least 15 feet from the toe of the levee within the Proposed Project area. The following activities have been identified for PG&E pole relocations. Utility pole relocations are also shown on Figure 2.1-1 through Figure 2.1-5.

- Relocation of a segment of a 12 kilovolt (kV) overhead power line (approximately 575-foot segment) spanning across the Knights Landing Ridge Cut.
- Relocation of a PG&E power pole for the 12 kV.
- Installation of a replacement power pole.
- Implementation of environmental commitments associated with hazardous materials and land use.

All work would be prepared in accordance with the California Public Utility Commissions' General Order 95 Rules (CPUC General Order 95) for Overhead Electric Line Construction and all applicable California Building Codes. PG&E would cut and remove the four existing poles they operate at the ground surface for later removal by the levee improvement contractor during other project work. PG&E would drill holes and direct-bury the replacement poles. Utility relocations would be carried out in a manner to avoid service interruptions.

A Treated Wood Management Program would be implemented in accordance with California Health and Safety Code section 25143.15 and PG&E utility procedure ENV-4000P-07. The program includes the implementation of BMPs and health and safety procedures for cutting, removing, storing, handling, and transporting treated wood and treated wood waste. The program also includes special handling procedures in the event that copper naphthenate paper is encountered at the base of the poles (i.e., stumps). All employees performing pole removal

would be properly trained on hazards and handling procedures and provided with the appropriate level of personal protective equipment necessary for work performed. During pole cutting, Visqueen™ plastic would be placed underneath the wood to capture cutting debris and a water mist would be used to minimize dust. Removed wood poles, cutting debris, and stumps would be collected in project specific containers and transferred to a PG&E service center designated as a PG&E treated wood waste consolidation site. Poles would then be scheduled for transport to an appropriate licensed Class 1 or composite-lined portion of a solid waste landfill.

Large earthmoving construction equipment would be used during construction. Construction equipment is listed in Table 2.3-5 below. The Proposed Project area would be accessed via existing levee ramps and temporary earthen ramps. Access routes to the Project Area include SR 113, CR 16, and CR 102. Proposed haul routes include Locust Street and existing agricultural/farm roads (see Figure 2.1-1 through Figure 2.1-5). These access routes would be used by two-way traffic, and no road closures would be required for site access.

The proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles; however, after construction, roads would be returned to their existing condition. Construction staging areas would be located, to the extent practicable, away from sensitive resource areas. Construction staging and material stockpiling would occur along the levee within the Proposed Project area as shown on Figure 2.1-1 and Figure 2.1-2 as construction progresses south along the levee. A wider area within the northwest portion of the Proposed Project area shown on Figure 2.1-1 and Figure 2.1-2 would likely be used for parking construction trailers and vehicles. Additional potential staging areas that may be used for staging and stockpiling are shown in Figure 2.1-1 and Figure 2.1-4. Approximately 1 acre would be needed for stockpiling.

Estimated quantities of construction materials are included below in Table 2.3-6. Borrow sources would be located within a 30-mile radius of the Proposed Project area and may come from the Pacific Avenue Borrow Site in Markham Ravine, the Port of West Sacramento, in Yolo County CA or other suitable borrow areas in this range. No residents would be displaced as a result of the proposed improvements to the Knights Landing Ridge Cut landside levee and, no buildings or structures would be removed. All proposed construction would be performed by either the Knights Landing Ridge Drainage District or Yolo County and their respective contractors. Construction would last for up to 7 months using a maximum of 15 people per crew. Construction would occur between 7 AM and 5 PM, Monday through Saturday. No water side work or in-water work would be required for the proposed Knights Landing Ridge Cut improvements.

Table 2.3-5. Construction Equipment – Knights Landing Ridge Cut Improvements.

Equipment	Quantity
Motor Grader	1
Dozer	3
Excavator	1
Water Truck	2
Pickup Truck	18
Sheepsfoot Roller/Compactor	3
Maintenance Truck	3
Highway Haul Truck	35 (37 days of use)
Hydroseeding Truck	1 (2 days of use)
Side by Side Utility Task Vehicle	4

Table 2.3-6. Construction Materials – Knights Landing Ridge Cut Improvements.

Material	Quantity
Imported Berm Fill	72,009 cubic yards
Topsoil	4,115 cubic yards
Hydroseed	5.2 acres
Clearing and Grubbing	5.2 acres

2.3.2 Construction Schedule

The Proposed Project would be constructed over a three-to-five-year period. Construction work would be limited to daytime hours only. The anticipated construction sequence of proposed levee improvements would consist of constructing the Knights Landing Ridge Cut improvements in the first season and then constructing the Sacramento River Right Bank Levee improvements in the second and third seasons. Construction is anticipated to begin in 2025 and last through approximately 2029, depending on permit approvals and conditions.

Any necessary tree trimming, tree removal, and shrub removal should occur between August and January and would be dependent on appropriate biological surveys and clearances for nesting raptors and other species but would be complete prior to January 31 of the construction year to limit disturbance of nesting birds. The construction window for major construction activities is between April 15 and November 1, however time variances could be granted by the permitting agencies outside of this window. Site cleanup, hydroseeding, and demobilization could also occur after November 1 based on variances granted by the permitting agencies and are anticipated to be complete by December 31 All appropriate approvals from the Central Valley Flood Protection Board would be obtained for late season work.

2.3.3 Operations and Maintenance

Upon completion of construction, Yolo County Service Area No. 6 (CSA 6) would continue to perform routine maintenance in the area of the Sacramento River Right Bank Levee improvements. The KLRDD would continue to perform routine operation and maintenance activities in the area of the Knights Landing Ridge Cut improvements. Routine operation and maintenance activities may include vegetation control, rodent control, grading the levee crowns

and slopes, mechanical mastication/limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5 to 10 years by importing gravel for roads.

2.3.4 Permits and Approvals

Table 2.3-7 lists the potential permits and approvals anticipated for the Proposed Project. An agreement with the Knights Landing Ridge Drainage District and Yolo County would be developed for construction of the Knights Landing Ridge Cut improvements if Yolo County takes the lead on those proposed improvements.

Table 2.3-7. Potential Permits and Approvals

Agency	Type of Approval
California Department of Fish and Wildlife	Fish and Game Code Section 1602 Streambed Alteration Agreement
California Native American Heritage Commission	Consultation for effects on Native American burials or artifacts
Central Valley Flood Protection Board	Encroachment Permit, approval for late season levee work
Regional Water Quality Control Board	Clean Water Act Section 402 National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activities
U.S. Army Corps of Engineers	Rivers and Harbors Act, Section 408 Authorization
Yolo County	Hauling Permit, Drilling Permit
Yolo Habitat Conservancy	Yolo Habitat Conservation Plan and Natural Community Conservation Plan compliance
Yolo-Solano Air Quality Management District	Consultation for Authority to Construct/Permit to Operate

3 Environmental Checklist and Impact Analysis

1. Project Title: Knights Landing Flood Management Project
2. Lead Agency name and address: Yolo County, 292 West Beamer Street, Woodland, CA 95695
3. Contact person and phone number: Elisa Sabatini, (530) 406-5773
4. Project location: The Proposed Project is located in and around the community of Knights Landing in eastern Yolo County, CA. The Proposed Project area is generally bound by the Sacramento River on the north and east, Sycamore Slough on the north, the Knights Landing Ridge Cut on the west, and the intersection of County Road 116B and the Sacramento River levee in the southern portion of the Knights Landing Basin. The Proposed Project area includes the existing levees of the Sacramento River and Knights Landing Ridge Cut as well as some adjacent rural, agricultural areas. The Proposed Project consists of two elements: the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements. The Sacramento River Right Bank Levee improvements start in the community of Knights Landing at levee mile 0.0, just before the Knights Landing Outfall structure, and continue downstream along the Sacramento River Right Bank Levee for approximately 4 miles to levee mile 4.3. The Knights Landing Ridge Cut Levee improvements are located along the Knights Landing Ridge Cut levee beginning on the south side of Knights Landing and continuing downstream for approximately 2 miles.
5. General Plan designation: agriculture land, rural residential land, high density residential land, commercial land, and quasi-public land
6. Description of project: Yolo County is proposing to implement the Proposed Project to provide flood protection for the community of Knights Landing. The purpose of the Proposed Project under the SCFRRP is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability. The Proposed Project includes the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements.
7. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.): DWR (Responsible Agency), KLRDD (Responsible Agency), Cal OES (Responsible Agency), CVFPB (Responsible Agency) USACE 408 Authorization, NAHC Consultation, Central Valley Flood Protection Board Encroachment Permit and approvals, RWQCB 402 NPDES compliance, CDFW 1602 Streambed Alteration Agreement, Yolo HCP consistency, YSAQMD approval, Yolo County hauling and drilling permit.
8. Have California Native American tribes traditionally and culturally affiliated with the Proposed Project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? Yolo County has notified tribes who have expressed interest regarding the Proposed Project.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

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

Determination (To be Completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the project would 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 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.

Casey Liebler — October 22, 2024

Signature — Date

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. 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.

3.1 Aesthetics

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
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 building 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 day or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Environmental Setting

The Proposed Project is located within a rural agricultural area of Yolo County with some rural community and residential buildings and public land in the area (Yolo County GIS Viewer 2022). The overall visual setting of the Proposed Project area is characterized by agricultural fields, levees, trees, and vegetation located along the Sacramento River with the coastal mountain range in the background.

According to the Caltrans California State Scenic Highway System Map, the Proposed Project area does not have or is not near any officially designated state scenic highways, county routes, or any eligible state scenic highways (Caltrans 2018). According to the U.S. Department of Transportation Federal Highway Administration, there are no federal byways in or near the Proposed Project area (U.S. FHA 2022). According to National Park Service's (NPS) Interactive Map of NPS Wild and Scenic Rivers, there are no designated or eligible wild and scenic rivers in or near the Proposed Project area (NPS 2022). Additionally, according to the NPS National Scenic and National Historic Trail Web map, there are no designated national scenic or historic trails in or near the Proposed Project area (NPS 2022).

Yolo County designates local scenic roadways, including County Roads 116 and 116B, from Knights Landing to the eastern terminus of County Road 116 (Yolo County 2009a).

3.1.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of aesthetics in the IS/MND.

FEDERAL

National Scenic Byways Program

The Federal Highway Administration (FHWA) administers the National Scenic Byways Program that recognizes roads with "intrinsic qualities" that includes archeological, cultural, historic, natural, recreational, and scenic. These roads are recognized by the U.S. Department of Transportation.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act of 1968 was enacted to "protect selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values." Protected rivers are designated as wild, scenic, or recreational rivers and segments of a given river may be designated with one or all these classifications.

National Trails Systems Act

The National Trails System Act of 1968 (as amended) allows Congress to establish national historic trails to identify and protect routes of travel with national historic importance. National historic trails connect sites of interest related to a significant historical event, often crossing multiple jurisdictions and land uses, and permitting auto traffic where roads overlap the historic trail route.

As described in the National Park Service's Reference Manual #45, one of the route selection criteria for a national historic trail relates to tour route quality that optimizes visitor experience by directing views to landscapes and features that might have been viewed by historic trail travelers. This criterion further encourages local projects to avoid design features that would inhibit an appreciation of the adjacent landscape values when alternatives exist.

STATE

California Wild and Scenic Rivers Act

The California Wild and Scenic Rivers Act states that "certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state." Those rivers or segments of rivers are classified as wild, scenic, or recreational rivers.

California State Scenic Roadways and Highways

California Scenic Highway Program was established in 1963 through Senate Bill (SB) 1467 with the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The California Department of Transportation (Caltrans) manages the State Scenic Highway Program. Caltrans defines a scenic corridor as the "land that is visible from, adjacent to, and outside the highway ROW and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance,

and/or jurisdictional lines determine the corridor boundaries". Designated scenic corridors are subject to protection, including regulations regarding land use, site planning, advertising, earthmoving, landscaping, and the design and appearance of structures and equipment.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The Land Use and Community Character general plan element includes the following pertinent goal as it relates to aesthetics:

- **Goal LU-3**: Manage growth to preserve and enhance Yolo County's agriculture, environment, rural setting, and small-town character.
- **Goal CC-1**: Ensure that the rural character of the County is protected and enhanced, including the unique and distinct character of the unincorporated communities.
- **Policy CC-1.2**: Preserve and enhance the rural landscape as an important scenic feature of the County.
- **Policy CC-1.3**: Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.
- **Policy CC-1.4**: Identify and preserve, where possible, landmarks and icons which contribute to the identity and character of the rural areas.
- **Policy CC-1.13**: The following routes are designated as local scenic roadways: State Route (SR) 16 (Colusa County line to Capay), SR 128 (Winters to Napa County line), County Roads 116 and 116B (Knights Landing to eastern terminus of County Road 16), County Roads 16 and 117 and Old River Road (County Road 107 to West Sacramento), South River Road (West Sacramento City Limits to Sacramento County line).

3.1.3 Method of Analysis

This section describes the methods used to analyze aesthetics and visual resources and the potential impacts of these services within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of aesthetics. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to aesthetics.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact aesthetics were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed.

Would the project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?
- 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?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

APPROACH TO ANALYSIS

The evaluation of potential impacts of the Proposed Project could have on aesthetics was assessed by reviewing federal and state designations within the study area. The following methods were utilized to determine potential impacts on aesthetics and to evaluate how construction and operation of the Proposed Project would cause conflict with aesthetics as well as with state and local plans and regulations.

1. Analysis of Caltrans 'California State Scenic Highway System Map' GIS open data.
2. Analysis of U.S. Department of Transportation Federal Highway Administration 'America's Byways Map'.
3. Analysis of National Park Service 'Eligible and Suitable Rivers' and 'National Scenic and National Trail Web Map' GIS open data.
4. Analysis of Caltrans 'Standard Environmental Reference' as it relates to Wild and Scenic Rivers and related visual resources.
5. Analysis of construction methods, rights-of-way, and staging areas and their potential on aesthetics impacts.

3.1.4 Impact Analysis

Impact AES-1: Have a substantial adverse effect on a scenic vista?

There are no designated scenic vistas in the Proposed Project area (Yolo County 2009a). The Proposed Project would involve improvements along the Sacramento River Right Bank Levee and Knights Landing Ridge Cut levee, which would include remediating levee geometry and permanently raising the levees. However, improving the proposed levees would not have a significant effect on the visual character or quality or any scenic vistas in the area because the levees already exist, and the size and shape of the levees would not change substantially. Therefore, construction, operations, and maintenance of the Proposed Project would not result in a substantial adverse effect on a scenic vista. There would be **no impact** and no mitigation is required.

Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?

According to the Caltrans California State Scenic Highway System Map, the Proposed Project area does not have and is not near any officially designated state scenic highway, county route, or any eligible state scenic highways (Caltrans 2018). According to The U.S. Department of Transportation Federal Highway Administration, there are no federal byways in or near the Proposed Project area (U.S. FHA 2022). Yolo County has identified County Road 116 as a scenic roadway. Once construction is complete, the views from County Road 116 would not be expected to change substantially because the general size and shape of the levee would not change significantly, and County Road 116 would not remain in place. Therefore, construction, operations, and maintenance of the Proposed Project would not result in substantial damage to scenic resources within a state scenic highway. There would be **no impact** and no mitigation is required or recommended.

Impact AES-3: 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?

The Project Area is characteristic of a rural agricultural environment. Scenic views in the area consist of far-reaching views of agricultural fields looking north, east, and west, with the Vaca Mountains and Coast Ranges in the background. The Proposed Project would involve improvements along the Sacramento River Right Bank Levee and Knights Landing Ridge Cut levee, which would include remediating levee geometry and permanently raising the levees.

However, improving the proposed levees would not have a significant effect on the visual character or quality in the area because the levees already exist, and the size and shape of the levees would not change substantially. Several PG&E utility pole relocations would be required to accommodate the levee improvements. Relocated utility poles would be moved within the Proposed Project area, a short distance from the existing pole locations. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee adjacent to the community of Knights Landing, as well as associated utility relocation, would result in similar impacts to visual resources in this area.

Construction equipment would be present around the Knights Landing Basin throughout the construction period, which could disrupt the visual character. The nearest sensitive receptors subject to views of construction are residences located in the community of Knights Landing west of the Proposed Project area within 50 feet of construction or hauling activities. However, these views would be short term as construction would progress and move along the levee alignment and once construction is complete all equipment would be removed.

Therefore, construction, operations, and maintenance of the Proposed Project would result in a **less than significant impact** as it relates to substantial degradation of existing visual character or quality of public views of the site and its surrounding and no mitigation is required or recommended.

Impact AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction work for all project elements would occur between 7AM and 5PM and is not anticipated to require nighttime work. If nighttime work is required, lighting would be directed down and would be limited to reduce any glare or stray onto adjacent properties. The Proposed Project would not require any permanent, long-term lighting. Thus, the Proposed Project would not create of a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, **no impact** would occur, and no mitigation is required or recommended.

3.2 Agriculture and Forestry Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
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 which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Environmental Setting

REGIONAL SETTING

According to the Yolo County *2030 Countywide General Plan*, the defining characteristic of Yolo County is its agriculture and open spaces. Over 85 percent of the land in Yolo County is used for agriculture and approximately 67 percent of the unincorporated area of the County is protected under the Williamson Act contracts (Yolo County 2009a). The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) identifies four categories of farmland in Yolo County: Prime Farmland, Farmland of Statewide Importance,

Unique Farmland, and Grazing Land. to the FMMP categories are defined further in the Regulatory Framework section below. The total area of important farmlands in Yolo County are presented in Table 3.2-1.

Table 3.2-1. Yolo County Important Farmlands

Land Category	Area (Acres)	Percent of Total County Lands
Prime Farmland	257,893	40%
Farmland of Statewide Importance	16,989	3%
Unique Farmland	50,197	8%
Farmland of Local Importance	65, 173	8%
Grazing Land	150,339	23%
Urban and Built-Up Land	29,343	4%
Other Land	75,800	12%
Water	7,815	1%
Total	653,549	100%

Source: Yolo County 2009

As shown in Table 3.2-1, most of the important farmland in the county is designated as Prime Farmland. Prime Farmland makes up 40 percent of the 653,549 acres of important farmland in the County, followed by Grazing Land at 23 percent. There are no forestry land use designations in the County; however, “forest products” is included in the agriculture (AG) land use designation definition.

LOCAL SETTING

Approximately 0.4acres of the Proposed Project area is designated as Prime Farmland.. Other important land designations mapped by the FMMP in the Proposed Project area include Other Land making up 21.2 acres, and Urban Built-Up Land making up 3.3 acres (DOC 2016). These important farmland designations in the Proposed Project area are shown in Figure 3.2-1. Williamson Act Properties also surround the Proposed Project area, as shown in Figure 3.2-2 (Yolo County 2009a) and make up 18.2 acres.

Figure 3.2-1. Important Farmland in the Proposed Project Area

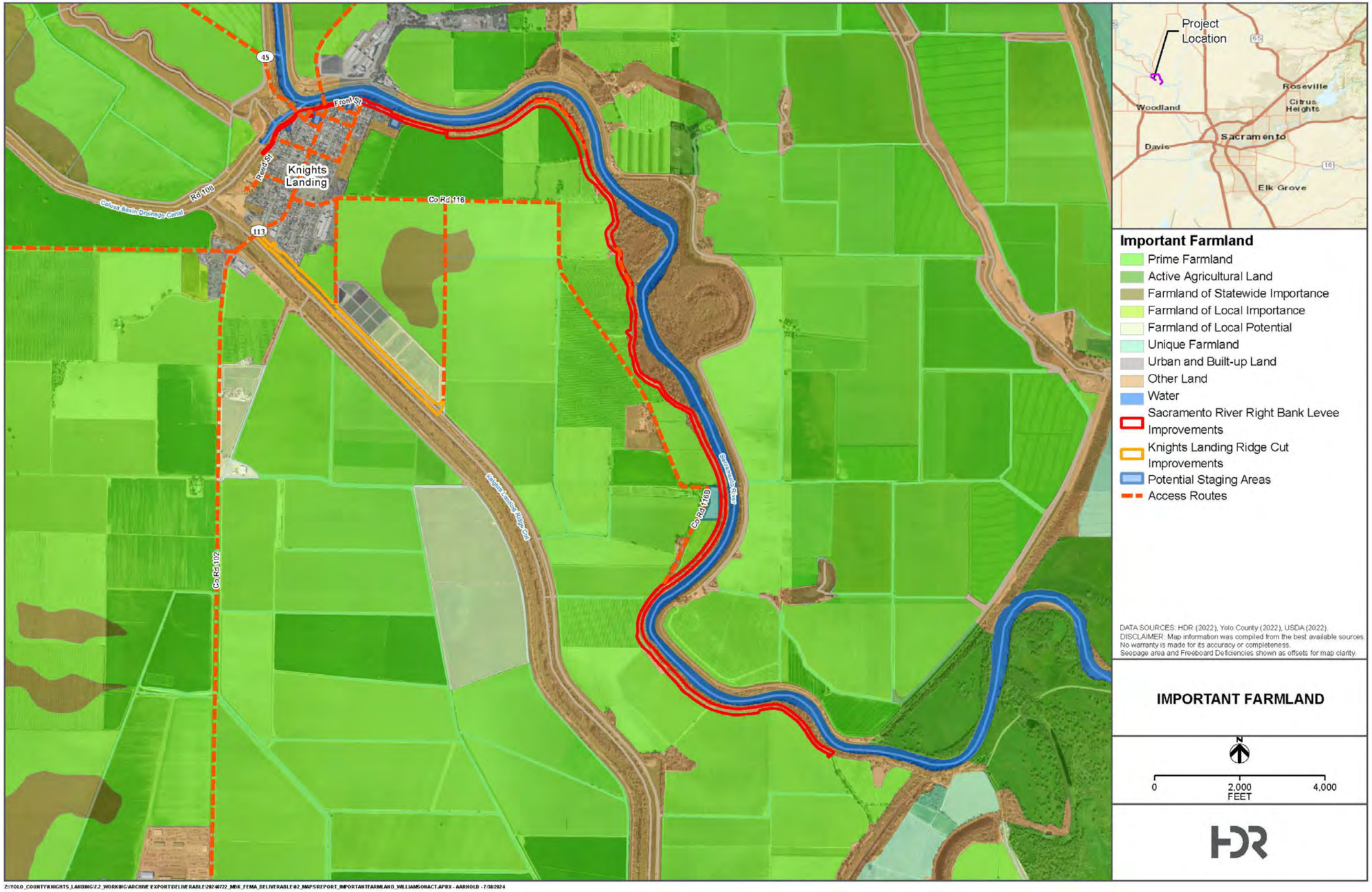
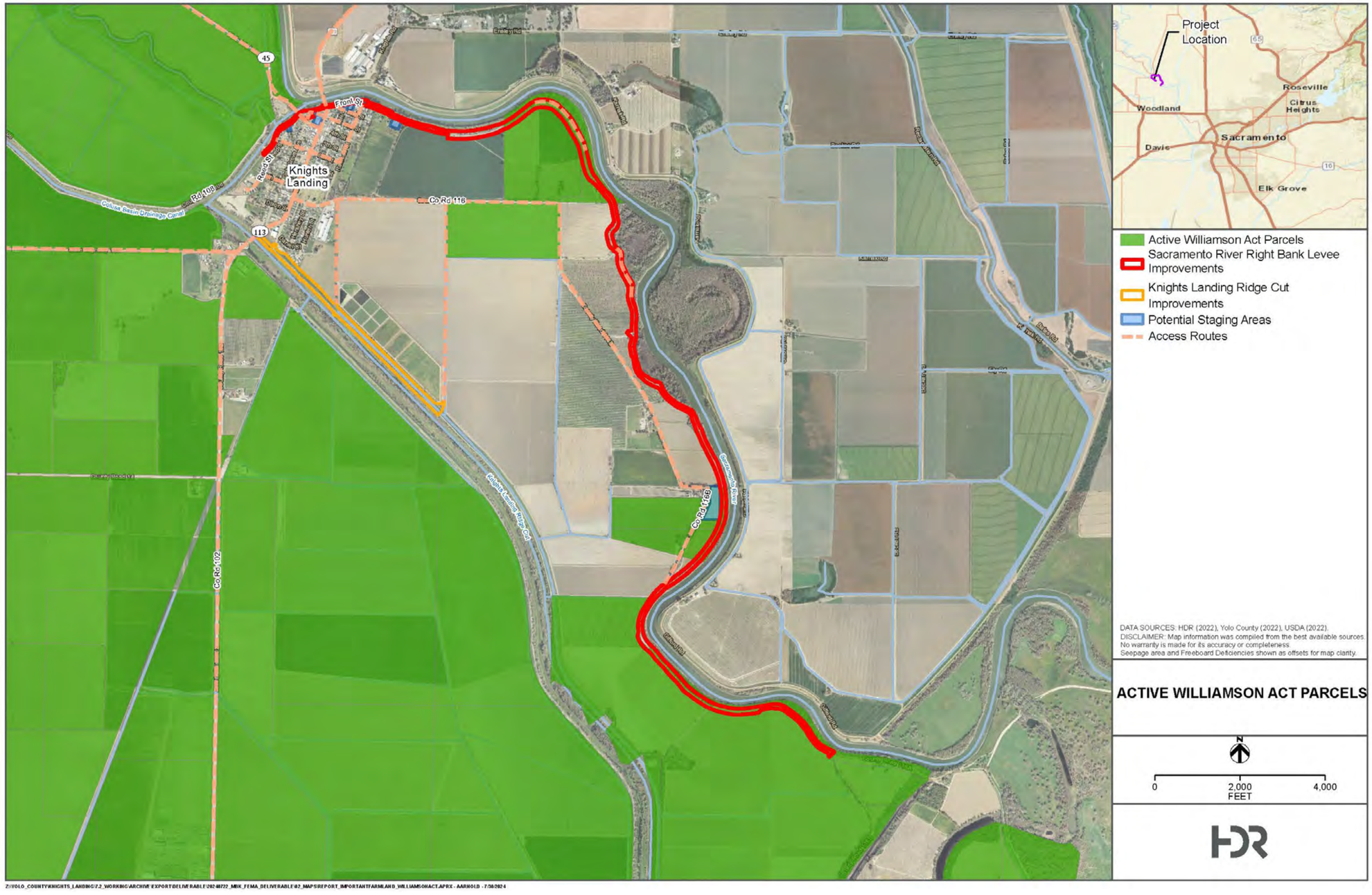


Figure 3.2-2. Williamson Act Properties in the Proposed Project Area



3.2.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of agriculture and forestry resources in the IS/MND.

FEDERAL

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

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. The act ensures that federal programs are administered in a manner that is compatible with state, local, and private programs designed to protect farmland. The act does not authorize the federal government to regulate the use of private or non-federal land nor does it, in any way, affect owner property rights. Projects are subject to Farmland Protection Policy Act requirements if they may irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or with assistance from a federal agency.

STATE

California Department of Conservation

The DOC provides services and information that promote environmental health, economic vitality, informed land-use decisions, and sound management of the state's natural resources. The DOC administers and supports a number of programs that are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. These programs include, but are not limited to, the FMMP and the Williamson Act.

Farmland Mapping and Monitoring Program

The FMMP produces maps and statistical data used for analyzing impacts on California's agricultural resources. The maps are updated every two years using a computer mapping system, aerial imagery, public review, and field reconnaissance. The following FMMP categories are mapped by the DOC:

- **Prime Farmland:** This farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. Prime Farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agriculture production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance**: This farmland is similar to Prime Farmland, but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland:** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

- **Farmland of Local Importance:** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land:** Land on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-up Land:** Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land:** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines or borrow pits; and waterbodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a non-mandated state program, administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. The act authorizes local governments and property owners to (voluntarily) enter into contracts to commit agricultural land to specified uses for 10 or more years. Once restricted, the land is valued for taxation based on its agricultural income rather than unrestricted market value, resulting in a lower tax rate for owners. In return, the owners guarantee that these properties remain under agricultural production for an initial 10-year period. The contract is renewed automatically unless the owner files a notice of nonrenewal, thereby maintaining a constant 10-year contract.

REGIONAL/LOCAL

Yolo County2030 Countywide General Plan (Yolo County 2009a)

The following goals and policies of the *2030 Countywide General Plan* (Yolo County 2009a) are applicable to the Project:

- **Goal LU-2 Agricultural Preservation**: Preserve farmland and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy.
- **Policy LU-2.4**: Vigorously conserve, preserve, and enhance the productivity of the agricultural lands in areas outside of adopted community growth boundaries and outside of city "Spheres of Influence."
- **Policy LU-3.4**: Locate and design services and infrastructure to only serve existing and planned land uses. Actions that will induce growth beyond planned levels are prohibited.
- **Policy LU-3.5**: Avoid or minimize conflicts and/or incompatibilities between land uses.
- **Policy LU-3.6**: Maintain the compatibility of surrounding land uses and development, so as not to impede the existing and planned operation of public airports, landfills and related facilities and community sewage treatment facilities.

- **Goal CC-1 Preservation of Rural Character**: Ensure the rural character of the County is protected and enhanced, including the unique and distinct character of the unincorporated communities.
- **Goal AG-1.1 Preservation of Agriculture**: Preserve and defend agriculture as fundamental to the identity of Yolo County.
- **Policy AG-1.1**: Protect and enhance the county's four key agricultural sectors. This includes: (1) retaining existing growers and processors of crops; (2) encouraging the growth of emerging crops and value-added processing; (3) supporting small and organic producers and their ability to serve visitors; and (4) enhancing the transfer of new technologies into practical applications for seeds, crops, fuels, alternative energy, food processing, etc.
- **Policy AG-1.14**: Preserve agricultural lands using a variety of programs, including the Williamson Act, Farmland Preservation Zones (implemented through the Williamson Act), conservation easements, and Agricultural Lands Conversion Ordinance and the Right-to-Farm Ordinance.
- **Policy AG-1.18**. When undertaking improvement of public roadways and drainage facilities, consult with adjoining farmland owners and incorporate designs that minimize impacts on agriculture.

3.2.3 Method of Analysis

This section describes the methods used to analyze agriculture and forestry resources characteristics within the study area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of agriculture and forestry resources. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to agriculture and forestry resources.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on agriculture and forestry resources if it would:

- 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;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220(g)), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by California Government Code § 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; and,
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

APPROACH TO ANALYSIS

Construction, Operations and Maintenance
A desktop analysis was completed to collect and analyze data in the study area. Aerial imagery and street view images were used to identify the land uses that encompass the study area. Additionally, the following resources were used for data collection:

- Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) California Important Farmland Finder (DOC 2016); and
- Yolo County *2030 Countywide General Plan Agriculture and Economic Development Elemen*t (Yolo County 2030).

The potential impacts from construction, operation and maintenance of the Proposed Project on agriculture and forestry resources were evaluated qualitatively using known agriculture and forestry resources data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.2.4 Impact Analysis

Impact AG-1: 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.

As shown in Figure 3.2-1, the majority of the Proposed Project area is located in areas designated as prime farmland, particularly along the Sacramento River Right Bank Levee improvements and portions of the Knights Landing Ridge Cut improvements. During construction, the Proposed Project area for the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements would involve clearing and grubbing of trees and vegetation, the use of large earthmoving construction equipment, excavations and ground disturbance. However, improvements would occur on existing levees and would not disturb or convert adjacent agricultural land or change long-term agricultural land uses. Proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles, however, after construction, roads would be improved where deteriorated and returned to their existing condition. Construction staging areas and PG&E utility relocations may also be located within areas of important farmland.

However, each staging area would be temporary and would only be in use as needed for the duration of construction associated with the respective improvements (Sacramento River Right Bank or Knights Landing Ridge Cut). Utility modifications would be located in the project footprint and would be sited outside of existing agricultural operations so that they would not impede existing operations or convert any agricultural uses. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility modifications, would result in similar impacts to farmland. Based on these factors, during construction the Proposed Project would only temporarily use land that is designated as Prime Farmland and would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Routine operation and maintenance activities may include vegetation control by mowing or grazing, rodent control by baiting and minor excavation/backfill of rodent holes, grading the levee crowns, mechanical mastication/limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5-10 years by importing gravel for roads. These operations and maintenance activities would occur outside of areas designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance and would not convert such land uses to non-agricultural use. Therefore, construction, operations and maintenance of the Proposed Project would have a **less than significant impact** on Prime Farmland, Unique Farmland and Farmland of Statewide Importance and would not convert such farmland to non-agricultural uses. No mitigation is required or recommended.

Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract.

Williamson Act properties intersect with the Sacramento River Right Bank Levee improvements (see Figure 3.2-2). As described in Impact AG-1, the Proposed Project would not convert agricultural land to non-agricultural use. During construction, the Proposed Project would only temporarily use land that is designated for agricultural purposes, including portions of the Proposed Project area and staging areas that intersect with Williamson Act properties, for haul routes, utility relocations, and construction staging areas. Any temporarily disturbed areas would be restored once construction is complete.

Routine operation and maintenance activities would occur outside of Williamson Act properties and agricultural land uses. Therefore, construction, operations and maintenance of the Proposed Project would have a **less than significant impact** on a Williamson Act contract and would not conflict with existing zoning for agricultural use. No mitigation is required or recommended.

Impact AG-3: 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))?

The Proposed Project area is not characterized as timberland or forest land an no such land uses would be disturbed by the proposed improvements. As such, construction, operations and

maintenance of the Proposed Project would have **no impact** on forest land, timberland, or timberland zoned Timberland Production. No mitigation is required or recommended.

Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use?

As stated in Impact AG-3, the Proposed Project area does not include forest land and no such land uses would be lost or converted to non-forest use as a result of the Proposed Project. Therefore, construction, operations and maintenance of the Proposed Project would have **no impact** on forest land and would not result in the loss or conversion of forest land to non-forest use. No mitigation is required or recommended.

Impact AG-5: Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Project construction activities associated with the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, such as vegetation removal, utility relocation, haul route access, and construction vehicle and equipment staging, may occur on land designated as Prime Farmland and Williamson Act Properties. However, disturbance to agricultural land would be temporary, taking place over the duration of the construction period, and agricultural land would be restored to its original condition once construction is completed. Additionally, the Sacramento River Right Bank Levee improvements and Knights Landing Ridge Cut improvements would primarily occur on existing levees and would not convert farmland on a long-term basis. There is no forest land in the Proposed Project area; therefore, no forest land would be converted to non-forest use.

As described in the previous impact discussions, the proposed levee improvements would be along the existing Sacramento River Right Bank Levee and the Knights Landing Ridge Cut and would not convert farmland on a long-term basis. There is no forest land in the Proposed Project area; therefore, no forest land would be converted to non-forest use. Furthermore, routine operation and maintenance activities would occur outside of agricultural land uses. The Proposed Project would not involve other changes in the existing environment that due to their location or nature could result in the conversion of farmland to non-agricultural use or the conversion of forest land to non-forest use. Therefore, **no impact** would occur, and no mitigation is required.

3.3 Air Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality 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?	☐	☐	☒	☐

3.3.1 Environmental Setting

TOPOGRAPHY AND METEOROLOGY

Yolo County, including the Proposed Project area, is located within the boundaries of the Sacramento Valley Air Basin (SVAB). The SVAB encompasses eleven counties including all of Shasta, Tehama, Glenn, Colusa, Butte, Sutter, Yuba, Sacramento, and Yolo Counties, the westernmost portion of Placer County and the northeastern half of Solano County. The SVAB is bound by the North Coast Ranges on the west and Northern Sierra Nevada Mountains on the east. Between the mountain ranges, the Sacramento Valley terrain is relatively flat.

Hot dry summers and mild rainy winters characterize the Mediterranean climate of the SVAB. During the year, the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, and the rainy season generally occurs from November through March. The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry, dusty land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions

are combined with temperature inversions that trap pollutants near the ground (Yolo Solano Air Quality Management District [YSAQMD] 2007).

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back to the south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento Valley. This phenomenon has the effect of exacerbating the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon when the delta sea breeze arrives (YSAQMD 2007).

AIR POLLUTANTS OF CONCERN

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Reactive organic gases (ROGs), nitrogen oxide (NO_X), inhalable particulate matter 10 micrometers and smaller (PM_{10}), fine particulate matter 2.5 micrometers and smaller ($PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb) are primary air pollutants. ROG and NO_X are criteria pollutant precursors that form secondary criteria air pollutants such as ozone (O_3) through chemical and photochemical reactions in the atmosphere. Each of the primary and secondary criteria air pollutants and their known health effects is described below (US Environmental Protection Agency [USEPA] 2021).

Ozone (O_3). O_3 is commonly referred to as "smog" and is a gas that is formed when ROGs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas.

Reactive Organic Gases (ROG). ROG is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. ROGs are emitted from a variety of sources, including liquid and solid fuel combustion, evaporation of organic solvents, and waste disposal. No ambient air quality standards have been established for ROGs. However, because they contribute to the formation of ozone, the YSAQMD has established a significance threshold (YSAQMD 2007).

Nitrogen Oxide (NO_X). NO_X is a by-product of fuel combustion and contributes to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and

oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is a reddish-brown gas that acts as an acute irritant and is more injurious than NO in equal concentrations. NO_2 exposure concentrations near roadways are of concern for susceptible individuals, including people with asthma, children, and the elderly. Short-term NO_2 exposures, ranging from 30 minutes to 24 hours, are known to result in adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma.

Particulate Matter (PM_{10} and $PM_{2.5}$). Suspended particulate matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Inhalable coarse particles, or PM_{10}, include particulate matter with a diameter of 10 micrometers or less. Fine particles, or $PM_{2.5}$, have a diameter of 2.5 micrometers or less. Particles that are 10 micrometers in diameter or smaller are of greatest concern because those are the particles that generally pass through the throat and nose, then enter the lungs. Once inhaled, these particles can affect the heart and lungs, and cause serious health effects. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Health effects of particulate matter include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., airway irritation, coughing, difficulty breathing). Particulate matter can also cause environmental effects such as visibility impairment, environmental damage, and aesthetic damage.

Carbon Monoxide (CO). CO is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Sulfur Dioxide (SO_2). SO_2 is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal as well as from chemical processes at chemical plants and refineries. When SO_2 forms sulfates in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Short-term exposures to SO_2, ranging from 5 minutes to 24 hours, are known to result in adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.

Lead (Pb). Pb is a metal found naturally in the environment as well as in manufactured products. The major sources of Pb emissions have historically been mobile and industrial sources. As a result of the USEPA's regulatory efforts to remove Pb from motor vehicle gasoline, levels of Pb in the air decreased by 98 percent between 1980 and 2014. Today, the

highest levels of Pb in air are usually found near lead smelters. Depending on the level of exposure, Pb can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Pb exposure also affects the oxygen-carrying capacity of the blood. The most commonly encountered effects of Pb in current populations are neurological effects in children and cardiovascular effects (e.g., high blood pressure, heart disease) in adults.

TOXIC AIR CONTAMINANTS

California law defines a toxic air contaminant (TAC) as "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health" (California Air Resources Board [ARB] 2022a). TACs are pollutants that cause or may cause cancer or other serious health effects such as birth defects; neurological and reproductive disorders; or chronic eye, lung, or skin irritation. TACs also may cause adverse environmental and ecological effects. They include such substances as volatile organic compounds; chlorinated hydrocarbons; asbestos; dioxin; toluene; gasoline engine exhaust; particulate matter emitted by diesel engines; and metals such as cadmium, mercury, chromium, and lead compounds, among many others.

Diesel engines emit a complex mixture of pollutants, including very small carbon particles, or "soot" coated with numerous organic compounds, known as diesel particulate matter (DPM). Diesel exhaust also contains more than 40 cancer-causing substances, most of which are readily adsorbed onto the soot particles. Diesel engine emissions are responsible for approximately 70 percent of California's estimated cancer risk attributable to TACs (ARB 2022b). In 1998, the ARB identified DPM as a TAC.

A primary source of DPM emissions is combustion from diesel engines, such as those in trucks and other motor vehicles. DPM is of concern because it is a potential source of both cancer and non-cancer health effects, and because it is present at some concentration in all developed areas of the state. DPM contributes to numerous health impacts that have been attributed to particulate matter exposure, including increased hospital admissions, particularly for heart disease, but also for respiratory illnesses and even premature death.

SENSITIVE RECEPTORS

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emission sources, or the duration of exposure to air pollutants. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations, especially children, seniors, or sick persons are found, and there is reasonable expectation of continuous human exposure. Examples of sensitive receptors include residences, hospitals, and schools (YSAQMD 2007).

Several sensitive receptors, such as residences, occur in the vicinity of the Proposed Project. The closest sensitive receptors to the Proposed Project are the residences along Front Street in Knights Landing, which are located within 25 feet of the Proposed Project area (Google Earth 2022).

3.3.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of air quality in the IS/MND.

FEDERAL

Federal Clean Air Act and National Ambient Air Quality Standards

The Federal Clean Air Act (FCAA) is the primary federal law governing air quality. The FCAA is regulated by the USEPA, which sets standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS have been established for six criteria air pollutants that have been linked to potential health concerns: O_3, CO, PM_{10}, $PM_{2.5}$, NO_2, and SO_2. Additionally, national standards exist for Pb. The NAAQS are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. The federal regulatory schemes also cover TACs.

The FCAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (an area that was previously nonattainment and is currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in Table 3.3-1.

The FCAA requires each state to prepare an air quality control plan referred to as the *State Implementation Plan* (SIP). USEPA is responsible for implementing the programs established under the FCAA, programs such as establishing and reviewing the federal ambient air quality standards and judging the adequacy of SIPs. If a state contains areas that violate the national standards, the FCAA requires the State to revise its SIP to incorporate additional control measures to reduce air pollution. USEPA has authorized States such as California with air programs that meet or exceed federal standards to implement many of the federal programs while retaining an oversight role.

Table 3.3-1. California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2] Primary[3]	Secondary[4]
O_3 [5]	1 hour	0.09 ppm	---	Same as Primary Standard
	8 hours	0.07 ppm	0.07 ppm	
CO	1 hour	20 ppm	35 ppm	---
	8 hours	9 ppm	9 ppm	---
	8 hours (Lake Tahoe)	6 ppm	---	---
PM_{10} [6]	24 hours	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual	20 µg/m^3	---	
$PM_{2.5}$ [6]	24 hours	---	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
NO_2 [7]	1 Hour	0.18 ppm	100 ppb	---
	Annual Arithmetic Mean	0.03 ppm	0.053 ppm	Same as Primary Standard

Pollutant	Averaging Time	California Standards[1]	National Standards[2] Primary[3]	Secondary[4]
SO_2 [8]	1 Hour	0.25 ppm	75 ppb	---
	3 Hours	---	---	0.5 ppm
	24 Hours	0.04 ppm	0.14 ppm	---
	Annual Arithmetic Mean	---	0.03 ppm	---
Pb[9, 10]	30-day Average	1.5 µg/m^3	---	---
	Calendar Quarter	---	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-month Average	---	0.15 µg/m^3	
Visibility Reducing Particles[11]	8 Hours	See Note 11	No National Standards	
Sulfates	24 Hours	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm		
Vinyl Chloride[9]	24 Hours	0.01 ppm		

Source: ARB 2016

Notes: O_3 = ozone; CO = carbon monoxide; PM_{10} = particles of 10 micrometers and smaller; $PM_{2.5}$ = particles of 2.5 micrometers and smaller; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; Pb = lead; ppm = parts per million; µg/m^3 = micrograms per cubic meter

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.

3. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

4. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

5. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

6. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

7. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

8. On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

10. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

11. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Non-Road Diesel New Engine and Fuel Standards

The USEPA has adopted multiple tiers of emission standards for non-road (or off-road) diesel engines. The non-road standards cover mobile non-road diesel engines of all sizes used in a wide range of construction, agricultural and industrial equipment. The first federal standards, Tier 1, were adopted in 1994. Tier 2 standards were adopted in 2001, Tier 3 in 2006, and final Tier 4 standards in 2014. The federal emission standards for non-road diesel engines are established in advancing tiers that progressively become more stringent (i.e., the higher the tier, the lower the emissions). Currently, the most stringent is Tier 4. The Tier 4 emissions standards have more stringent NO_X, particulate matter, and hydrocarbon limits than the lower tiers. The CO emission limits for Tier 4 standards remain unchanged from the Tier 2 and Tier 3 standards.

National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants are stationary source standards for hazardous air pollutants (40 CFR 63). Hazardous air pollutants are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects (USEPA 2022).

STATE

California Clean Air Act and California Ambient Air Quality Standards

In California, the California Clean Air Act (CCAA) is administered by the ARB at the state level and by the air quality management districts and air pollution control districts at the regional and local levels (air districts). The ARB is responsible for meeting the state requirements of the FCAA, administering the CCAA, establishing the California Ambient Air Quality Standards (CAAQS), and establishing motor vehicle emissions standards. The CCAA requires all air districts in the state to endeavor to achieve and maintain the CAAQS.

CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. ARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. ARB also establishes passenger vehicle fuel specifications. ARB oversees the functions of air districts, which in turn administer air quality activities at the regional and county levels. The state standards are summarized in Table 3.3-1.

The CCAA requires ARB to designate areas in California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA,

areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment.

California State Implementation Plan

The 1990 amendments to the FCAA set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the national 8-hour ozone standard and the fine particulate matter standards in 1997 resulted in additional statewide air quality planning efforts. In response to new federal regulations, SIPs began to address ways to improve visibility in national parks and wilderness areas. SIPs are not single documents, but rather a compilation of new and previously submitted plans, programs, district rules, state regulations, and federal controls.

Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations, and limits on emissions from consumer products. State law makes ARB the lead agency for all purposes related to the SIPs. Local air districts and other agencies prepare SIP elements and submit them to ARB for review and approval. ARB then forwards SIP revisions to USEPA for approval and publication in the *Federal Register*. CFR Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items that are included in the California SIP.

California Air Toxics Program

California regulates TACs primarily through Assembly Bill (AB) 1807, Toxic Air Contaminant Identification and Control Act (Tanner Act) and AB 2588, Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Hot Spots Act). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. Once a TAC is identified, ARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate best available toxics control technology to minimize emissions.

Under the Hot Spots Act, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

Advanced Clean Cars Program

In January 2012, the ARB approved a new emissions control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero emission vehicles into a single packet of standards called Advanced Clean Cars. The Advanced Clean Cars Program includes the Zero Emission Vehicle Program, which is designed to achieve California's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of zero-emission vehicles, which include battery electric, fuel cell, and plug-in hybrid electric vehicles.

In-Use Off-Road and On-Road Diesel Fueled Fleets Regulation

On July 26, 2007, ARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California. All self-propelled off-road diesel vehicles 25 horsepower or greater used in California (such as bulldozers, loaders, backhoes, and off-highway trucks) and most two-engine vehicles (except on-road two-engine sweepers) are subject to this regulation. This regulation is designed to reduce DPM and NO_X emissions from off-road diesel vehicles by retiring, replacing, or repowering older engines, or installing diesel exhaust retrofits. Vehicles or engines subject to this regulation must limit their idling to five minutes. The idling requirements are specified in Title 13 of the California Code of Regulations.

Furthermore, Title 13 CCR Chapter 10 § 2485 Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, restricts on-road diesel-powered commercial motor vehicles with a gross vehicle rater of greater than 10,000 pounds from idling more than five minutes.

Truck and Bus Regulation

ARB's Truck and Bus Regulation requires all on-road and off-road diesel vehicles that operate in California to reduce TAC emissions from their exhaust. The Truck and Bus Regulation affects individuals, private companies, and federal agencies that own diesel vehicles with a Gross Vehicle Weight Rating greater than 14,000 pounds. By January 1, 2023, all trucks and buses will be required to have 2010 or newer model year engines to reduce particulate matter and NO_X emissions. To help ensure that the benefits of this regulation are achieved, starting January 1, 2020, only vehicles compliant with this regulation will be registered by the California Department of Motor Vehicles.

Health Impacts of Regional Criteria Air Pollutants

In December 2018, the California Supreme Court released a decision in *Sierra Club v. County of Fresno*, 6 Cal. 5th 502, also known as the Friant Ranch Case, finding that CEQA requires that a connection be drawn between project emissions and human health impacts.

As explained in the amicus curiae brief submitted by the San Joaquin Valley Air Pollution Control District for the Friant Ranch case, air district significance thresholds were set at emissions levels tied to the region's attainment status; they are emissions levels at which stationary pollution sources permitted by air districts must offset their emissions and CEQA projects must use feasible mitigation measures, and they are not intended to indicate any localized human health impact that a project may have. Therefore, a project's exceedance of the air district's mass regional emission thresholds does not necessarily indicate that the project would cause or contribute to the exposure of sensitive receptors to ground-level concentrations of ozone greater than health-protective levels.

As suggested in the amicus curiae brief submitted for the Friant Ranch case, given the complexity of ozone formation and the current state of environmental science modeling, it is infeasible to determine whether, or the extent to which, a single project's emissions of precursors (NO_X and ROG) would result in the formation of secondary ground-level ozone, and to identify the geographic and temporal distribution of such secondary formed emissions.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by project-related NO_X or ROG emissions on the local (project) level. Therefore, it is infeasible to connect ozone precursor emissions at a project level to ozone-related health impacts.

REGIONAL/ LOCAL

Existing Air Quality Conditions

ARB collects ambient air quality data through a network of air monitoring stations throughout the state. The nearest monitoring station to the Proposed Project is the Woodland-Gibson Road monitoring station, located approximately 8 miles southwest of the Proposed Project area. The Woodland-Gibson Road station monitors ozone, PM_{10}, and $PM_{2.5}$. The nearest station that collects NO_2 data is the Davis-UCD Campus station, which is over 16 miles southwest of the Proposed Project area. There are no monitoring stations in Yolo County that currently monitor CO concentrations.

Table 3.3-2 summarizes data for criteria air pollutant levels from the Woodland-Gibson Road and Davis-UCD Campus monitoring stations for the last three years for which complete data was available (2019 through 2021).

Table 3.3-2. Ambient Air Quality Monitoring Data

Pollutant Standards	2019	2020	2021
O_3			
Maximum 1-hour concentration (ppm)	0.078	0.096	0.092
Maximum 8-hour concentration (ppm)	0.067	0.075	0.082
Number of days standard exceeded			
CAAQS 1-hour (>0.09 ppm)	0	1	0
CAAQS 8-hour (>0.07 ppm)	0	2	2
NAAQS 8-hour (>0.07 ppm)	0	2	2
$PM_{2.5}$			
National maximum 24-hour concentration (µg/m^3)	27.8	134.0	33.8
State maximum 24-hour concentration (µg/m^3)	27.8	134.0	33.8
National annual average concentration (µg/m^3)	*	*	*
State annual average concentration (µg/m^3)	*	*	*
Measured number of days standard exceeded			
NAAQS 24-hour (>35 µg/m^3)	0	4	0
PM_{10}			
National maximum 24-hour concentration (µg/m^3)	80.6	223.9	68.2
State maximum 24-hour concentration (µg/m^3)	83.0	224.2	68.7
National annual average concentration (µg/m^3)	21.3	28.0	20.5
State annual average concentration (µg/m^3)	*	*	20.8
Measured number of days standard exceeded			
NAAQS 24-hour (>150 µg/m^3)	0	1	0
CAAQS 24-hour (>50 µg/m^3)	3	11	4
NO_2			
National maximum 1-hour concentration (ppb)	31.4	32.7	24.0
State maximum 1-hour concentration (ppb)	31	32	24
State annual average concentration (ppb)	4	4	3

Pollutant Standards	2019	2020	2021
Number of days standard exceeded			
NAAQS 1-hour (100 ppb)	0	0	0
CAAQS 1-hour (180 ppb)	0	0	0

Source: ARB 2022c

Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; * = insufficient data available to determine the value.

Yolo Solano Air Quality Management District

The YSAQMD has jurisdiction over all of Yolo County and the northeast portion of Solano County, including Vacaville, Dixon, and Rio Vista. YSAQMD administers the FCAA and CCAA, including preparing plans to attain NAAQS and CAAQS. YSAQMD regulates air quality through its district rules and permit authority. YSAQMD also participates in planning review of discretionary project applications and provides recommendations.

Attainment Status

The attainment status for Yolo County is summarized in Table 3.3-3.

Table 3.3-3. Attainment Status for Yolo County

Pollutant	NAAQS	CAAQS
O_3	Nonattainment	Nonattainment
CO	Attainment	Attainment
PM_{10}	Unclassified	Nonattainment
$PM_{2.5}$	Nonattainment	Unclassified
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment
Visibility Reducing Particles	No National Standards	Unclassified
Sulfates	No National Standards	Attainment
Hydrogen Sulfide	No National Standards	Unclassified
Vinyl Chloride	No National Standards	Unclassified

Source: YSAQMD 2022a

Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; O_3 = ozone; CO = carbon monoxide; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; Pb = lead.

As shown in Table 3.3-3, Yolo County is currently in nonattainment for O_3 and $PM_{2.5}$ under NAAQS. Yolo County is currently in nonattainment for O_3 and PM_{10} under CAAQS (YSAQMD 2022a).

Attainment Plans

$PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request for Sacramento $PM_{2.5}$ Nonattainment Area. In order to show attainment of the 24-hour fine particulate standard, an area must demonstrate that it has met the standard during three consecutive years. The Sacramento region was able to show that the standard had been achieved during the 2009-

2011 period. The YSAQMD and the other air districts of the region subsequently prepared a $PM_{2.5}$ maintenance plan and redesignation request, the *$PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request for Sacramento $PM_{2.5}$ Nonattainment Area* (Sacramento Metropolitan Air Quality Management District [SMAQMD] 2013), to show that the region has met the requirements and requests that the USEPA re-designate the area to attainment for the federal standard. The plan was submitted to ARB, but before it could be forwarded to USEPA, there were some $PM_{2.5}$ exceedances in late 2012. On May 10, 2017, USEPA found that the area attained the 2006 $PM_{2.5}$ standard by the attainment date of December 31, 2015 (82 Federal Register 21711). This finding was based on complete, quality-assured and certified $PM_{2.5}$ monitoring data for 2013 – 2015 (YSAQMD 2022d).

The Sacramento Federal Nonattainment Area has been identified by the USEPA as an area that is required to develop a mitigation plan to minimize the public exposure from $PM_{2.5}$ emissions generated during wildfire events (YSAQMD 2022c). Air districts in the Sacramento Federal Nonattainment Area have jointly prepared the *Wildfire Mitigation Plan for the Sacramento Federal Nonattainment Area for $PM_{2.5}$* as required by Title 40, Code of Federal Regulations, Part 51.930 (40 CFR 51.930). The plan outlines the actions each air district will take to notify the public and minimize the air quality impacts when emissions from wildfires increase $PM_{2.5}$ concentrations in the region to a level where they exceed or are expected to exceed the 24-hour $PM_{2.5}$ national ambient air quality standard (YSAQMD 2022c).

While achieving the 24-hour national standard for fine particulates is the primary focus for the Sacramento Region, the USEPA has also adopted an annual standard for $PM_{2.5}$. This standard was tightened in 2012, but the YSAQMD and the rest of the Sacramento region are consistently below it (YSAQMD 2022c).

Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan. The Sacramento region is designated as a nonattainment area for the 2008 8-hour O_3 NAAQS and includes all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties. This area is referred to as the Sacramento Federal Nonattainment Area. The *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (SMAQMD 2017) demonstrates how the Sacramento Federal Nonattainment Area will meet the CAA reasonable further progress requirements and demonstrate attainment of the 2008 O_3 NAAQS. The plan also includes an updated emissions inventory, sets motor vehicle emissions budgets, demonstrates how it complies with vehicle miles traveled emissions offset and reasonably available control measure requirements, and documents the photochemical modeling used to support the attainment demonstration.

Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Analysis for the 2015 Federal Ozone Standard. In 2015, the USEPA promulgated a new 8-hour NAAQS of 70 parts per billion (ppb). In 2016, CARB recommended in their report that the Sacramento region be designated nonattainment (based on 2014- 2016 monitoring data). The USEPA published a final rule on June 4, 2018 (83 Federal Register 25776) designating the Sacramento Metro area as moderate nonattainment. YSAQMD RACT SIP analysis (for the 2015 standard) was approved by the YSAQMD's Board of Directors on September 9, 2020

(YSAQMD 2020). Most recently, the districts in the Sacramento Federal Nonattainment Area sent a request to ARB to voluntarily reclassify from serious to severe. On September 6, 2022, ARB submitted this request to USEPA.

2019 Triennial Assessment and Plan Update. In addition to the federal attainment plans discussed above for meeting NAAQS, the CCAA requires air districts to prepare attainment plans for meeting and maintaining CAAQS. Yolo County is in nonattainment for state O_3 and PM_{10} standards but meets the CAAQS for the other pollutants. The *2019 Triennial Assessment and Plan Update* (2019 Triennial Plan Update) (YSAQMD 2019) analyzes and summarizes data from the years 2015 through 2017, while also forecasting future emissions and reviewing efforts made by YSAQMD to improve air quality since its last Triennial Plan Update in 2016. The 2019 Triennial Plan Update is the current air quality plan applicable to Yolo County.

Rules and Regulations

YSAQMD has adopted rules and regulations to protect human health and property from the harmful effects of air pollution. YSAQMD rules and regulations are based on federal and state air quality requirements established by the USEPA and ARB. The YSAQMD rules and regulations relevant to the Proposed Project include, but are not limited to (YSAQMD 2022b):

- **Regulation II, Rule 2.3 Ringelmann Chart**: The purpose of this rule is to limit the emissions of visible air contaminants to the atmosphere.
- **Regulation II, Rule 2.5 Nuisance**: This rule prohibits the discharge of air containments or other material which cause injury, detriment, nuisance, or annoyance.
- **Regulation II, Rule 2.11 Particulate Matter Concentration**: The purpose of this rule is to protect the ambient air quality by establishing a particulate matter emission standard.
- **Regulation II, Rule 2.14 Architectural Coatings**: The purpose of this rule is to limit the quantity of volatile organic compounds (VOC) in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within YSAQMD's jurisdiction.
- **Regulation II, Rule 2.28 Cutback and Emulsified Asphalts**: The purpose of this rule is to limit the emissions of organic compounds from the use of cutback and emulsified asphalts in paving materials, paving, and maintenance operations.
- **Regulation III, Rule 3.1 General Permit Requirements**: The purpose of this rule is to provide an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits.

CEQA Guidelines

In order to help public agencies within its jurisdiction evaluate air quality impacts, the YSAQMD has developed the *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007). The YSAQMD's handbook includes screening methodology and adopted thresholds of significance, including mass emission thresholds for construction-related and operational criteria pollutants. Table 3.3-4 summarizes the YSAQMD thresholds for criteria pollutant emissions.

Table 3.3-4. YSAQMD Thresholds of Significance for Criteria Pollutants

Pollutant	Construction Threshold	Operational Threshold
ROG	10 tons/year	10 tons/year
NO_X	10 tons/year	10 tons/year
PM_{10}	80 lbs/day	80 lbs/day

Source: YSAQMD 2007

Notes: ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = particulate matter 10 micrometers or less in diameter; lbs = pounds

In developing these thresholds, YSAQMD considered levels at which project emissions are cumulatively considerable. Consequently, exceedances of project-level thresholds would be cumulatively considerable.

Yolo County 2030 Countywide General Plan

The following Yolo County *2030 Countywide General Plan* (Yolo County 2009a) goals and policies related to air quality are applicable to the Proposed Project:

- **Goal CO-6 Air Quality**: Improve air quality to reduce the health impacts caused by harmful emissions.
- **Policy CO-6.6**: Encourage implementation of YSAQMD Best Management Practices, such as those listed below, to reduce emissions and control dust during construction activities:
    - Water all active construction areas at least twice daily.
    - Haul trucks shall maintain at least two feet of freeboard.
    - Cover all trucks hauling soil, sand, and other loose materials.
    - Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed area.
    - Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
    - Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land.
    - Plant vegetative ground cover in disturbed areas as soon as possible.
    - Cover inactive storage piles.
    - Sweep streets if visible soil material is carried out from the construction.
    - Treat accesses to a distance of 100 feet from the paved road with a 6-to-12-inch layer of wood chips or mulch.
    - Treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.
- **Policy HS-7.3**: Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.

3.3.3 Method of Analysis

This section describes the methods used to analyze air quality characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of air quality. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to air quality.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is nonattainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions, such as those leading to odors, adversely affecting a substantial number of people.

APPROACH TO ANALYSIS

The analysis considers the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance. The methods for analyzing air quality impacts associated with construction and operation and maintenance of the Proposed Project are described below.

Construction

The potential impacts from construction of the Proposed Project on air quality were evaluated quantitatively using industry accepted software tools and adopted thresholds of significance for Yolo County. Construction of the Proposed Project would generate criteria pollutant emissions (ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$) from equipment and vehicle exhaust during site clearing, grading, material delivery, construction of proposed improvements, and site cleanup. Major construction activities would require use of off-road construction equipment such as excavators, dozers, and graders. On-road vehicles such as haul trucks would be used for material and equipment hauling. On-road vehicles such as pickup trucks would be used for worker commute.

Criteria air pollutant emissions from construction of the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria air pollutant emissions associated with both construction and operation from a variety of land use projects. Construction emissions were estimated in CalEEMod using a combination of Project-specific information presented in Chapter 2, Project Description, and CalEEMod defaults. Construction of the Knights Landing Ridge Cut would take place in 2025 followed by the Sacramento River Right Bank Levee improvements in 2026 and 2027 (cutoff wall in 2026 and stability berms in 2027).

Construction activities associated with each Proposed Project element would occur from January through December of the construction year. Construction would generally occur Monday through Saturday from 7 a.m. to 5 p.m. The areas of disturbance, including staging areas, for each Proposed Project element presented in Section 2.3.1 Construction Details, were used as inputs in CalEEMod. Equipment types, equipment quantities, worker crew size, construction material quantities, and excavated topsoil quantities presented in Section 2.3.1 were also used as inputs in CalEEMod. Model inputs and assumptions for each Proposed Project element can be found in Appendix B Air Quality and Greenhouse Gas Emissions Modeling.

The emissions from Proposed Project elements in one construction year were summed together to obtain total emissions during that year. Maximum yearly emissions (annual and daily), based on concurrent construction activity, were compared against YSAQMD's construction thresholds to determine significance of air quality impacts.

Operation and Maintenance

Upon completion of construction, the Proposed Project would require routine maintenance for the Proposed Project elements. Minimal quantities of equipment and vehicles would be required for vegetation control, rodent control, grading levee crowns, mechanical mastication/limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5-10 years. Given the limited and infrequent nature of operation and maintenance activities, air quality impacts are evaluated qualitatively.

3.3.4 Impact Analysis

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan?

A project is considered to be inconsistent with an air quality plan if it results in regional population, employment, or vehicle miles traveled (VMT) growth that is inconsistent with the growth assumptions (and therefore the emissions projections) in the applicable air quality attainment plan. As discussed in *Regulatory Framework*, the 2019 Triennial Plan Update is the current air quality plan applicable to Yolo County.

The purpose of the Proposed Project is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin, while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability. As discussed in Section 3.14 *Population and Housing*,

the Proposed Project does not include development of new housing or employment centers. The Proposed Project, therefore, would not directly induce growth in the region or result in long-term development that would conflict with the growth forecasts (and therefore the emissions projections) in the 2019 Triennial Plan Update. Further, as discussed in Section 3.17 *Transportation*, the Proposed Project would not induce VMT growth in the area. Therefore, construction, operations, and maintenance of the Proposed Project would not conflict with an air quality plan. There would be **no impact** and mitigation is not required or recommended.

Impact AQ-2: 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?

The Proposed Project would generate criteria pollutant emissions during site clearing, grading, material delivery, construction of proposed improvements, and site cleanup. Criteria pollutant emissions generated during construction were estimated using CalEEMod. Table 3.3-5 presents a summary of the Proposed Project's unmitigated daily construction emissions (in pounds per day) by construction year. Table 3.3-6 presents a summary of the Proposed Project's unmitigated annual construction emissions (in tons per year) by construction year. Refer to Appendix B Air Quality and Greenhouse Gas Emissions Modeling, for the detailed results of the model runs.

Table 3.3-5. Unmitigated Daily Construction Emissions Summary by Year

Project Element	ROG lbs/day	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2025						
Knights Landing Ridge Cut improvements	2.93	30.87	29.56	0.14	22.18	12.44
Total Emissions in 2025	2.93	30.87	29.56	0.14	22.18	12.44
2026						
Sacramento River Right Bank Levee cutoff wall	8.17	75.52	98.41	0.25	29.49	16.47
Total Emissions in 2026	8.17	75.52	98.41	0.25	29.49	16.47
2027						
Sacramento River Right Bank Levee stability berms	6.62	67.48	58.75	0.32	57.92	32.57
Total Emissions in 2027	6.62	67.48	58.75	0.32	57.92	32.57
Maximum Annual Emissions[1]	**8.58**	**78.18**	**105.67**	**0.33**	**58.38**	**32.76**
YSAQMD Threshold of Significance	-[2]	-[2]	-[2]	-[2]	80	-[2]
Exceeds Threshold?	N/A	N/A	N/A	N/A	No	N/A

Sources: Appendix B; YSAQMD 2007

Notes: ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; lbs = pounds; YSAQMD = Yolo Solano Air Quality Management District; - = no threshold; N/A = not applicable

[1] The highest (maximum)emissions during years 2025, 2026, or 2027 are shown.

[2] YSAQMD does not have daily thresholds of significance for ROG, NO_X, CO, SO_2, and $PM_{2.5}$. These pollutants are shown for informational purposes.

Table 3.3-6. Unmitigated Annual Construction Emissions Summary by Year

Project Element	ROG tons/year	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
		2025				
Knights Landing Ridge Cut improvements	0.29	3.11	2.74	0.01	0.57	0.29
Total Emissions in 2025	0.29	3.11	2.74	0.01	0.57	0.29
		2026				
Sacramento River Right Bank Levee cutoff wall	0.76	7.07	8.75	0.02	0.78	0.49
Total Emissions in 2026	0.76	7.07	8.75	0.02	0.78	0.49
		2027				
Sacramento River Right Bank Levee stability berms	0.47	6.88	5.47	0.03	1.47	0.71
Total Emissions in 2027	0.47	6.88	5.47	0.03	1.47	0.71
Maximum Annual Emissions[1]	**0.82**	**7.49**	**9.87**	**0.03**	**1.54**	**0.74**
YSAQMD Threshold of Significance	10	10	-[2]	-[2]	-[2]	-[2]
Exceeds Threshold?	No	No	N/A	N/A	N/A	N/A

Sources: Appendix B YSAQMD 2007

Notes: ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; YSAQMD = Yolo Solano Air Quality Management District; - = no threshold; N/A = not applicable

[1] The highest (maximum) emissions during years 2025, 2026, or 2027 are shown.

[2] YSAQMD does not have annual thresholds of significance for CO, SO_2, PM_{10}, and $PM_{2.5}$. These pollutants are shown for informational purposes.

As shown in Table 3.3-5, construction of the Proposed Project would generate PM_{10} emissions that are below YSAQMD's daily threshold. As shown in Table 3.3-6, construction of the Proposed Project would generate ROG and NO_X emissions that are below YSAQMD's annual threshold.

All projects within the YSAQMD, including the Proposed Project, are required to comply with all YSAQMD rules and regulations for construction, including Rule 2.3 (Ringelmann Chart), Rule 2.5 (Nuisance), Rule 2.11 (Particulate Matter Concentration), Rule 2.14 (Architectural Coatings), and Rule 2.28 (Cutback and Emulsified Asphalts). The CalEEMod software does not fully capture the emissions reductions that would occur due to implementation of aforementioned rules and regulations; therefore, compliance with the YSAQMD rules listed above were not included in the project-specific modeling. In addition, YSAQMD encourages all projects to implement best management practices to reduce dust emissions and avoid localized health impacts. The YSAQMD's best management practices for dust include, but are not limited to, the following (YSAQMD 2007):

- Water all active construction sites at least twice daily;
- Haul trucks shall maintain at least 2 feet of freeboard;
- Cover all trucks hauling dirt, sand, or loose materials;
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed area;
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days);

- Plant vegetative ground cover in disturbed areas as soon as possible; and
- Cover inactive storage piles.

Compliance with the YSAQMD rules and regulations related to construction, as well as implementation of best management practices for dust, would help minimize emissions of PM_{10} and $PM_{2.5}$ generated during construction activities beyond modeled concentrations.

As discussed in *Regulatory Framework*, YSAQMD considers that any exceedance of project-level thresholds would also result in a significant cumulative impact. Since the Proposed Project would not exceed YSAQMD thresholds for any criteria pollutant during construction, the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which Yolo County is in nonattainment under the applicable federal or state ambient air quality standard.

Operation and maintenance activities would generate limited criteria pollutant emissions from the use of minimal amounts of equipment and vehicles. Given the limited and infrequent nature of operation and maintenance activities, criteria pollutant emissions from operation and maintenance would be substantially less than those generated during construction, and thus, would not exceed YSAQMD thresholds. Further, emissions from operations and maintenance activities would be similar to existing operations and maintenance activities and would not significantly increase emissions over existing conditions. As such, operation and maintenance of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which Yolo County is in nonattainment under the applicable federal or state ambient air quality standard.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on air quality; mitigation is not required or recommended.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations?

The Proposed Project has the potential to generate TAC emissions from the use of diesel equipment during site clearing, grading, material delivery, construction of proposed improvements, and site cleanup, The primary TAC of concern associated with the Proposed Project is DPM. DPM is a carcinogen emitted by diesel engines that could affect existing sensitive receptors. Several sensitive receptors, such as residences and schools, occur in the vicinity of the Proposed Project. The closest sensitive receptors to the Proposed Project are the residences along Front Street in Knights Landing, which are located within 25 feet of the Proposed Project area (Google Earth 2022).

Only portions of the Proposed Project area would be disturbed at a given time throughout the construction period, with operation of construction equipment occurring intermittently throughout the course of a day rather than continuously at any one location within the Proposed Project area. As construction progresses down the levee, vehicle use would continuously be shifting with the work area. DPM concentrations, and thus health risks, are generally greatest near the emissions source and dissipate as a function of distance (ARB 2005). Periodic operation of construction equipment would allow for the dispersal of DPM by avoiding continuous

construction activity in the portions of the Proposed Project area closest to existing sensitive receptors.

According to *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (Office of Environmental Health Hazard Assessment 2015), DPM poses a carcinogenic health risk that is generally measured using an exposure period of 30 years for sensitive residential receptors. However, as presented in Table 3.3-5 and Table 3.3-6, emissions or DPM (which is strongly correlated with $PM_{2.5}$ emissions) are minimal. Although the localized analysis does not directly measure health risk impacts, it does provide data that can be used to evaluate the potential to cause health risk impacts. The very low level of $PM_{2.5}$ emissions coupled with the short-term duration of construction activity would result in an overall low level of DPM concentrations within the Proposed Project area. Furthermore, compliance with the ARB airborne toxic control measures anti-idling measure, which limits idling to no more than 5 minutes at any location for diesel-fueled commercial vehicles, would further minimize DPM emissions in the Proposed Project area. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing as well as associated utility relocation, would result in similar impacts to sensitive receptors. Therefore, construction of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.

No long-term generators or stationary sources are included as part of the Proposed Project. The Proposed Project would not generate significant quantities of operational DPM because operation and maintenance activities would be infrequent and require minimal diesel-powered equipment. Therefore, operation and maintenance of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on sensitive receptors; mitigation is not required or recommended.

Impact AQ-4: Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?

Construction of the Proposed Project could result in odor emissions in the form of diesel exhaust from construction equipment, equipment and material hauling trucks, and worker commute vehicles. It is anticipated that odors during construction would be temporary, intermittent, and would dissipate rapidly from the source with an increase in distance; therefore, would not affect a substantial number of individuals.

The Proposed Project does not involve operation of any of the common types of facilities that are known to produce odors (e.g., landfill, wastewater treatment facility, chemical plants, refineries). Operation and maintenance activities would generate limited odor emissions from the use of minimal amounts of equipment and vehicles. Given the limited and infrequent nature of operation and maintenance activities, odors from operation and maintenance would not affect a substantial number of individuals.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** related to odors; mitigation is not required or recommended.

3.4 Biological Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on 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 wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

3.4.1 Environmental Setting

This section describes the existing biological setting. For the purposes of this section, biological resources were characterized and analyzed in the biological study area (BSA). The Proposed Project area includes all permanent and temporary structures and components required for construction, including levee improvement areas, restoration areas, staging areas, and haul routes associated with the two elements of the Proposed Project: (1) Sacramento River Right Bank Levee improvements and (2) Knights Landing Ridge Cut improvements. The BSA is

defined as the Proposed Project area plus a 0.25-mile buffer. The 0.25-mile buffer satisfies requirements for impact avoidance included in the *Yolo Habitat Conservation Plan/Natural Community Conservation Plan* (Yolo Habitat Conservancy 2018), for the state listed Swainson's hawk (*Buteo swainsoni)*, one of the key species of concern. Figures 3.4-1 through 3.4-5 show the extent of the BSA.

LITERATURE REVIEW

The following sources were used to characterize the environmental setting in the BSA. Project-related documentation was reviewed for site-specific data regarding special-status species habitat suitability and known occurrences of sensitive biological resources. Additionally, preliminary database searches were performed to identify special-status species and their habitats with the potential to occur in the BSA:

- Knights Landing Flood Management Project: Sacramento River, Mid-Valley Levee Reconstruction Sites 9, 10, 11, and Widened Parking Area near Wild Irishman Bend, Final Initial Study with Mitigated Negative Declaration (Yolo County 2022)
- Knights Landing Ridge Cut Erosion Repair Project, Draft Initial Study/Mitigated Negative Declaration (ECORP Consulting, Inc. 2021)
- Yolo Final Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) (Yolo Habitat Conservancy 2018)
- Yolo Habitat Conservation Plan/Natural Community Conservation Plan Final Environmental Impact Statement/Environmental Impact Report (Ascent Environmental 2018)
- Environmental Constraints Analysis for Knights Landing Flood Risk Reduction Feasibility Study (Yolo County 2019)
- Final Environmental Assessment/Initial Study Sacramento River Flood Control System Evaluation Phase III, Mid-Valley, Contract Area 3 (USACE 2013)
- Sensitive Natural Resources Assessment at Planned Maintenance Work Areas along Yolo County Service Area 6 Levee (Estep Environmental Consulting 2017)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC) (USFWS 2022a)
- USFWS Critical Habitat Mapper (USFWS 2022b)
- USFWS National Wetlands Inventory (NWI) Wetlands Mapper (USFWS 2022c)
- National Marine Fisheries Service (NMFS), Protected Resources App (NMFS 2022)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) QuickView Tool in BIOS 5 (CNDDB 2022a)
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022)
- Google Earth™ mapping service aerial imagery of the BSA (Google Earth 2022)

Figure 3.4-1. Northwestern Extent of the Biological Study Area and Land Cover

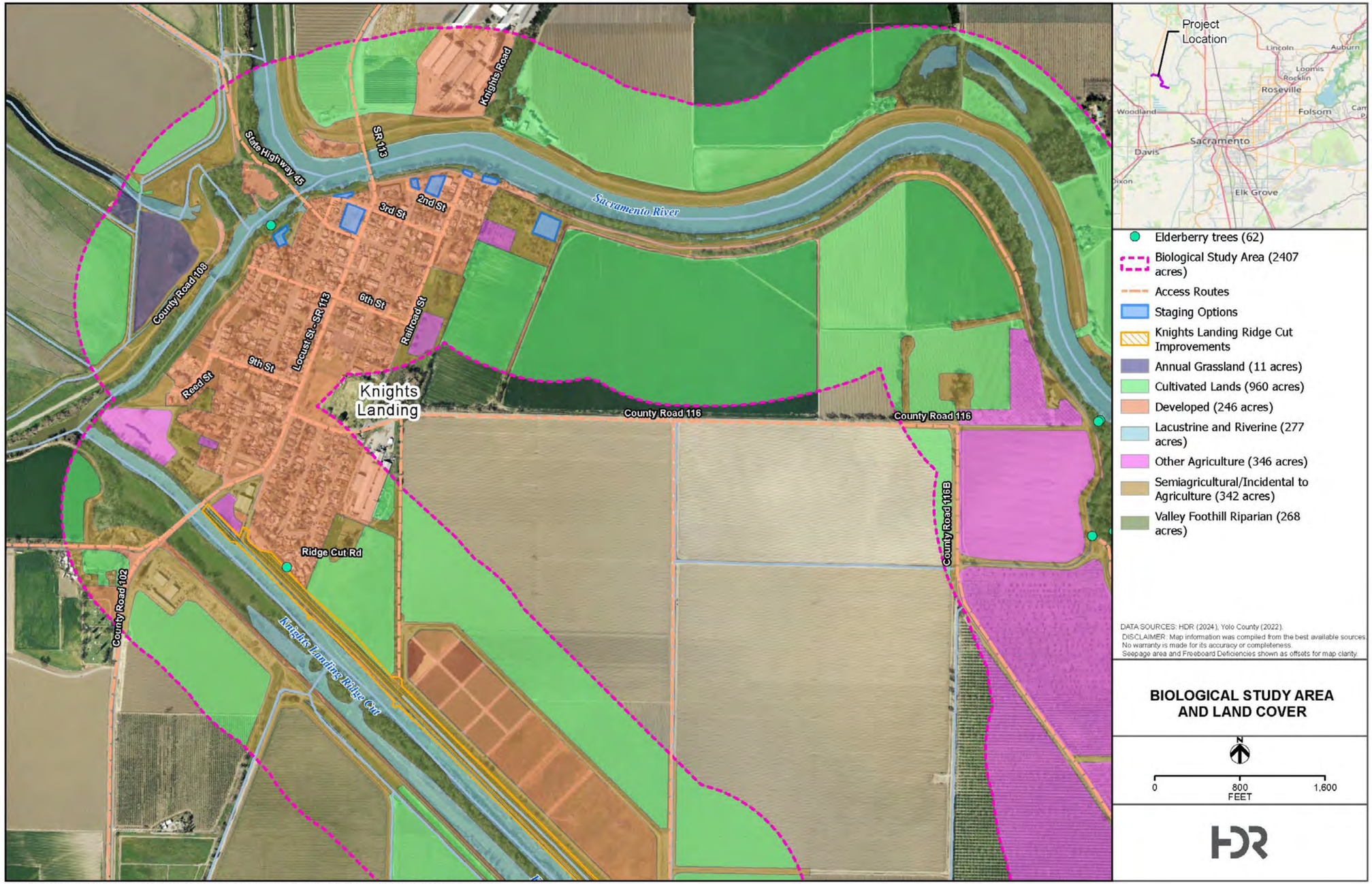


Figure 3.4-2. Southwestern Extent of the Biological Study Area and Land Cover

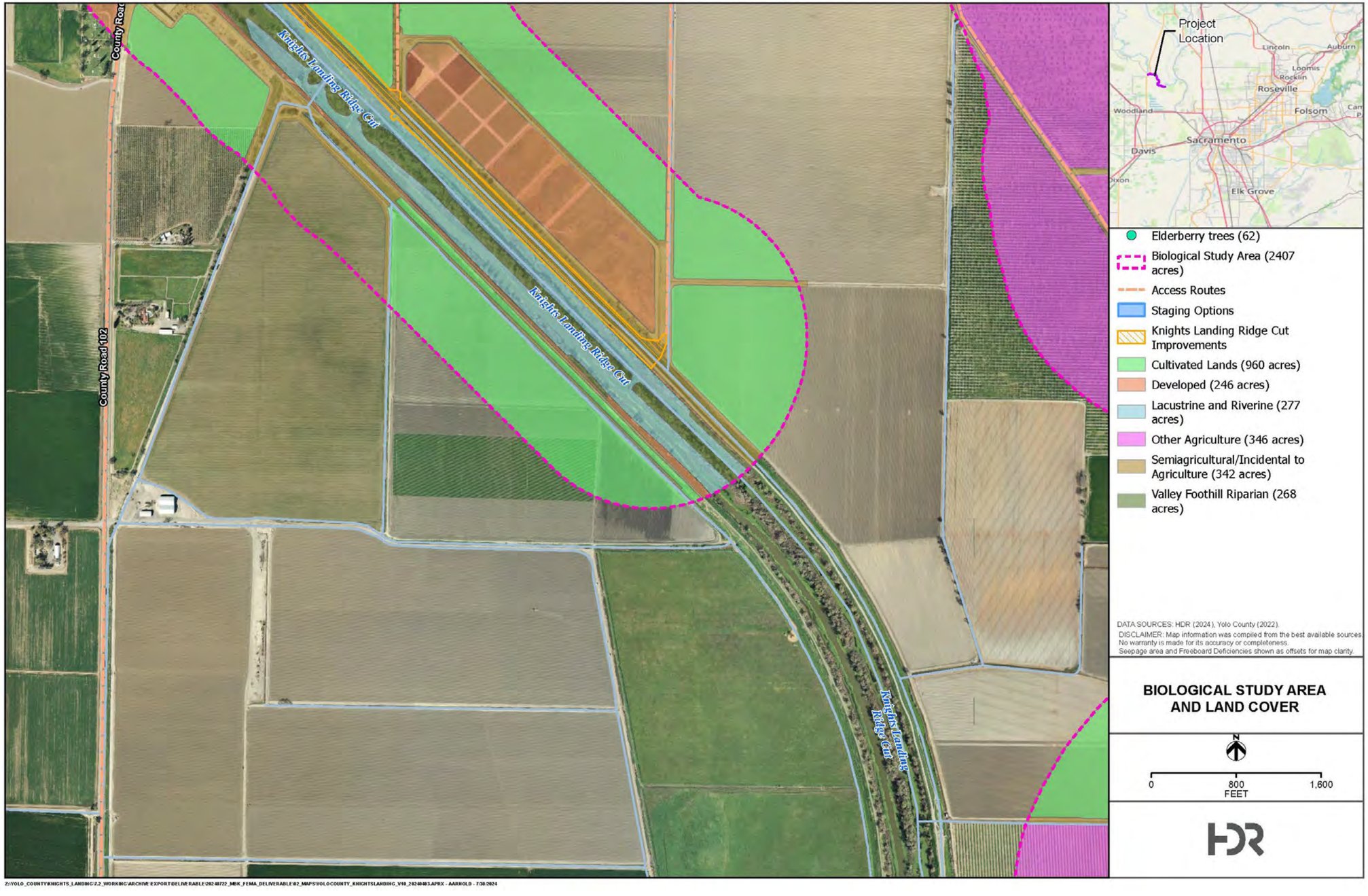
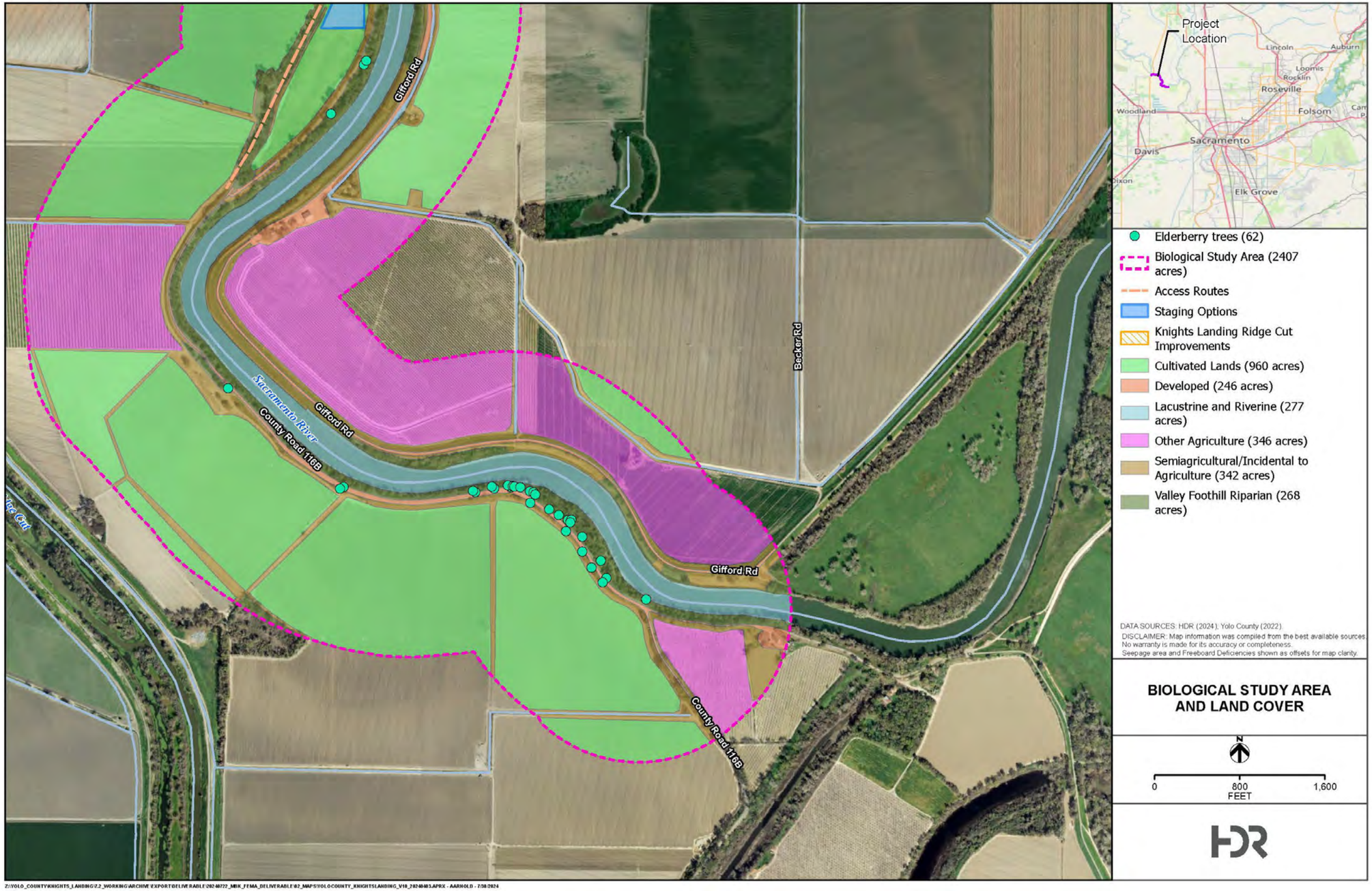


Figure 3.4-3. Northeastern Extent of the Biological Study Area and Land Cover

Figure 3.4-4. Southeastern Extent of the Biological Study Area and Land Cover

Figure 3.4-5. Southern Extent of the Biological Study Area and Land Cover



The Yolo HCP/NCCP along with previous reports assessing biological resources in and around the Proposed Project area were reviewed for existing data on biological resources in the BSA. The USFWS IPaC System was queried to identify USFWS-regulated species that have the potential to occur in the BSA. In addition, both the USFWS Critical Habitat Portal and NWI Wetlands Mapper were reviewed to identify designated critical habitat and aquatic resources in or adjacent to the BSA. The NMFS Protected Resources App was used to determine if NMFS-regulated species have the potential to occur in the BSA, along with designated critical habitat and essential fish habitat. A query of the CNDDB provided a list of processed and unprocessed occurrences for special-status species in the Knights Landing, California, U.S. Geological Survey (USGS) 7.5-minute quadrangle and all adjacent quadrangles including Knights Landing, Kirkville, Sutter Causeway, Nicolaus, Verona, Taylor Monument, Grays Bend, Woodland, and El Dorado Bend. Finally, the CNPS database was queried to identify special-status plant species with the potential to occur in the aforementioned USGS quadrangles. Raw data from the species database queries are provided in Appendix C *Biological Resources Information*.

RECONNAISSANCE SURVEYS

Reconnaissance level surveys were conducted by HDR biologists on June 20, 2018, and March 1, 2021, and GEI biologists on March 27, 2024 with the goal of characterizing natural communities and land cover, as well as assessing habitat for plants and wildlife. Surveys covered the majority of the Proposed Project area, including the levees, haul routes, and proposed parking and staging areas associated with the Sacramento River Right Bank Levee improvements and Knights Landing Ridge Cut improvements.

AQUATIC RESOURCES DELINEATION

HDR biologists conducted an aquatic resources delineation on March 1 and July 22, 2021. Where accessible, areas within 100 feet of the Proposed Project area were assessed as part of the effort. The exact location and extent of aquatic features are not mapped in this document, but they do align closely with the land cover mapping shown in Figures 3.4-1 through 3.4-5[1] as well as the USFWS NWI (Appendix C *Biological Resources Information*). The aquatic resources delineation was performed according to guidelines listed in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Environmental Laboratory 2008). The delineation has not yet been verified by USACE; however, submittal of the delineation report to USACE for verification is planned for 2024.

YOLO HCP/NCCP PLANNING SURVEYS

The Proposed Project is covered under the Yolo HCP/NCCP and is required to comply with all applicable AMMs required by that plan. The applicable AMMs required in the Conditions of Approval for the Project, are listed in the Impact Analysis section as well as the overall Project Description. To participate in the Yolo HCP/NCCP, a series of general and species-specific planning level surveys are required to identify sensitive biological resources that could be impacted by covered activities, fees, and applicable avoidance and minimization measures. The following site-specific planning level surveys were conducted by HDR biologists in 2021 and

[1] Does not include canals and ditches

GEI biologists in 2024. Planning level surveys covered the majority of the Proposed Project area; however, some were focused on areas identified via desktop review as suitable habitat. The results of planning surveys are only considered valid for three years (Yolo Habitat Conservancy 2018). As a result, depending on the timing of the various activities included in the program, follow-up surveys may be required. All surveys were led by qualified biologists that hold suitable credentials such as Professional Wetland Scientist (PWS), Certified Wildlife Biologist (CWB), or 10(a)(1)(A) permitted biologist. The biologists were previously approved by the Yolo Habitat Conservancy and are listed on their qualified biologist list. A list of all wildlife species observed during various surveys in the BSA is provided in Appendix C *Biological Resources Information*.

Land Cover Mapping

HDR biologists ground-truthed data related to natural community and land cover mapping sourced from the Yolo HCP/NCCP GeoMapper online mapping tool (Yolo Habitat Conservancy 2022). Updates to the land cover mapping based on existing conditions observed in the field were made in ArcGIS Pro software. In addition, habitat for Yolo HCP/NCCP covered species was identified and mapped for inclusion in future Yolo HCP/NCCP reporting and permitting efforts.

Valley Elderberry Longhorn Beetle Survey

HDR biologists conducted valley elderberry longhorn beetle (VELB) surveys covering large portions of the Proposed Project area in accordance with current USFWS and Yolo HCP/NCCP guidance (USFWS 2017, Yolo Habitat Conservancy 2018). Accessible elderberry shrubs in and within 100 feet of the Proposed Project area were mapped. In addition, stems over 1-inch in diameter were quantified and the presence or absence of exit holes was noted. These data have been submitted to the Yolo Habitat Conservancy.

Western Yellow-Billed Cuckoo and Least Bell's Vireo Protocol-Level Surveys

HDR avian biologists conducted focused surveys for western yellow-billed cuckoo (WYBC; *Coccyzus americanus*) and least Bell's vireo (LBV; *Vireo bellii pusillus*) in accordance with current protocols and as directed by the Yolo HCP/NCCP (Halterman et al. 2015, Yolo Habitat Conservancy 2018). Surveys for these particular species were deemed necessary due to the presence of modeled habitat associated with the riparian corridor along the Sacramento River and Knights Landing Ridge Cut. During protocol-level surveys for these birds, incidental surveys for bank swallow (*Riparia riparia*), tricolored blackbird (*Agelaius tricolor*), and other bird species were also conducted. All bird species encountered during these surveys were noted (Appendix C *Biological Resources Information*).

PHYSICAL SETTING

The BSA is located in the Sacramento Valley in a historic floodplain of the now leveed Sacramento River. On a local level, the Proposed Project area is confined to the northern portion of the Knights Landing Basin. The BSA extends out past the leveed basin to include the Sacramento River, Knights Landing Ridge Cut, and the primarily agricultural lands beyond.

Topography

Topography across the BSA is historically flat; however, heavy anthropogenic modifications, including levee construction and agricultural land conversion, have resulted in some localized topographic variation. Elevation in the BSA ranges from approximately 20 feet to 45 feet above mean sea level.

Hydrology

Three major waterways border the BSA: the Sacramento River to the east, Knights Landing Ridge Cut to the west, and Colusa Basin Drain to the north (Figures 3.4-1 through 3.4-5). All land west of the Sacramento River levees drains into the Knights Landing Ridge and is associated with the Lower Sacramento hydrologic unit (18020163). Lands on the river side of the Sacramento levee are associated with the Sacramento-Stone Corral hydrologic unit (18020104). Ultimately, all water in the BSA ends up in the lower Sacramento River, eventually draining through the Delta into the San Francisco Bay, and out to the Pacific Ocean.

The Knights Landing Ridge Cut is a human-made leveed drainage channel constructed in 1925 to relieve flooding in the Colusa Basin. It conveys flow from the Colusa Basin Drain in the north to the Yolo Bypass in the south. Flows and water levels within both the Colusa Basin Drain and the Knights Landing Ridge Cut are regulated through the Knights Landing Outfall Gates north of town (Figure 3.4-6).

The lands between the aforementioned major waterways are mostly agricultural land. A network of constructed canals and shallow ditches are found in the BSA. These features convey irrigation to and from the fields and have varying hydroperiods. Most are fed via pumps pulling water from the Sacramento River or Knights Landing Ridge Cut. Many of the ditches are not considered permanent features because they are disced and recut annually during replanting of the agricultural fields.

Soils

Soils in the BSA are generally poorly drained and composed mostly of silty and sandy loams typical of a large river floodplain (NRCS 2022). Most of the soils in the BSA contain hydric components and are considered to be hydric soils. Alkaline and serpentine soils occur in portions of Yolo County; however, neither of these are present in the BSA (Yolo Habitat Conservancy 2021; NRCS 2022). Soil types were used to assess the potential for various special-status plant species to occur in the BSA.

NATURAL COMMUNITIES AND LAND COVER

Natural communities and land cover types were mapped and categorized based on the cover types described in the Yolo HCP/NCCP (Figures 3.4-1 through 3.4-5). Natural communities present in the BSA include valley foothill riparian, freshwater emergent wetland, and riverine. Other semi-natural communities and land cover types include developed, cultivated lands, incidental to agriculture, and other agriculture. Each of these are described in more detail below and include site-specific details on each of the cover types within the BSA, including dominant plant species and habitat suitability for wildlife.

Valley Foothill Riparian

Valley foothill riparian communities occur on the river side of the levees throughout the BSA. All elements of the Proposed Project overlap with, or are adjacent to, riparian habitat. These areas are characterized by a mixed woodland composed of Fremont's cottonwood (*Populous fremontii*), valley oak (*Quercus lobata*), various species of willow (*Salix* spp.), northern California black walnut (*Juglans hindsii*), Oregon ash (*Fraxinus latifolia*), box elder (*Acer negundo*) and California sycamore (*Platanus racemosa*). Generally, Fremont's cottonwood and valley oak are the dominant species along the Sacramento River whereas cottonwood and willow dominate along the Knights Landing Ridge Cut. The understory of the riparian areas is dominated by a mix of western poison oak (*Toxicodendron diversilobum*), buttonbush (*Cephalanthus occidentalis*), mugwort (*Artemisia douglasiana*), blue elderberry (*Sambucus nigra* ssp. *Cerulea*) and willow saplings. Dense curtains of California wild grape (*Vitis californica*) occur in some areas, completely blanketing other vegetation. Tall cottonwood snags are scattered throughout the riparian areas along the Sacramento River, providing nesting and roosting habitat for various species. Riparian areas provide essential nesting habitat for birds, as well as cover, foraging and movement habitat for all types of wildlife.

Fresh Emergent Wetland

Fresh emergent wetlands fringe the open water areas of Knights Landing Ridge Cut. In addition, fresh emergent wetland vegetation can be found in the regularly wetted agricultural ditches throughout the BSA. These areas are dominated by cattail (*Typha* sp.), bulrush (*Schoenoplectus* sp.), and floating primrose *(Ludwigia* sp.). Other common associates include tall flatsedge (*Cyperus eragrostis*), sedges (*Carex* spp.) and smartweed (*Persicaria* sp.). Fresh emergent wetlands provide important nesting and foraging habitat for waterfowl and other avian species. It is especially important to giant garter snake (*Thamnophis gigas*), which uses emergent vegetation for cover and foraging. Tricolored blackbird may also nest in colonies in larger stands of emergent vegetation.

Riverine

The Sacramento River, Colusa Basin Drain, and portions of Knights Landing Ridge Cut are mapped as riverine – an open water cover type. Riverine areas within the BSA are wide, slow moving, and leveed on both banks. Some stretches of bank slopes are lined with rock slope protection while others are earthen with varying amounts of vegetation cover, such as sedges and sandbar willow (*Salix exigua* var. *hindsiana*). All riverine areas provide suitable habitat for resident fish and other aquatic species, as well as foraging habitat for birds, bats, and other wildlife. Only the Sacramento River and the portion of Colusa Basin Drain downstream of the Knights Landing Outfall Gates provide suitable habitat for anadromous fish. Fish passage into the Knights Landing Ridge Cut is blocked by the Knights Landing Outfall Gates and Wallace Weir.

Developed

Developed lands include areas dominated by pavement or man-made structures. In the BSA this largely includes the residential and commercial portions of the community of Knights Landing, along with paved roads, such as County Road 116. Developed areas in the BSA provide minimal habitat value. Vegetation is largely limited to landscaped areas and ornamental

trees and shrubs, along with non-native herbaceous species growing along the edges of the hardscape. Despite the overall minimal habitat value, vegetation in these areas does provide suitable nesting habitat for various species of bird.

Cultivated Lands
Cultivated lands, as defined in the Yolo HCP/NCCP, include areas of non-rangeland agricultural crops that provide habitat for special-status species. Within the BSA, cultivated lands include rotating alfalfa, grain and row crops. Alfalfa (*Medicago sativa*), Sorghum spp., and sunflower (*Helianthus* sp.) were observed growing during the various site visits. Fields may also be left intermittently fallow. This community provides important foraging habitat for special-status species such as Swainson's hawk and white-tailed kite (*Elanus leucurus*). Fallow lands or field edges may also provide suitable upland habitat for giant garter snake (*Thamnophis gigas*).

Incidental to Agriculture
Areas considered incidental to agriculture include farmsteads, dirt roads, irrigation ditches, and cleared field margins. These areas are typically managed and regularly cleared and as a result are dominated by sparse non-native herbaceous vegetation such as brome grasses (*Bromus* spp.) and filaree (*Erodium* spp.). Escaped cultivars and ornamental trees occur in these areas as well, especially around farmstead buildings. These areas provide foraging habitat for raptor, including Swainson's hawk and white-tailed kite.

Other Agriculture
Areas mapped as other agriculture include cultivated areas that are not considered habitat for any of the special-status species covered under the Yolo HCP/NCCP. In the BSA, these areas are limited to orchards. Orchards in the BSA are predominantly monocultures of English walnut (*Juglans regia*). Although orchards do not provide habitat for covered species, they may provide foraging habitat for special-status bats and many other common species.

SENSITIVE NATURAL COMMUNITIES AND AQUATIC RESOURCES

Sensitive natural communities are those that are of special concern to resource agencies or those that are protected under CEQA, Sections 1600–1603 of the Fish and Game Code, and/or Sections 401 and Section 404 of the Clean Water Act. In addition, most natural and semi-natural communities are afforded coverage under the Yolo HCP/NCCP, with the exception of developed and barren areas providing no habitat value for covered species.

The aquatic resources delineation and a query of the NWI Wetlands Mapper (USFWS 2022c) identified several types of aquatic resources in the BSA, including the Sacramento River, Colusa Basin Drain, and Knights Landing Ridge Cut, along with associated fringing emergent and riparian wetlands. It is assumed that all of these aquatic resources would be considered water of the U.S. and State and subject to the Clean Water Act. Additionally, a network of agricultural ditches runs through the BSA, carrying irrigation water and facilitating drainage. These ditches have varying hydroperiods – wetter ditches may support hydrophytic (water loving) vegetation similar to that found in fresh emergent wetland areas, whereas ditches inundated less frequently may be bare soil or support upland grass and forb species. The delineation has not been submitted to USACE yet; as such, the exact jurisdiction of constructed ditches in the BSA has not been determined.

WILDLIFE MOVEMENT CORRIDORS

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented areas of undisturbed area. Maintaining the continuity of established wildlife corridors is important to 1) sustain species with specific foraging requirements, 2) preserve a species' distribution potential, and 3) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

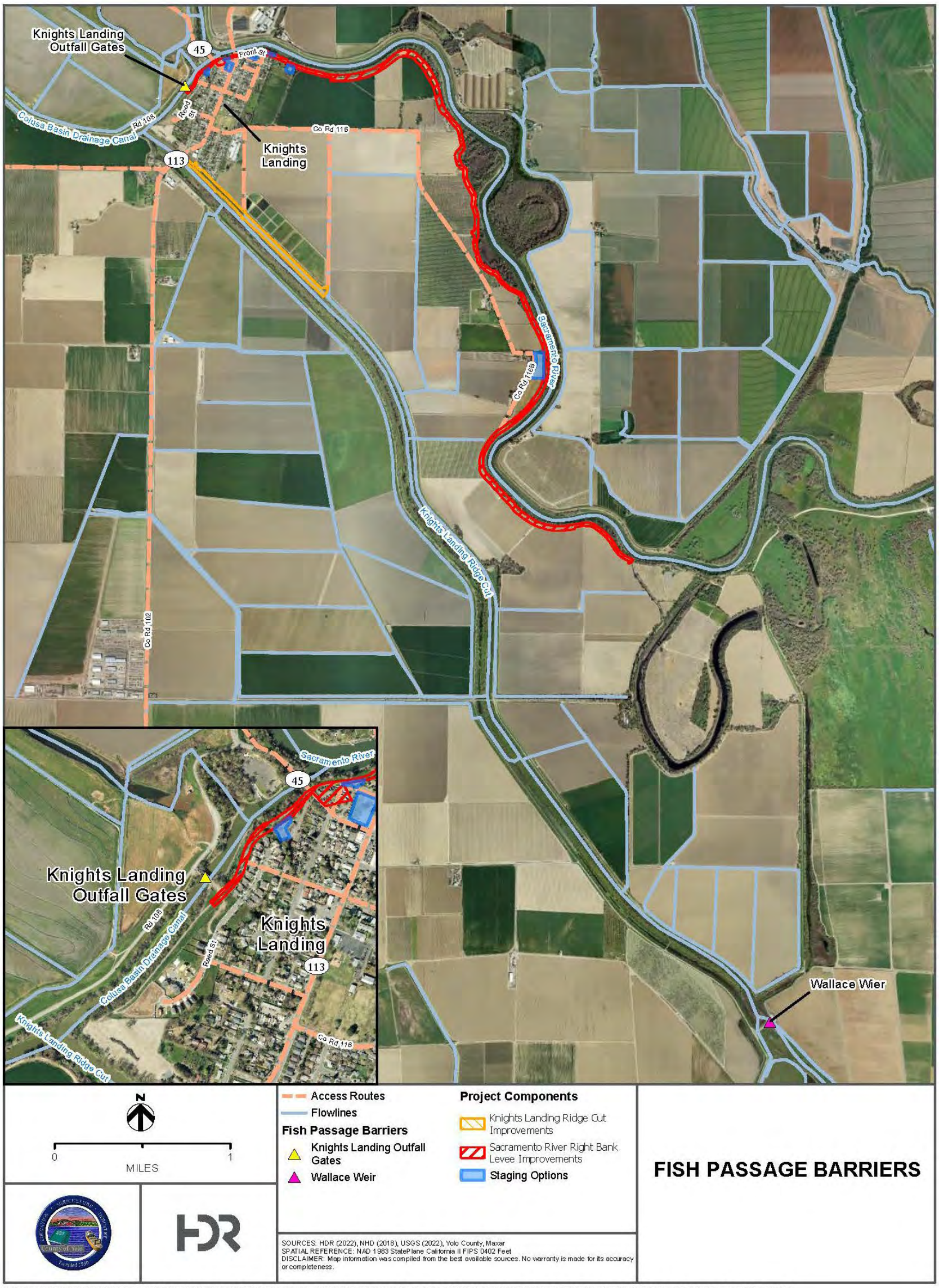
Available data on movement corridors and linkages was accessed via the CDFW in BIOS 5 (2022a). Data reviewed included the Essential Connectivity Areas [ds620] layer, the Natural Landscape Blocks [ds621] layer, and the Missing Linkages in California [ds420] layer, none of which identified any corridors or linkages within the BSA. The majority of the BSA consists of open agricultural land; however, the Knights Landing Basin is largely isolated from surrounding open space by the Sacramento River to the east, the Colusa Basin Drain to the north, and Knights Landing Ridge Cut to the west. These major waterbodies act as barriers to terrestrial movement and likely limit the amount of regional wildlife movement through the BSA. Despite this, the Sacramento River, Colusa Basin Drain, Knights Landing Ridge Cut, and associated riparian corridors serve as important cover and movement habitat for both aquatic and terrestrial species.

The Sacramento River is a major migratory corridor for anadromous fish traveling from the ocean up to smaller tributaries to spawn. Fish barriers are present at the Knights Landing Outfall Gates to the north and Wallace Weir to the south, effectively blocking the passage of anadromous fish into the Knights Landing Ridge Cut and portions of the Colusa Basin Drain. Fish barriers are shown in Figure 3.4-6.

CRITICAL HABITAT AND ESSENTIAL FISH HABITAT

Designated critical habitat in the BSA is limited to the Sacramento River, which is defined as critical habitat for several species of listed anadromous fish, including Central Valley spring run and Sacramento River winter-run Chinook (*Oncorhynchus tshawytscha*), California Central Valley steelhead (*Oncorhynchus mykiss irideus*), and the Southern Distinct Population Segment of green sturgeon (*Acipenser medirostris*). The extent of critical habitat aligns with the ordinary high water mark (OHWM) of the river. Shaded riverine habitat also occurs along the edges of Sacramento River and is associated with trees growing on the lower slope of the levee and overhanging the OHWM.

Figure 3.4-6. Fish Passage Barriers



The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NMFS on all actions that may adversely affect essential fish habitat (EFH). EFH has been designated for salmon and groundfish in the portions of the Sacramento River, Colusa Basin Drain and Knights Landing Ridge Cut that overlap with the BSA. Although Knights Landing Ridge Cut is mapped as EFH for salmonids, passage for anadromous fish into the channel has been effectively blocked by the operation of the Knights Landing Outfall Gates to the north and Wallace Weir to the south.

SPECIAL-STATUS SPECIES

Candidate, sensitive, or special-status species are commonly characterized as species that are at potential risk or actual risk to their persistence in a given area, or across their native habitat. These species have been identified and assigned a status ranking by governmental agencies such as CDFW, USFWS, and private organizations such as CNPS. The degree to which a species is at risk of extinction is the determining factor in the assignment of a status ranking. Some common threats to a species' or population's persistence include habitat loss, degradation, and fragmentation, as well as human conflict and intrusion. For the purposes of this biological review, special-status species are defined by the following codes:

- Listed, proposed, or candidates for listing under the federal ESA (50 CFR § 17.11 – listed; 61 FR 7591 – candidates)
- Listed or proposed for listing under the California Endangered Species Act (CESA) (Fish and Game Code [FGC] 1992 Section 2050 et seq.; 14 CCR § 670.1 et seq.)
- Designated as Species of Special Concern by CDFW
- Designated as Fully Protected by CDFW (FGC §§ 3511, 4700, 5050, and 5515)
- Species that meet the definition of rare or endangered under CEQA (14 CCR § 15380) including CNPS List Rank 1B and 2.

The results of USFWS, CDFW, NMFS, and CNPS database queries identified several special-status species with the potential to be impacted by the Proposed Project. Appendix C *Biological Resources Information* contains tables summarizing all special-status plant and wildlife species returned in the database queries and include a description of the habitat requirements and conclusions regarding the potential for each species to occur in the BSA. In addition, species covered by the Yolo HCP/NCCP are identified in the table. Species determined to have no potential to occur in the BSA are not discussed further in this document. Descriptions of species with the potential to occur in the BSA are provided below, including status, relevant life history information, and a description of likely habitat use in the BSA.

Special Status Plants

The following special-status plants were determined to have the potential to occur in the BSA. Neither of these species was observed during surveys; however, suitable habitat is present.

Woolly Rose-Mallow

Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*) is a perennial rhizomatous herb with a CNPS rating of 1B.2. This species is not listed under ESA or CESA, nor is it a Yolo HCP/NCCP covered species. Woolly rose-mallow is associated with riprap on sides of levees in

freshwater marsh communities and is known to occur in elevations ranging from sea level to 395 feet above mean sea level. The typical bloom period runs from June to September (CNPS 2022). In the BSA, suitable habitat for this species includes the toe slopes and riprap areas along the water side of the levees, as well as emergent wetlands associated with the Knights Landing Ridge Cut and permanent drainage ditches.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is a perennial rhizomatous herb with a CNPS rating of 1B.2. This species is not listed under ESA or CESA, nor is it a Yolo HCP/NCCP covered species. The species can be found in shallow freshwater marshes and is known to occur in elevations ranging from sea level to 2,132 feet above mean sea level. The typical bloom period runs from May through October (CNPS 2022). In the BSA, suitable habitat for this species includes freshwater emergent wetlands associated with the Knights Landing Ridge Cut and permanent drainage ditches.

Special-Status Invertebrates

Valley elderberry longhorn beetle is the only special-status invertebrate determined to have the potential to occur in the BSA.

Valley Elderberry Longhorn Beetle

VELB is considered a threatened invertebrate under ESA and is one of the 11 species covered by the Yolo HCP/NCCP. The current presumed range occurs throughout the Central Valley from Shasta County to Fresno County including the valley floor and lower foothills in elevations less than or equal to 500 feet above mean sea level (USFWS 2017). The beetle is endemic to California and is dependent on its host plant, elderberry, which most commonly grows in riparian habitat, but is also known to occur in some upland habitats such as oak savannas and annual grasslands. Occupancy of the host plant by the species is generally low but tends to be highest in riparian communities. Although what constitutes a high-quality host plant varies, it is known that shrubs greater or equal to 2 inches in diameter and with high nitrogen concentrations are favored. Connectivity to other shrubs may also play a vital role in dispersal of the species. VELB flight season typically runs March – July with dormancy occurring in the winter when the shrub is bare stemmed (USFWS 2017).

Elderberry shrubs have been observed in the riparian areas and land side of levees in the BSA and are most abundant along the Sacramento River. Planning surveys for elderberry overlapping with the BSA were conducted in 2021, 2022, and 2024. Approximately 62 elderberry shrubs or groups were mapped in the BSA and vicinity, with the majority located in the riparian corridor along the Sacramento River in the southern portion of the BSA and beyond.

Special-Status Aquatic Species

The following special-status fish species occur or have potential to occur in the BSA and were identified in the various special-status species queries: southern DPS green sturgeon (FT), white sturgeon (SSC), delta smelt (FT, SE), Sacramento hitch (SSC), hardhead (SSC), Central Valley DPS steelhead (FT), Central Valley spring-run Chinook salmon ESU (FT, ST), Sacramento River winter-run Chinook salmon ESU (FE, SE), Central Valley fall-/late fall-run

Chinook salmon ESU (SSC), longfin smelt (FC, ST), and southern DPS eulachon (FT). Detailed habitat requirement descriptions for each of these species can be found in Appendix C.

These species are a mix of anadromous and resident fish. The extent of the Sacramento River overlapping with the BSA provides migratory/movement habitat only. The leveed channel, muddy substrate, slow flow, and lack of cover make it unsuitable for spawning. Fish barriers are present at the Knights Landing Outfall Gates to the north and Wallace Weir to the south, effectively blocking the passage of anadromous fish into the Knights Landing Ridge Cut and portions of the Colusa Basin Drain. There is potential for resident fish populations to persist in Knights Landing Ridge Cut. Fish are not covered under the Yolo HCP/NCCP.

Special-Status Reptiles
The following special-status reptiles were determined to have the potential to occur in the BSA.

Western pond turtle

Western pond turtle (*Actinemys marmorata*) is considered a California species of special concern and is a Yolo HCP/NCCP covered species. This species is currently under review by the USFWS for listing as endangered or threatened under ESA. The species ranges throughout California except for Inyo and Mono Counties and can be divided into two genetically distinct populations of its California range. The northern population are those found north of San Francisco, including populations in the Central Valley and further north. The southern populations are those found south of San Francisco on the central coast, including populations as far south as the Mojave River and Mexico (Nafis 2022). The diurnal species relies on aquatic habitat for foraging and basking, but also utilizes adjacent upland habitats for breeding and hibernation. Suitable aquatic habitats can include ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms (Thomson et al. 2016). Suitable upland habitats can include annual grasslands and woodlands with friable soils and ample vegetative coverage. Western pond turtles are usually active from February through November, with the duration of the active season depending on the temperature of the habitat (Nafis 2022).

Western pond turtles were observed during planning surveys in the Sacramento River, Knights Landing Ridge Cut and basking near the ponds in the wastewater treatment plant. Riverine and emergent wetland areas in the BSA, as well as adjacent undeveloped uplands within 100 feet[2], are considered suitable aquatic and upland habitat for western pond turtle.

Giant garter snake

Giant garter snake (*Thamnophis gigas*) is a federally threatened species under ESA, a state threatened species under CESA, and is a Yolo HCP/NCCP covered species. The species historically ranged in the Central Valley from Butte County to Buena Vista Lake in Kern County but is now thought to be absent south of Fresno and in Stanislaus County (USFWS 2012). The giant garter snake is endemic to the valley floor wetlands of the Sacramento and San Joaquin valleys in California and relies on both aquatic and upland habitats. Suitable habitat for the giant

[2] Per Yolo HCP/NCCP avoidance standards

garter snake consists of 4 main components: 1) adequate water during active season; 2) emergent herbaceous wetland vegetation for escape and foraging; 3) grassy banks and openings in waterside vegetation for basking, and; 4) higher elevation upland habitat for cover and refuge from flooding. Aquatic habitats can include marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, and rice fields. Adjacent upland habitats require burrows or other soil crevices suitable for snakes to reside during their dormancy period (November- mid March). The species breeds March – April with young emerging late July though early September. Dormancy occurs during fall and winter months (USFWS 2012).

Giant garter snakes have not been observed in the BSA; however, Knights Landing Ridge Cut and various drainage ditches provide suitable aquatic habitat for this species. In addition, this species may use undeveloped uplands within 200 feet of aquatic habitat. Giant garter snakes are not anticipated to be found in the Sacramento River due to the presence of predators, lack of cover, and absence of other habitat elements.

Special-Status Birds

The following special-status birds were determined to have the potential to occur in the BSA.

Tricolored blackbird

The tricolored blackbird (*Agelaius tricolor*) is considered state threatened under CESA, a species of special concern by CDFW, and a Yolo HCP/NCCP covered species. The species is a common year-round resident of California throughout the Central Valley and coastal districts from Sonoma County south. Further, the species is known to breed locally in northeastern California in the spring and becomes more widespread along the central coast and San Francisco Bay area in the winter (Hamilton 2004). Preferred nesting habitat includes cattails (*Typha* spp.), bulrushes (*Schoenoplectus* spp.), Himalayan blackberry (*Rubus armeniacu*s), and agricultural silage. Dense vegetation is preferred but heavily lodged cattails not burned in recent years may preclude settlement. The species is also reliant on access to open water. Strips of emergent vegetation along canals are avoided as nest sites unless they are about 30 feet or more wide, but in some ponds, especially where associated with Himalayan blackberries and deep water, settlement may be in narrower fetches of cattails (CDFW 2022). Vineyards, orchards, and row crops do not make suitable nesting or foraging habitat (Shuford and Gardali 2008). The species is known to nest in colonies and show site fidelity (Hamilton 1998).

Tricolored blackbird was observed flying over the BSA during planning surveys in 2021 but no nesting colonies were observed. It is likely tricolored blackbird only uses the BSA for foraging; however, the mosaic of riparian and emergent wetland communities in the Knights Landing Ridge Cut provides suitable nesting habitat for this species.

Short-eared owl

The short-eared owl (*Asio flammeus)* is a California species of special concern. The species is known to breed in coastal areas of Del Norte and Humboldt Counties, San Francisco Bay Delta, northeastern Modoc plateau, east Sierras from Lake Tahoe to Inyo County and San Joaquin Valley. Individuals are known to winter in the Central Valley, western Sierra Nevada foothills and along the coastline (CDFW 2022). Preferred habitats include open, treeless areas with elevated

sites for perching, and dense vegetation for roosting and nesting. The species is associated with perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetland vegetation communities. The species is often active during daylight hours, mainly in the evening just before sunset (Audubon 2022). This species does not nest in the Central Valley, and as a result, would only be found in the BSA during the winter.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni)* is listed as a state threatened species and a Yolo HCP/NCCP covered species. Swainson's hawk is a known breeding resident in the Central Valley, Klamath Basin, Northeastern Plateau, and in juniper-sagebrush flats of Lassen County of California. There has been limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley California. The species primarily winters in Argentina, with most birds absent from California from October through February, though some individuals are known to overwinter in the Sacramento-San Joaquin River Delta region. The species is a prolific migrant through southern California in the spring and fall, with large mixed-age groups of birds frequently observed kettling high overhead on thermals or foraging together on freshly cut agricultural fields (CDFW 2022). Suitable breeding habitat includes stands of few trees in juniper-sage flats, cottonwood riparian areas, and in oak savannah vegetation communities in the Central Valley. Foraging habitat includes adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures where they often follow farm equipment to gather killed and maimed rodents. Breeding season occurs from late March to late August, with peak activity May through July (CDFW 2022).

Swainson's hawk is known to nest and forage in the BSA – numerous individuals and two active nests were identified during planning surveys. Large trees throughout the BSA provide suitable nesting habitat for this species; however, most nesting occurs in the Sacramento River riparian corridor. Agricultural areas and incidental to agriculture areas provide suitable foraging habitat for this species.

Mountain plover

Mountain plover (*Anarhynchus montanus*) is a California species of special concern. Mountain plover is typically found in flocks mostly on the west side of the Central Valley from Colusa County south to Kern County, Carrizo Plain, Antelope Valley, Imperial Valley, and western Riverside County of California. The species does not nest in California and is not closely associated with open water. Individuals can be found in the state overwintering from November through March in open grasslands and plowed fields with no or very short vegetation (CDFW 2022).

Northern harrier

Northern harrier (*Circus hudsonius*) is a California species of special concern. It is not covered under the Yolo HCP/NCCP. The species occurs year-round in California within breeding areas. Individuals are more common and seen in much greater numbers during migration and winter than during the breeding season (March–- August). Northern harrier is known to breed mainly at private and public wetlands or other reserves, as well as in some types of agricultural fields and

pasturelands (Shuford and Gardali 2008). Specifically, this species nests in shrubby vegetation, usually at marsh edge in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water (CDFW 2022).

Northern harrier was observed in the BSA during pre-planning surveys. The mosaic of riparian and emergent wetland communities in the Knights Landing Ridge Cut provides suitable nesting habitat for this species. It is unlikely this species would nest in more agricultural areas of the BSA due to heavy ongoing disturbance.

Western yellow-billed cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus*) is a federally threatened species, a state endangered species, and is covered under the Yolo HCP/NCCP. The species has declined drastically in California due primarily to loss of suitable habitat. Populations persist in small numbers along the Sacramento River between Red Bluff and Colusa, the Feather River between Yuba City and the Bear River, Owens Valley, the Kern River Valley, the Colorado River Valley, the Santa Ana River near Prado Basin, and the San Luis Rey River in northern San Diego County (USFWS 2021). Breeding individuals will typically arrive at breeding grounds mid to late June. The species requires riparian woodland with dense cover; primarily old-growth cottonwood (*Populus* spp.) forests with willow (*Salix* spp.) understory for nesting but will also nest in overgrown orchards adjacent to streams and dense thickets alongside marshes. Suitable nesting habitat requires relatively large (>20 hectares), contiguous patches of multilayered riparian habitat for nesting. Migrating individuals have been found in coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding. Wintering individuals utilize woody lowland vegetation near fresh water (NPS 2015).

Planning surveys for this species were conducted during the 2021 breeding season. No individuals or nests were located during surveys. Suitable nesting habitat is limited to dense riparian stands along the Sacramento River.

White-tailed kite

White-tailed kite (*Elanus leucurus*) is a California fully protected species and is a covered species under the Yolo HCP/NCCP. The species is a fairly common resident of the Central Valley, coast, and Coast Range Mountains. Suitable nesting habitat includes oak savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat. Forages in open grasslands, meadows, farmlands, and emergent wetlands. Often seen hover foraging over roadsides or grassy highway medians. Individuals known to make a nest of loosely piled twigs and woody debris lined with grass, straw, or rootlets. Nests are typically placed near top of dense oak, willow, or other tree stand; usually 20-100 feet above ground (CDFW 2022). Active kite nests were not observed during planning surveys; however, trees throughout the BSA provide suitable nesting habitat and undeveloped, open areas are suitable for foraging.

Willow flycatcher

Willow flycatcher (*Empidonax traillii*) is a state endangered species and is not covered by the Yolo HCP/NCCP. The species is an uncommon summer resident in wet meadow and montane riparian vegetation communities from 2,000 to 8,000 feet in elevation in the Sierra Nevada and Cascade Ranges of California. Additionally, the species is a common migrant in spring (mid-May to early June) and fall (mid-August to early September) at lower elevations, primarily in riparian habitats throughout the state exclusive of the North Coast. Individuals are most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters. Females typically build open cup nests placed in an upright fork of a willow or other shrub, and occasionally on a horizontal limb, at 1.5 to 10 feet off the ground (CDFW 2022). This species does not nest in the Central Valley, and as a result, would only be found in the BSA during the winter.

Yellow-breasted chat

The yellow-breasted chat (*Icteria virens*) is a California species of special concern and is not covered by the Yolo HCP/NCCP. Individuals are distributed like patchwork throughout the known breeding range, with the highest concentrations of individuals in the Klamath region of California and Oregon and southern Nevada. In California, the species occurs as a migrant and summer resident primarily from late March to late September. Breeding occurs from late April through early August. Females typically nest in early-successional riparian habitats with a well-developed shrub layer and an open canopy. Populations tend to be restricted to narrow borders of streams, creeks, sloughs, and rivers. Often nest in dense thickets of blackberry and willow (Shuford and Gardali 2008). Although yellow-breasted chat was not observed during planning surveys, riparian areas in the BSA provide suitable habitat for this species.

Loggerhead shrike

Loggerhead shrike (*Lanius ludovicianus*) is a California species of special concern and is not covered under the Yolo HCP/NCCP. Loggerhead shrike ranges across most of California but is absent from the highest elevations and the northwest forests and coast (Shuford and Gardali 2008). Suitable nesting habitat includes shrublands and open woodland vegetation communities with a fair amount of grass cover and areas of bare ground. Open areas of short grasses, forbs, or bare ground for hunting, large shrubs or trees for nest placement, and thorny vegetation or barbed wire fences for impaling prey are also required. The species further requires tall shrubs or trees, fences, or power lines for hunting perches and territorial advertisement. Nesting season for the species falls between mid-April and late June. Although loggerhead shrike was not observed during planning surveys, the BSA provides suitable nesting and foraging habitat for this species.

Song sparrow (Modesto population)

The Modesto song sparrow (*Melospiza melodia*) population is a California species of special concern and is not covered under the Yolo HCP/NCCP. The sub-species is found throughout the Sacramento Valley, from the Sacramento delta region, north to Chico (Shuford and Gardali 2008). Highest densities occur in the Butte Sink area of the Sacramento Valley and in the Sacramento–San Joaquin River Delta. Immediately adjacent to the Butte Sink, Modesto song

sparrows are known to breed in sparsely vegetated irrigation canals but are virtually absent from the main stem and tributaries of the Sacramento River above Sacramento. Populations in the Delta and San Joaquin Valley are locally numerous along riparian corridors and sparse along vegetated irrigation canals and levees. Individuals are often spotted in emergent freshwater marshes dominated by bulrushes (*Scirpus* spp.), cattails, and willow. Also nests in riparian forests of valley oak with a sufficient understory of blackberry along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites (Shuford and Gardali 2008).

Song sparrows were observed along Knights Landing Ridge Cut during planning surveys. In the BSA, riparian areas along Knights Landing Ridge Cut as well as vegetated canals and drainage ditches provide suitable habitat for this species. They are less likely to be found along the mainstem of the Sacramento River.

Bank swallow

Bank swallow (*Riparia riparia*) is a state threatened species covered under the Yolo HCP/NCCP. Populations are currently most abundant in the Sacramento Valley along the Feather, Sacramento, and American Rivers, as well as Cache Creek in western Yolo County. Colonies are scarce on the central coast. The species is considered an uncommon and rare migrant throughout the rest of California. Bank swallow is a colonial nesting species preferring riparian and lacustrine bluffs or cliffs with fine-textured or sandy soils into which the nest cavities are dug. Colonies are known to occur in earthen banks as well as sand and gravel pits. Populations have declined drastically in California due to loss of riparian habitat and stabilization of natural banks (CDFW 2022). Roughly 110-120 colonies are thought to still exist in California with 50-60 of those colonies occurring along the middle Sacramento River. Migrant colonies typically arrive in California in early March, with population counts peaking in May. Colonies will start to abandon nesting grounds in July and August when migration begins again (CDFW 2022).

One bank swallow colony was observed along the opposite (left) bank of the Sacramento River during planning surveys. Bank swallow habitat in the BSA is limited to steep earthen banks along the Sacramento River.

Yellow warbler

Yellow warbler (*Setophaga petechia*) is a California species of special concern and is not covered by the Yolo HCP/NCCP. Breeding distribution of the species includes the coast range in Del Norte County, east to Modoc plateau, south along coast range to Santa Barbara and Ventura counties and along western slope of Sierra Nevada south to Kern County. This territory also includes eastern California from Lake Tahoe to Inyo County. The species is known to breed in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada's. Additionally, individuals are known to breed in montane chaparral, open ponderosa pine, and mixed conifer vegetation communities with substantial amounts of brush. Yellow warblers can be found in riparian deciduous habitats in summer: cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. Nests are usually built in an open cup placed 2-16 feet above ground in a deciduous sapling or shrub (CDFW 2022).

Although yellow warbler was not observed during planning surveys, riparian areas in the BSA provide suitable habitat for this species.

Least Bell's vireo

Least Bell's vireo (*Vireo bellii pusillus*) is a federally endangered species, a state endangered species, and is one of 11 species covered by the Yolo HCP/NCCP. The species historically occupied much of the Central Valley, but has since disappeared from most its former range, and is now restricted to southern California from Inyo and Monterey counties through the South Coast and Inland Empire regions. Least Bell's vireo is an obligate riparian breeder, favoring cottonwood, willow, oak woodlands, and mule fat (*Baccharis salicifolia*) scrub along watercourses (USFWS 2006). Individuals arrive from their southern wintering grounds by end of March and depart by the end of August. Peak nesting season for the species occurs between May and June and individuals appear to be monogamous (CDFW 2022).

Protocol-level surveys for this species were conducted during the 2021 breeding season. No individuals or nests were located. Suitable nesting habitat is limited to riparian areas along the Sacramento River and Knights Landing Ridge Cut.

Special-Status Mammals

The following special-status mammals were determined to have the potential to occur in the BSA.

Pallid bat

Pallid bat (*Antrozous pallidus*) is a California species of special concern and is not covered by the Yolo HCP/NCCP. The pallid bat ranges across nearly all of California except for high elevation portions of the Sierra Nevada Mountains and Del Norte, western Siskiyou, Humboldt, and northern Mendocino Counties. Generally found in a wide variety of habitats but with some preference for drier areas. Preferred day roost sites include caves, crevices, mines, and occasionally hollow trees and buildings (Harris et al. 1990). Trees and structures throughout the BSA may provide suitable habitat for this species.

Western red bat

The western red bat (*Lasiurus blossevillii*) is a California species of special concern and is not covered by the Yolo HCP/NCCP. The species is known throughout the Central Valley, as well as the coast and Coast Range mountains from Mendocino County south, and east across the Los Angeles area into the Inland Empire region. The winter range includes western lowlands and coastal regions south of San Francisco Bay. The species occurs in most vegetative communities except desert and alpine areas. Roosts in trees, sometimes shrubs, and typically at the margins of habitats. Preferred roost sites tend to be protected from above, open below, and located above dark groundcover (CDFW 2022). Trees and structures throughout the BSA may provide suitable habitat for this species.

American badger

The American badger (*Taxidea taxus*) is a California species of special concern and is not covered by the Yolo HCP/NCCP. The species is known to occur across nearly all of California with the exception of northernmost Humboldt and Del Norte counties. The species is most abundant in drier open areas of most shrub, forest, and herbaceous vegetation communities with friable soils (CDFW 2022). American badgers are carnivorous, feeding on rats, mice, chipmunks, and especially ground squirrels, pocket gophers and sometimes reptiles and insects (CDFW 2022). Breeding season occurs between July and August and young are born in burrows dug into friable soils (PBS 2022). Large burrows suitable for badger were not observed during surveys; however, undeveloped uplands areas throughout the BSA could provide suitable habitat for this species.

3.4.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, orders, plans, and policies along with definitions and regulatory context that are relevant to the analysis of biological resources in the IS/MND.

FEDERAL

Endangered Species Act

The ESA provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code [U.S.C.] §§ 1531–1544). The ESA defines take to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Title 50, § 222, of the C.F.R. (50 C.F.R. § 222) further defined harm to include an act that actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including feeding, spawning, rearing, migrating, feeding, or sheltering.

ESA Section 7(a)(1) requires federal agencies to use their authority to further the conservation of listed species. ESA Section 7(a)(2) requires consultation with USFWS or NMFS if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may impact endangered or threatened species or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat, and lack a federal nexus, a Section 10(a)(1)(b) incidental take permit can be obtained from USFWS and/or NMFS. In this case, all USFWS-regulated species with the potential to occur in the BSA are covered under the Yolo HCP/NCCP. The Yolo HCP/NCCP does not cover fish.

Clean Water Act (CWA)

The basis of the CWA was established in 1948; however, it was referred to as the Federal Water Pollution Control Act. The act was reorganized and expanded in 1972 (33 U.S.C. § 1251), and at this time, the CWA became the act’s commonly used name. The basis of the CWA is the regulation of pollutant discharges into waters of the United States, as well as the establishment of surface water quality standards.

CWA Section 404
CWA Section 404 (33 U.S.C. § 1344) established the program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Under this regulation, certain activities proposed within waters of the United States require obtaining a permit prior to initiation. These activities include, but are not limited to, placement of fill for the purposes of development, water resource projects (for example, dams and levees), infrastructure development (for example, highways and bridges), and mining operations.

The primary objective of this program is to prohibit the discharge of dredged or fill material if a practicable alternative to the proposed activities exists that results in less impact on waters of the United States, or the proposed activity would result in significant adverse impacts on these waters. To comply with these objectives, a permittee must document the measures taken to avoid and minimize impacts on waters of the United States and provide compensatory mitigation for any unavoidable impacts.

CWA Section 401
Under CWA Section 401 (33 U.S.C. § 1341), federal agencies are not authorized to issue a permit or license for any activity that may result in discharges to waters of the United States, unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. CWA Section 401 provides states or tribes with the ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the federal permit or license to be issued and remain consistent with any conditions set forth in the CWA Section 401 certification. Denial of the certification prohibits the issuance of the federal permit or license, and a waiver allows the permit or license to be issued without state or tribal comment. Decisions made by states or tribes are based on the Proposed Project's compliance with USEPA water quality standards as well as applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any other appropriate requirements of state or tribal law. In California, the SWRCB is the primary regulatory authority for CWA Section 401 requirements (additional details in the following subsections).

Migratory Bird Treaty Act of 1918
Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. § 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. § 21). Most birds found in the BSA would be protected under the MBTA.

Executive Order 13112 – Invasive Species
Executive Order 13112 directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the Proposed Project, USFWS and USACE would issue permits

and, therefore, would be responsible for ensuring that the Proposed Project complies with Executive Order 13112 and does not contribute to the spread of invasive species.

Executive Order 11990 – Protection of Wetlands
Executive Order 11990 (42 FR 26961) requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support for new construction located in wetlands unless 1) no practicable alternative exists and 2) all practical measures have been taken to minimize harm to wetlands.

STATE

California Endangered Species Act
Under CESA, CDFW is responsible for maintaining a list of endangered and threatened species (FGC § 2070). CDFW also maintains a list of candidate species, which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of species of special concern, which serve as a species watch lists.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present and determine whether the proposed project would have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Proposed Project-related impacts on species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from CDFW is typically in the form of an incidental take permit; however, in this case, all state listed species with the potential to occur in the BSA are covered under the Yolo HCP/NCCP.

California Fish and Game Code – Native Plant Protection Act
The Native Plant Protection Act (FGC §§ 1900–1913) prohibits taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by CDFW). An exception in the act allows landowners, under specified circumstances, to take listed plant species, if the owners first notify CDFW and give that state agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC § 1913). Project impacts on these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the Proposed Project.

California Fish and Game Code §§ 3503 and 3503.5
Sections 3503 and 3503.5 of the FGC provide regulatory protection to resident and migratory birds and all birds of prey within the state of California, including prohibiting taking nests and eggs, unless otherwise provided for by the FGC. Specifically, these sections of the FGC make it

unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code.

California Fish and Game Code – Fully Protected Species
California statutes afford fully protected status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. FGC § 3505 makes it unlawful to take any aigrette, egret or osprey or any part of such a bird. FGC § 3511 protects from taking certain fully protected species including, but not limited to: 1) American peregrine falcon (*Falco peregrinus anatum*); 2) brown pelican (*Pelecanus occidentalis californicus*); 3) golden eagle (*Aquila chrysaetos*); 4) greater sandhill crane (*Grus canadensis tabida*) and 5) white-tailed kite. White-tailed kite is the only fully protected bird with the potential to occur in the Proposed Project area. FGC § 4700 identifies nine fully-protected mammals that cannot be taken; none of which that have the potential to occur in or around the Proposed Project area. FGC § 5050 protects from taking five fully-protected reptiles and amphibians; none of which that have the potential to occur in or around the Proposed Project area. FGC § 5515 identifies 10 fully-protected fish that cannot lawfully be taken, even with an incidental take permit; none of which that have the potential to occur in or around the Proposed Project area.

California Wetlands and Other Policies
The California Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met:

1. The project is water dependent.
2. No other feasible alternative is available.
3. The public trust is not adversely affected.
4. Adequate compensation is proposed as part of the project.

Porter-Cologne Water Quality Control Act
The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15) is the primary state regulation that addresses water quality. The SWRCB implements the act's requirements at the state level and a RWQCB implements requirements at the local level. The RWQCB carries out planning, permitting, and enforcement activities related to water quality in California. The act provides for waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act Section 401 Water Quality Certification
The SWRCB and the nine RWQCBs all have and exercise authority under CWA Section 401 in certain circumstances.

CWA Section 401 (33 U.S.C. § 1341) requires that any applicant for a federal license or permit that may result in a pollutant discharge to waters of the United States, obtain a certification that the discharge would comply with USEPA water quality standards. Federal permits or licenses subject to Section 401 also include Federal Energy Regulatory Commission (FERC) licenses.

The state or tribal agency responsible for issuing the CWA Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in state and tribal laws.

The Central Valley RWQCB is responsible for enforcing water quality criteria and protecting water resources near the Proposed Project. In addition, the RWQCB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements, or commonly, by issuing conditional waivers to waste discharge requirements. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by USACE. A request for water quality certification (including waste discharge requirements) by the RWQCB and an application for a General Permit for Storm Water Discharges Associated with Construction Activities are prepared and submitted following completion of the CEQA environmental document and submittal of the wetland delineation to USACE.

Delegated Permit Authority
California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program, including stormwater permits for all areas except tribal lands. USACE issues CWA Section 404 dredge and fill permits; however, the state actively uses its CWA Section 401 certification authority to provide that CWA Section 404 permits comply state water quality standards.

State Definition of Covered Waters
Under California state law, waters of the state means “any surface water or groundwater, including saline waters, within the boundaries of the state” and “all waters of the U.S.” (California Water Code Section 13050). Therefore, water quality laws apply to both surface water and groundwater. After the United States Supreme Court decision in Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (2001), the Office of Chief Counsel of the SWRCB released a legal memorandum confirming the state’s jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act (Porter-Cologne), discharges to wetlands and other waters of the state are subject to state regulation, and this includes isolated wetlands. In general, the SWRCB regulates discharges to isolated waters in much the same way as they do for waters of the United States, using Porter-Cologne rather than CWA authority.

NON-GOVERNMENTAL AGENCIES

California Native Plant Society
The California Native Plant Society (CNPS) is a nongovernmental agency that classifies native plant species according to current population distribution and threat level concerning extinction. CNPS uses these data to create and maintain a list of native California plants that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2022). Potential impacts on populations of CNPS-listed plants receive consideration under CEQA review.

The following define CNPS listings:

- List 1A: Plants believed to be extinct.
- List 1B: Plants that are rare, threatened, or endangered in California and elsewhere.
- List 2: Plants that are rare, threatened, or endangered in California, but are more numerous elsewhere.

All of the plant species on lists 1 and 2 meet the requirements of the Native Plant Protection Act, Section 1901, Chapter 10, or FGC Section 2062 and Section 2067, and are eligible for state listing. Plants appearing on lists 1 or 2 are considered to meet the criteria of CEQA Section 15380, and effects on these species are considered significant. Classifications for plants on List 3 (plants about which more information is needed) and/or List 4 (plants of limited distribution), as defined by the CNPS, are not currently protected under state or federal law. Therefore, no detailed descriptions or impact analysis was performed on species with these classifications.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan
The Yolo County *2030 Countywide General Plan* is a statement of the community's land use values that guides land use decisions in the County: zoning, specific plans, area plans, subdivisions, capital improvements, development agreements and many other land use actions must be consistent with the adopted General Plan (Yolo County 2009a). The General Plan *Conservation and Open Space Element* provides direction regarding the preservation of open space and the conservation, continued enjoyment, and enhancement of natural resources in Yolo County. This element anticipates full integration of the Yolo HCP/NCCP as a tool for multispecies protection.

Yolo County Oak Woodland and Enhancement Plan
The Yolo County Parks and Natural Resources Management Division published the *Yolo County Oak Woodland Conservation and Enhancement Plan* in January 2007 (Yolo County Parks and Natural Resources Management Division 2007). Because 87 percent of the County's oak woodlands are privately owned, the purpose of this plan is to help coordinate voluntary oak woodland conservation and enhancement efforts and guide oak woodland mitigation. This plan establishes a program to identify areas in Yolo County with the highest value habitat. Conservation and enhancement of these high value areas is addressed by encouraging landowners to preserve these areas from urban and rural development. With this plan, the County is able to apply for state money and other funding sources.

Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan
The County is a Permittee of the Yolo HCP/NCCP - a comprehensive, county-wide plan to provide Endangered Species Act and California Endangered Species Act permits and associated mitigation for planned covered activities (Yolo Habitat Conservancy 2018). The Yolo HCP/NCCP provides for the conservation of 12 sensitive species (covered species) and the natural communities and agricultural lands (also referred to as semi-natural communities) on which they depend. It includes a streamlined permitting process to address the effects of a

range of actions on covered species. Project proponents are required to pay land cover and temporary effect fees to mitigate for permanent conversion and temporary disturbance to various land cover types. The purpose of these fees is to compensate for loss of covered species habitat and other biological values. In addition to payment of applicable compensatory fees, the Yolo HCP/NCCP requires the implementation of specific avoidance and minimization measures (AMMs) that have been identified for the Proposed Project to minimize and/or avoid potential direct and indirect impacts on covered species and their habitat. These measures include performing planning-level surveys, establishing appropriate buffers around species habitat, and implementing other practices during construction to avoid and/or minimize impacts on covered species (Yolo Habitat Conservancy 2018).

3.4.3 Method of Analysis

This section describes the methods used to analyze impacts on biological resources resulting from the Proposed Project.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of biological resources. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the CEQA Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to biological resources.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means.

- 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 wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because, although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

APPROACH TO ANALYSIS

The potential impacts from construction, operation, and maintenance of the Proposed Project on biological resources were evaluated qualitatively using data and methods outlined in the Environmental Setting Section and by using regulations that would be applicable to the Proposed Project.

During the project design development, every effort would be made to avoid identified sensitive biological resources. A conservative approach has been taken in this analysis assuming that biological resources in or adjacent to the identified footprints could be impacted by project activities. In some cases, assumptions around the need for vegetation removal or in-water work have been made with the goal of narrowing the analysis.

3.4.4 Impact Analysis

This section includes an overview of the Yolo HCP/NCCP and the AMMs that will be applied as part of the Proposed Project as well as a discussion of impacts along with proposed mitigation measures to minimize impacts to a less than significant level.

YOLO HCP/NCCP

Yolo County is a permittee of the Yolo HCP/NCCP, and through participation the elements of the Proposed Project would comply with all applicable conditions in the Yolo HCP/NCCP relating to covered species and natural communities during construction. The Yolo HCP/NCCP AMMs listed below have been identified for implementation prior to and during construction and are considered part of the Proposed Project in the following impact discussion.

Variances to these AMMs may be determined in coordination with USFWS and/or CDFW during the Yolo HCP/NCCP compliance process. The full text of each AMM can be found in Appendix C. These AMMs are referenced, as applicable, in the various sections of the impact analysis. In some instances, it was determined that additional AMMs would be needed to supplement the

Yolo HCP/NCCP AMMs in order to minimize potentially significant impacts to a less than significant level. Supplemental AMMs are listed in Mitigation Measures.

General Project Design

- AMM1, *Establish Buffers*

General Construction and Operations and Maintenance

- AMM3, *Confine and Delineate Work Area*
- AMM4, *Cover Trenches and Holes during Construction and Maintenance*
- AMM5, *Control Fugitive Dust*
- AMM6, *Conduct Worker Training*
- AMM7, *Control Night-time Lighting of Project Construction Sites*
- AMM8, *Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas*

Sensitive Natural Communities

- AMM9, *Establish Buffers Around Sensitive Natural Communities*
- AMM10, *Avoid and Minimize Effects on Wetlands and Waters*

Covered Species

- AMM12, *Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle*
- AMM14, *Minimize Take and Adverse Effects on Habitat of Western Pond Turtle*
- AMM15, *Minimize Take and Adverse Effects on Habitat of Giant Garter Snake*
- AMM16, *Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite*
- AMM17, *Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo*
- AMM19, *Minimize Take and Adverse Effects on Least Bell's Vireo*
- AMM20, *Minimize Take and Adverse Effects on Habitat of Bank Swallow*
- AMM21, *Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird*

IMPACT DISCUSSION

Impact BIO-1: 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?

Based on the results of the literature review and the findings from biological surveys, several special-status plant and wildlife species are known to occur, or have the potential to occur, in the BSA. The special-status species or species groups identified below were determined to have the potential to be affected either directly or through habitat modifications, or indirectly through effects that could occur after construction or during operations and maintenance activities. When information about the presence of a particular special-status species is unknown, but suitable habitat is present, a conservative approach was taken by inferring

presence of special-status species within the BSA until preconstruction or protocol level surveys determine otherwise. Operations and maintenance (O&M) associated with all elements of the proposed project are not anticipated to impact special-status species as they would not deviate significantly from existing O&M activities.

SPECIAL-STATUS PLANTS

Special-status plants determined to have potential to occur in the BSA include Sanford's arrowhead and wooly rose-mallow, both California Rare Plant Rank 1B.2 species[3]. Suitable habitat for Sanford's arrowhead is present in the Knights Landing Ridge Cut and in agricultural ditches with a sufficient hydroperiod to support emergent vegetation. Suitable habitat for wooly rose-mallow within the BSA includes the toe along the waterside of the levees. Neither plant is a covered species under the Yolo HCP/NCCP. Neither Sanford's arrowhead nor wooly rose-mallow were observed during surveys in the BSA; however, protocol-level botanical surveys have not been conducted to date and as a result the presence of these species cannot be fully ruled out.

The Proposed Project has the potential to impact special-status plants. Water side work may be required for the construction of the cutoff wall. Although in-water work will be avoided, construction will occur on the water side slope of the levee, potentially towards the lower bank of the levee slope which may provide suitable habitat for wooly rose-mallow. Knights Landing Ridge Cut improvements are limited to the landside of the levee; however, low swales and a drainage ditch are present at the toe of the existing levee. These features have the potential to support both species.

During construction, individuals may be impacted by compaction, trampling, removal, or degradation of habitat. Indirect effects could include post-construction encroachment of invasive species. Although adverse effects on special-status plants and their habitat would be avoided to the greatest extent possible, implementation of Project-related activities may result in direct and/or indirect effects on these species should they be present in areas proposed for disturbance. In conclusion, special-status plant populations loss would be considered potentially significant.

In order to minimize the potential for impacting special-status plants, mitigation measures **MM-BIO-1** through **MM-BIO-5** would be implemented. Implementation of **MM-BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary encroachment into areas that may support special-status plants. Mitigation measure **MM-BIO-2** would instruct workers on proper avoidance of special-status plants to minimize disturbance of these species and their habitat. Implementation of mitigation measures **MM-BIO-3** and **MM-BIO-4** would minimize effects on special-status plants by requiring preconstruction surveys, and fully mitigate for unavoidable effects should they be found. Finally, mitigation measure **MM-BIO-5** shall minimize adverse effects on special-status plants due to Project-induced erosion and

[3] 1B Plants Rare, Threatened, or Endangered in California and elsewhere, .2 Moderately threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)

encroachment of invasive plants by requiring temporarily disturbed areas to be revegetated with native species.

Although neither species is covered by the Yolo HCP/NCCP, the general construction AMMs from the Yolo HCP/NCCP such as AMM3 (Confine and Delineate Work Area), AMM5 (Control Fugitive Dust), and AMM8 (Avoid and Minimize Effects of Construction Staging Area and Temporary Work Areas) would function as added protection for special-status plants and their habitats that occur outside of active construction areas. As shown, implementation of the aforementioned mitigation measures and Yolo HCP/NCCP AMMs would reduce impacts on special-status plants to a **less than significant** level with mitigation incorporated.

Mitigation Measures:

MM-BIO-1: Minimizing Footprint. During construction, the work areas shall be reduced to the smallest possible footprint. All project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities shall be confined, to the greatest extent possible, to previously disturbed areas or sited away from sensitive biological resources. Additionally, the project footprint/area shall be clearly defined and marked to avoid working in areas outside of the approved project boundary.

MM-BIO-2: Supplementary Worker Environmental Awareness Training. A qualified biologist shall be retained to conduct mandatory contractor/worker awareness training for construction personnel. The training would supplement the training required under Yolo HCP/NCCP AMM6 (Conduct Worker Training) and shall cover special-status species and other sensitive biological resources not covered by the Yolo HCP/NCCP. The awareness training shall be provided to all construction personnel to brief them on the identified location of sensitive biological resources, including how to identify species (visual and auditory) most likely to be present, the need to avoid impacts on biological resources (e.g., plants, wildlife, and jurisdictional waters), and to brief construction personnel on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor will ensure that new construction personnel receive the mandatory training before starting work.

MM-BIO-3: Special-status Plant Surveys. A qualified botanist shall be retained to perform focused surveys for special-status plants. These surveys shall serve to document the presence/absence of these species in and adjacent to (within 100 feet, where appropriate) proposed impact areas, including new construction access routes. These surveys shall be conducted in accordance with CDFW *Protocols for Surveying and Evaluating Effects on Special-Status Native Plant Populations and Sensitive Natural Communities* (2018) or other current protocols. These guidelines require that special-status plant surveys be conducted at the proper time of year when target species are both evident and identifiable. Surveys shall be scheduled to coincide with known blooming periods, and/or during appropriate developmental periods that are necessary to identify the plant species of concern.

MM-BIO-4: Special-status Plant Avoidance. If any special-status plant species are found within 100 feet of proposed impact areas during the surveys, these plant species shall be avoided to the greatest extent possible and one the following shall be implemented:

- Any special-status plant species that are identified in or adjacent to the construction areas, but not proposed to be disturbed, shall be protected by flagging, signage, orange construction fence, and/or silt fence as appropriate based on site conditions to limit the effects of project-related activities and material stockpiles on any special-status plant species.
- If project-related activities would result in the loss of greater than 10% of a population or occupied habitat for a special-status plant species, a mitigation plan would be developed that describes a program to transplant, salvage, cultivate, and re-establish the species at suitable sites (if feasible). Alternatively, mitigation could be satisfied through off-site preservation or via payment to an in-lieu fee program, if available.

  If the mitigation plan is chosen, it would include means and methods to propagate affected special-status plants via vegetative or reproductive means (e.g., harvesting of seed or seed bank through topsoil collection, salvaging and transplanting or collecting of cuttings), as appropriate for the species, and transplant at suitable receiving sites as close to the existing population as possible. Propagation and transplantation would occur prior to construction. The receiving location would be evaluated and chosen based on similarity to conditions at the transplant source location, to the extent feasible. Site conditions to consider when choosing a receiving site would include aspect, substrate, hydrology, associated species, and canopy cover. The transplanted plants would be monitored for at least one year following construction.

  If preservation option is chosen, preservation areas may include undisturbed areas of the site that will be preserved and managed in perpetuity, offsite mitigation lands, or a combination of both. The preserved habitat shall be of equal or greater habitat value to the areas affected in terms of soil features, extent of disturbance, vegetation structure, and contain extant populations of the same or greater size as the area affected.

  The actual level of mitigation may vary depending on the sensitivity of the species, its prevalence in the area, the location of the occurrence, and the current state of knowledge about overall population trends and threats to its survival; however, at a minimum, the species and habitat will be replaced at a minimum 1:1 ratio (individuals or acreage of occupied habitat).

MM-BIO-5: Restoration of Temporarily Disturbed Areas. All exposed and/or disturbed areas resulting from project-related activities shall be returned to their original contour and grade, and restored using locally native grass and forb seeds, plugs or a mix of the two. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.

VALLEY ELDERBERRY LONGHORN BEETLE

Approximately 62 elderberry shrubs or shrub clusters were mapped during planning level biological surveys in the BSA and vicinity. The distribution of shrubs observed during previous surveys are concentrated in riparian areas along the southern extent of the footprint associated with the Sacramento River Right Bank Levee improvements of the Proposed Project.

Construction along the Knights Landing Ridge Cut and the Sacramento River Right Bank Levee improvements is likely to result in direct and indirect impacts on elderberry shrubs, and potentially VELB, should they be using these shrubs as host plants. Of the 62 elderberry shrubs mapped in the BSA and vicinity, approximately 30 would be either directly or indirectly effected by the Proposed Project. Follow up surveys would be conducted prior to construction and during the Yolo HCP/NCCP review process.

VELB is a covered species under the Yolo HCP/NCCP. Elderberry shrubs would be avoided where possible; however, direct impacts, such as shrub death or damage to branches and roots, could occur during degradation of the levee crown or from trucks and other equipment moving through the work areas. Shrubs mapped within 100 feet of construction but not overlapping with the active construction footprint could also be impacted by Project-related activities, including exposure to increased dust levels or loss of adjacent riparian habitat leaving the shrubs vulnerable to the elements or open to encroachment by invasive species. Given the elderberry is the host plant of the federally listed VELB, both direct and indirect impacts on elderberry would be potentially significant.

All impacts on VELB and its habitat would be mitigated for in accordance with the Yolo HCP/NCCP and would include implementation of AMM12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle), which includes mitigation for impacts on elderberry shrubs through a combination of restoration and transplanting. The number of shrubs or cuttings planted to offset impacts on elderberry shrubs would be determined by the Yolo Habitat Conservancy during the HCP compliance process; however, impacted elderberry shrub and/or stems would be offset at a minimum 1:1 ratio. In addition, AMM3 (Define and Delineate Work Area), AMM5 (Control Fugitive Dust), AMM6 (Conduct Worker Training), and AMM8 (Avoid and Minimize Effects of Construction Staging Area and Temporary Work Areas) would further minimize impacts on elderberry by flagging off sensitive areas for avoidance during construction, minimizing the potential for increased dust levels that could reduce the health of shrubs, and siting temporary work areas away from sensitive biological resources.

Implementation of the AMMs in the Yolo HCP/NCCP would adequately minimize impacts on VELB to a less than significant level. **MM-BIO-6** is proposed to further minimize potential impacts on VELB and other special-status species and would require a biologist to monitor construction activities that could significantly impact sensitive biological resources. The biological monitor would work with construction personnel to avoid and minimize impacts on elderberry shrubs to the greatest extent possible. As shown, implementation of the aforementioned mitigation measures and Yolo HCP/NCCP AMMs would reduce impacts on VELB to a **less than significant** level with mitigation incorporated.

Mitigation Measures:

MM-BIO-6: Biological Monitor. A qualified biologist(s) shall monitor construction activities that could potentially cause significant impacts on sensitive biological resources, which may include but is not limited to riparian vegetation removal or work within the buffers for active bird nests, elderberry shrubs or covered species, as defined in the Yolo HCP/NCCP. The amount and duration of monitoring would depend on the activity and would be determined by the qualified

biologist. The biological monitor shall advise construction personnel on BMP installation and avoidance and minimization of sensitive biological resources. Other duties could include conducting preconstruction and clearance surveys, providing environmental awareness training, and monitoring active nests in the vicinity of construction activities. The biological monitor shall have the authority to stop work at any time if wildlife wanders into the work area or if they identify disturbance to special-status wildlife in the area resulting from project-related activities.

SPECIAL-STATUS AQUATIC SPECIES

Several species of special-status fish have the potential to occur in the Sacramento River including southern DPS green sturgeon, white sturgeon, Delta smelt, Sacramento hitch, hardhead, Central Valley DPS steelhead, Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, Central Valley fall/late fall-run Chinook salmon, Sacramento splittail, longfin smelt, and eulachon. It is anticipated that anadromous species would use the portion of the Sacramento River overlapping with the BSA as a migratory corridor on their way to spawning grounds higher up in the watershed. Resident fish have the potential to occur in Knights Landing Ridge Cut as well as the Sacramento River. Fish are not covered under the Yolo HCP/NCCP.

The Sacramento River (below the OHWM) is mapped as designated critical habitat for Central Valley spring run and Sacramento River winter-run Chinook, California Central Valley steelhead, and the Southern DPS of green sturgeon. EFH has been designated for salmon and groundfish in the portions of the Sacramento River, Colusa Basin Drain and Knights Landing Ridge Cut that overlap with the BSA. Although Knights Landing Ridge Cut is mapped as EFH for salmonids, passage for anadromous fish into the channel has been effectively blocked by the Wallace Weir to the south and the Knights Landing Outfall Gates to the north.

Activities associated with the Knights Landing Ridge Cut improvements would be restricted to the landside of the levee. As a result, impacts on special-status fish and their habitats, including EFH, are not anticipated.

Activities associated with the Sacramento River Right Bank Levee improvements are largely limited to the levee crown and landside slope of the levees and it is assumed that for waterside work, in-water work would be fully avoided. Work on the waterside of the levee would be restricted to the levee crown, well above the water's edge and the OHWM. Direct impacts on aquatic habitat and shaded riverine habitat would be fully avoided. Although minor clearing of riparian vegetation is anticipated, it would be limited to the uppermost edge of the riparian corridor along the levee crown, none of which provides shaded riverine habitat. As a result, impacts on special-status fish and their habitats, including EFH and designated critical habitat, resulting from this element of the Proposed Project are not anticipated.

For the Sacramento River Right Bank Levee improvements, work would be conducted during the dry season when the river level is below the OHWM. In-water work and need for dewatering would be fully avoided. Vibration and noise resulting from construction activities is anticipated to be negligible due to the distance from the wetted channel and the nature of the work (no high vibrational activities such as pile driving). Furthermore, avoidance of in-water work would minimize the potential for increased turbidity and suspended sediment levels in the water

column. Finally, construction BMPs would be installed prior to and maintained throughout the duration of construction of all Proposed Project elements to further minimize potential for runoff into adjacent aquatic resources. Construction would coincide with the dry season to further minimize the potential for water quality issues.

Implementation of **MM-BIO-1, MM-BIO-2,** and **MM-BIO-6** (presented above) would minimize potential direct and indirect effects on special-status fish through design footprint minimization, worker education, and construction monitoring. In addition, measures **MM-BIO-7** and **MM-BIO-8** are proposed to further minimize potential impacts on special-status fish by restricting nighttime work and implementation of construction BMPs. Implementation of the aforementioned mitigation measures would reduce impacts to a less than significant level.

Although fish are not covered by the Yolo HCP/NCCP, the general construction AMMs from the Yolo HCP/NCCP such as AMM3 (Confine and Delineate Work Area), AMM6 (Control Nighttime Lighting), and AMM8 (Avoid and Minimize Effects of Construction Staging Area and Temporary Work Areas) would function as added protection for fish and their habitats that occur outside of active construction areas. As shown, implementation of the aforementioned mitigation measures and Yolo HCP/NCCP AMMs would reduce impacts on special-status fish to a **less than significant** level with mitigation incorporated.

Mitigation Measures:

MM-BIO-7: Construction Hours. All construction would be conducted during daylight hours to allow for an extended period of inactivity (that is, nighttime) for salmonids and other special-status fish, if present, to migrate undisturbed through the Project area. All construction lighting will be pointed away from the Sacramento River and Knights Landing Ridge Cut.

MM-BIO-8: Best Management Practices. No fueling of construction equipment would occur within 100 feet of waterways. BMPs would be employed on site to prevent degradation to on- and off-site aquatic resources. Methods would include the use of appropriate measures to intercept and capture sediment prior to entering aquatic resources, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs would be in place prior to initiation of any construction activities and would remain until construction activities are completed. All erosion control methods would be maintained until all on-site soils are stabilized. Mitigation as required in regulatory permits issued through CDFW and the RWQCB may be applied to satisfy this measure.

SPECIAL-STATUS REPTILES

Special-status reptiles that have the potential to occur in aquatic resources and adjacent undeveloped uplands in the BSA include giant garter snake and western pond turtle. Specifically, the Knights Landing Ridge Cut and permanent agricultural ditches, especially those that support emergent vegetation, provide suitable habitat for both species. The Sacramento River also provides habitat for western pond turtle. Upland areas adjacent to aquatic habitat provide suitable nesting and overwintering habitat for giant garter snake and western pond turtle.

Both aquatic and upland habitat for giant garter snake and western pond turtle has the potential to be temporarily impacted during construction of both the Sacramento River Right Bank Levee improvements and Knights Landing Ridge Cut improvements. Permanent loss of aquatic habitat could occur should levee widening result in the fill of features such as ditches.

Although aquatic habitat would be avoided to the greatest extent practicable, direct mortality of both species could occur as a result of ground disturbance, vegetation clearing, and equipment movement. To the greatest extent practicable, all work would coincide with the snake's active season (May 1 – October 1). During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger rather than being inactive in underground burrows. Western pond turtles may use areas in and adjacent to work areas for nesting. Direct mortality of giant garter snake or western pond turtle would be considered a significant impact.

All impacts on giant garter snake and western pond turtle and their habitats would be mitigated for in accordance with the Yolo HCP/NCCP and would include implementation of AMM14 (Minimize Take and Adverse Effects on Western Pond Turtle) which requires a qualified biologist to assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements). If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist would monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance and would move out of harm's way any turtles or hatchlings found.

AMM15 (Minimize Take and Adverse Effects on Giant Garter Snake) includes preconstruction clearance surveys, limits work to the giant garter snake active season, environmental awareness training, and installation of exclusion fencing between aquatic habitat and work areas. In addition, AMM3 (Define and Delineate Work Area), AMM4 (Cover Trenches and Holes during Construction and Maintenance), AMM6 (Conduct Worker Training), AMM8 (Avoid and Minimize Effects of Construction Staging Area and Temporary Work Areas), and AMM10 (Avoid and Minimize Effects on Wetlands and Waters) would further minimize impacts on special-status reptiles. The AMMs in the Yolo HCP/NCCP, along with implementation of **MM-BIO-6** (above), would adequately minimize impacts on giant garter snake and western pond turtle to a **less than significant** level and no additional mitigation measures are proposed.

Mitigation Measures:
Construction, operations, and maintenance of the Proposed Project would result in less than significant impacts on special-status reptiles; therefore, mitigation is not required or recommended.

SPECIAL-STATUS BIRDS

As a result of the queries, surveys, and desktop review, the BSA may provide nesting, foraging, and/or wintering habitat for several special-status bird and raptor species. Suitable nesting and foraging habitat for Swainson's hawk, western yellow-billed cuckoo, white-tailed kite, yellow-breasted chat, loggerhead shrike, song sparrow Modesto population, bank swallow, tricolored blackbird, northern harrier, and least Bell's vireo occurs in the BSA. Nesting habitat for these

species is associated mostly with riparian habitats; however, Swainson's hawk, white-tailed kite, and loggerhead shrike could nest in trees throughout the BSA. Foraging habitat for special-status birds includes most of the BSA. The BSA also provides nesting, wintering, and/or foraging habitat for other migratory birds and raptors not identified in Appendix C. All native breeding birds (except game birds during the hunting season), regardless of their listing status, are protected under FGC 3503.

Special-status birds that may be found in the BSA but would not be expected to breed onsite (overwintering) include short-eared owl, mountain plover, willow flycatcher, and yellow warbler. Impacts on birds using the BSA for foraging and overwintering are not anticipated, as loss of foraging habitat would be minimal, and the presence of wintering birds likely would not coincide with the construction schedule.

Construction associated with all elements of the Proposed Project could result in potentially significant impacts on special-status birds should active nests be present in or adjacent to (200 feet for passerines, 500 feet for raptors, and various applied buffers for Yolo HCP/NCCP covered species) proposed disturbance, vegetation clearing, access, and/or staging. Impacts could include mortality from vegetation clearing or abandoned nests resulting from increased noise, dust or activity levels associated with construction.

Implementation of the AMMs required by the Yolo HCP/NCCP adequately minimize impacts on covered species, including Swainson's hawk, white-tailed kite, western yellow-billed cuckoo, least Bell's vireo, tricolored blackbird, and bank swallow, to a less than significant level. AMM16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-tailed Kite), AMM17 (Minimize Take and Adverse Effects on Habitat of Western Yellow-billed Cuckoo), AMM19 (Minimize Take and Adverse Effects on Least Bell's Vireo), AMM20 (Minimize Take and Adverse Effects on Habitat of Bank Swallow), and AMM21 (Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird), include preconstruction clearance surveys, defined no-work buffers around active nests or territories, and monitoring by a qualified biologist should work be deemed necessary within the established buffer.

AMM3 (Define and Delineate Work Area), AMM4 (Cover Trenches and Holes during Construction and Maintenance), AMM6 (Conduct Worker Training), and AMM8 (Avoid and Minimize Effects of Construction Staging Area and Temporary Work Areas) in the Yolo HCP/NCCP would minimize impacts on all special-status birds. To further minimize impacts on special-status birds not covered by the Yolo HCP/NCCP, additional mitigation measures are proposed. These include **MM-BIO-2** and **MM-BIO-6** (presented above) which would require a biological monitor for construction activities that have the potential to significantly impact biological resources as well as a supplementary worker environmental awareness training to address species not covered by the Yolo HCP/NCCP. Finally, **MM-BIO-9** and **MM-BIO-10** would minimize impacts by requiring preconstruction nesting bird surveys and avoidance through establishment of no activity buffers. Implementation of the aforementioned measures along with the AMMs required in the Yolo HCP/NCCP would minimize impacts on special-status birds to a **less than significant** level.

Mitigation Measures:

MM-BIO-9: Special-status and Migratory Bird Surveys. If feasible, tree and vegetation clearing would be conducted outside the migratory bird nesting season (March 1 through August 31). However, if clearing and/or construction activities would occur during the migratory bird nesting season, then preconstruction surveys to identify active migratory bird and/or raptor nests would be conducted by a qualified biologist within 7 days of construction initiation. Focused surveys must be performed by a qualified biologist for the purposes of determining presence or absence of active nest sites within the proposed impact area, including construction access routes and a 500-foot buffer, where feasible.

MM-BIO-10: Nest Avoidance. If active nest sites are identified within the survey areas, a no disturbance buffer would be established for all active nest sites prior to commencement of any Proposed Project construction activities to avoid construction or access-related disturbances to migratory bird nesting activities. A no disturbance buffer constitutes a zone in which proposed project related activities (that is, vegetation removal, earth moving, noise generation, and construction) cannot occur. The size of the no disturbance buffers would be determined by a qualified biologist based on the species, activities proposed near the nest, and topographic and other visual barriers. If suitable no-disturbance buffers cannot be established for any reason, then a qualified biologist shall monitor the nest until it is deemed inactive or until construction activities move out of the no-disturbance buffer. The qualified biologist has the right to stop work should disturbance to breeding be observed.

BATS

Special-status bats, specifically pallid bat and western red bat, have the potential to occur in the BSA and be impacted by project-related activities. Bats are not covered under the Yolo HCP/NCCP. Specifically, many of the large trees and snags in the BSA provide suitable habitat for bats in the form of cavities or loose bark. Removal of trees with these specific habitat components could result in loss of roosting habitat and potential disturbance to breeding or take of maternity roost sites. Structures in the BSA could also provide suitable roosting and breeding habitat for bats; however, structures would not be demolished as part of the Proposed Project, disturbance to breeding bats using the structures could occur in the form of elevated noise and dust levels, or from an overall increase in human activity, including the use of heavy equipment during construction. Direct mortality or disturbance to breeding bats would be considered a significant impact.

Implementation **MM-BIO-12** and **MM-BIO-6** (presented above) as well as **MM-BIO-11** would minimize impacts on bats to a **less than significant** level by requiring a biological monitor for construction activities that have the potential to significantly impact biological resources, supplementary worker environmental awareness training to address species not covered by the Yolo HCP/NCCP, and pre-construction bat surveys and avoidance.

Mitigation Measures:

MM-BIO-11: Bat Avoidance. At least 30 days prior to tree removal, a qualified biologist shall conduct a daytime reconnaissance of the trees. The biologist shall look for bats and bat signs, including existing roost sites and bat guano deposits, and will listen for roosting bats. If potential

roost sites are identified, a Project-specific avoidance and minimization plan shall be prepared by a qualified biologist to be reviewed and approved by CDFW prior to the start of Project activities. Removal of trees or snags containing roosting bats or evidence thereof shall only occur during seasonal periods of bat activity (prior to maternity season from approximately March 1 (or when night temperatures are above 45ºF and when rains have ceased) through April 15 (when females begin to give birth to young); and prior to winter torpor – from September 1 (when young bats can fly and feed on their own) until October 15 (before night temperatures fall below 45ºF and rains begin). If surveys do not identify the presence of potential bat roosts, no further mitigation is required.

AMERICAN BADGER

Upland communities in the BSA may provide suitable foraging, movement, and denning habitat for American badger. Although there are no recorded occurrences near the BSA and no suitable dens were observed during site surveys, American badger is known to occur across most of the state. Field edges and other undeveloped upland areas in the BSA provide suitable habitat for this species. Project construction could result in potentially significant impacts on American badger should denning sites be present in proposed disturbance, vegetation clearing, access, and/or staging areas. To minimize the level of impact associated with ground disturbance and/or vegetation clearing to a less than significant level, mitigation measures **MM-BIO-2** and **MM-BIO-6** (presented above) as well as **MM-BIO-12** would be implemented. These would minimize impacts on American badger to a **less than significant** level by requiring a biological monitor for construction activities that have the potential to significantly impact biological resources, supplementary worker environmental awareness training to address species not covered by the Yolo HCP/NCCP, and pre-construction badger den surveys and avoidance.

Mitigation Measures:

MM-BIO-12: American Badger Detection Surveys. Prior to implementation of Proposed Project related activities, a qualified biologist would be retained to determine if suitable denning habitat for American badger occurs within 500 feet of the proposed impact area, including construction access routes. If suitable habitat exists, focused surveys would be performed by a qualified biologist for the purposes of determining presence or absence of active den sites within the proposed impact area, including construction access routes, and a 250-foot buffer (if feasible).

If active breeding sites are identified within 250 feet of Proposed Project activities, a no disturbance buffer would be established prior to commencement of any project construction activities to avoid construction or access-related disturbances to breeding activities for American badger. Activities permitted within and the size of the no disturbance buffers may be adjusted based on an evaluation by the qualified biologist. The buffer would be imposed until a qualified biologist determines breeding activities have ended.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Sensitive communities include (1) areas of special concern to resource agencies, (2) areas protected under CEQA, (3) areas designated as sensitive natural communities by CDFW, (4) areas outlined in FGC Section 1600, (5) areas regulated under CWA Section 404, and (6) areas protected under local regulations and policies. All riparian and freshwater emergent marsh communities would be considered sensitive by CDFW. In addition, all aquatic resources documented in the BSA are considered sensitive natural communities as they would be regulated under CWA Section 404 – impacts on aquatic resources are analyzed in the following section (Impact BIO-3). Finally, all designated critical habitat and EFH would be considered sensitive – impacts on these habitats are analyzed in the *Special-status Aquatic Species* section under Impact BIO-1 above.

Impacts on riparian habitat would be avoided to the greatest extent practicable; however, some tree and shrub clearing in the riparian corridor would be necessary to allow for levee improvements associated with the Sacramento River Right Bank Levee improvements. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to sensitive communities. Vegetation on the levee crown is managed as part of levee O&M activities. This includes tree clearing and pruning, mowing, as well as the use of herbicide. Additionally, levees are grazed by goats and sheep to keep shrubbery from encroaching onto the levee crown. Because of this ongoing maintenance, vegetation removal in the riparian zone is expected to be minimal.

All permanent and temporary impacts on sensitive communities would be offset through required compensatory mitigation pursuant to the Yolo HCP/NCCP requirements and the implementation of the Proposed Project-specific AMMs listed above. Participation in the Yolo HCP/NCCP would provide coverage for loss of most sensitive communities, with the exception of aquatic resources. As a result, **MM-BIO-13** would be implemented to minimize impacts to a **less than significant** level by requiring no net loss of sensitive communities, including aquatic resources.

Mitigation Measures:

MM-BIO-13: No Net Loss of Sensitive Natural Communities and Aquatic Resources. No net loss of sensitive natural communities, including aquatic resources, would be achieved through impact avoidance, minimization, and/or compensatory mitigation. Mitigation for permanent impacts on sensitive natural communities shall be provided at a minimum 1:1 ratio. Mitigation can be achieved through on-site restoration, in-lieu fee payment, payment of Yolo HCP/NCCP land cover fees, or purchase of mitigation credits at a USACE-, USFWS-, and/or CDFW-approved mitigation bank. Mitigation, as required in regulatory permits issued through CDFW, USACE, USFWS, and/or the RWQCB, may be applied to satisfy this measure.

Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means?

As previously discussed, a variety and number of aquatic resources are present in the BSA. Construction associated with all Proposed Project elements could result in potentially significant

impacts on aquatic resources should they be present in proposed disturbance, vegetation clearing, access, and/or staging areas. Although most work associated with the Sacramento River Right Bank Levee improvements and Knights Landing Ridge Cut improvements would be located on the land side of the levees away from the Sacramento River and Knights Landing Ridge Cut, there is potential for small areas of permanent or temporary loss of aquatic resources on the land side of the levees, including ditches, canals, and swales. A delineation of aquatic resources has not been verified by USACE yet; however, these features may be considered jurisdictional. The absence of a verified delineation along with the conceptual level of Project design, results in the inability to quantify impacts on aquatic resources at this time. However, impacts are expected to be relatively minor because the project design would avoid the Sacramento River and Knights Landing Ridge Cut.

BMPs would be installed prior to and maintained throughout the duration of construction of all Proposed Project elements to minimize potential for runoff into adjacent aquatic resources. Construction would coincide with the dry season when water levels are at their lowest and to further minimize the potential for water quality issues.

The Yolo HCP/NCCP does not provide coverage for impacts on jurisdictional aquatic resources. AMM10 (Avoid and Minimize Effects on Wetland and Waters) states that other than requirements for buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species,the HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by USACE, Regional Water Resources Control Board, and CDFW. Loss or degradation of aquatic resources would be considered a significant impact. Therefore, mitigation measures **BIO MM-8** and **BIO MM-13** would be implemented to minimize impacts on aquatic resources to a **less than significant** level. These measures would minimize the potential for degradation by requiring implementation of BMPs and would result in no net loss of aquatic resources through mitigation.

Mitigation Measures:

See **BIO MM-8** and **BIO MM-13.**

Impact BIO-4: 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 wildlife nursery sites?

None of the elements of the Proposed Project are anticipated to permanently affect wildlife movement or fish passage. Further, none of the elements would permanently impede the use of wildlife nursery sites. Project-related construction activities would occur on or adjacent to existing flood control structures and would not impede wildlife or fish movement when compared to existing conditions. Loss of riparian vegetation would occur; however, removal of vegetation would be minimal, have no significant impact on permeability, and would be fully mitigated per the Yolo HCP/NCCP. The Sacramento River, Knights Landing Ridge Cut and other aquatic features in the BSA provide movement habitat for aquatic species. No in-water work is associated with the Proposed Project and measures such as no nighttime work, would be implemented to minimize disturbance to fish and other aquatic species moving through the

Sacramento River. Impacts on wildlife movement would be temporary and considered **less than significant**.

Mitigation Measures:
Construction, operations, and maintenance of the Proposed Project would not conflict with the Yolo HC/NCCP; therefore, mitigation is not required or recommended.

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Proposed Project is consistent with the *2030 Countywide General Plan* (Yolo County 2009a). The plan specifies policies to protect water resources, wetland and riparian areas, fish and wildlife habitat, wildlife movement corridors, vegetation communities, open space for the preservation of natural resources, threatened and endangered species, and aquatic habitats. In addition, Yolo County has adopted the *Yolo County Oak Woodland Conservation and Enhancement Plan* (Yolo County Parks and Natural Resources Management Division 2007), which promotes voluntary efforts to preserve and protect oak trees and oak woodlands. Tree removal would be minimized to the greatest extent practicable during construction and all trees to be preserved would be fenced or flagged prior to the start of construction and avoided during the duration of project activities. A review of the policies included in the aforementioned plans resulted in the determination that Proposed Project is consistent with these policies. Participation in the Yolo HCP/NCCP and implementation of the mitigation measures described above would result in avoidance, minimization, and mitigation for impacts on sensitive biological resources identified in local plans, including oak trees. A best-faith effort would be made to adhere to local policies and plans, and no conflict during either construction or O&M is anticipated. Therefore, this impact would be **less than significant**.

Mitigation Measures:
Construction, operations, and maintenance of the Proposed Project would not conflict with local policies or ordinances; therefore, mitigation is not required or recommended.

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Consistent with the Yolo HCP/NCCP requirements, a reporting form will be submitted to the Yolo Habitat Conservancy prior to construction of each element of the Proposed Project and a Certificate of Compliance will be obtained. To receive authorized take coverage under the Yolo HCP/NCCP, the County would provide mitigation fees to compensate for loss of permanent and temporary loss of the natural and seminatural communities identified in the Proposed Project area. Furthermore, the County shall implement all applicable Yolo HCP/NCCP AMMs identified for the Proposed Project during the review process. The Proposed Project would be designed to meet the avoidance conditions of the Yolo HCP/NCCP, including the application of buffers around sensitive resources; however, variances to these conditions may need to be coordinated with the Yolo Habitat Conservancy, USFWS, and CDFW, during the permit review process. Additional measures herein regarding covered species were formulated in accordance with the

Yolo HCP/NCCP conditions on covered activities. There are no other approved local, regional, or state habitat conservation plans applicable to the Proposed Project. As such, the Proposed Project would not conflict with the provisions of the Yolo HCP/NCCP, and this impact would be **less than significant**.

Mitigation Measures:
Construction, operations, and maintenance of the Proposed Project would not conflict with the Yolo HCP/NCCP; therefore, mitigation is not required or recommended.

3.5 Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

This section presents an overview of information on the local prehistory and history of the Proposed Project area and vicinity. Understanding local cultural history is critical in defining important local, state, and/or regional events, trends, or patterns in prehistory and history by which the significance of prehistoric and historical cultural resources may be evaluated and their significance may be established.

ARCHAEOLOGICAL CONTEXT

Fredrickson (1994:99-103), following Willey and Phillips (1958) divided the prehistory of central California into a series of cultural periods, reflecting an increasing degree of cultural complexity through time. These cultural periods are described below.

Paleoindian

The Paleoindian Period includes the Pre-Clovis (? To 13,500 Cal B.P.[4]) era during which a hypothesized coastal colonization route allowed people to enter California. At this time there are hints of occupation in alluvial basins. In the subsequent Clovis (13,500-10,500 Cal B.P.) era human populations spread within California. Hunting probably was emphasized and use of

[4] Before present (B.P.) is a time scale used in archaeology, geology, and other scientific disciplines to specify when events in the past occurred. Because the "present" time changes, standard practice is to use the year 1950 as the arbitrary origin of the age scale. “Cal” refers to calibrated. Uncorrected, or ‘conventional’ radiocarbon ages are calculated using an assumption that the concentration of naturally occurring radiocarbon in the atmosphere is constant. Calibration of these conventional ages to calendar years corrects for known minor variations over time in the concentration of atmospheric radiocarbon. This calibration also corrects for an error in the estimate of ‘half-life,’ or the rate at which radiocarbon decays. While the half-life of radiocarbon is now known to be slightly longer than was estimated when the technique was invented, laboratories continue to report radiocarbon dates using the older, less accurate value, hence the term ‘conventional.’ Because of this, uncalibrated dates earlier than about 2000 years before present (B.P.) tend to be substantially ‘younger’ than calibrated dates.

vegetal foods and milling technology likely. Resources were acquired by changing habitats. Ad hoc exchange probably occurred, and the basic social unit most likely was the extended family.

Archaic

The Archaic Period includes the Lower Archaic (10,500-7,500 Cal B.P.). At this time, post-Pleistocene climatic changes cause lakes/wetlands to dry up. Milling technology became common and widespread, indicating a plant food emphasis. Hunting was greatly deemphasized. Most artifacts were manufactured from local materials. Ad hoc exchange continued. The basic social unit remained the extended family. During the Middle Archaic (7,500-2,500 Cal B.P.), climate, habitats, and resources were unstable. The economy became more diversified. The inception of more sedentary living along with population growth and expansion occurred. Technological and environmental factors were dominant themes. Little impact occurred from changes in exchange or social relationships. In the Upper Archaic (2,500-900 Cal B.P.) there was growth of sociopolitical complexity characterized by development of status distinctions based upon wealth. Shell beads became important, suggesting exchange and social status; Group-oriented religious organizations emerged, with the Kuksu religion (the Kuksu religion is described more fully in Section 3.18 Tribal Cultural Resources) possibly originating in central California at the end of this period. Greater complexity of exchange systems occurred, with evidence indicating regular, sustained exchanges between groups. Territorial boundaries between groups were not fully established.

Emergent

During the Emergent Period, the Lower Emergent (1,000-500 Cal B.P.) witnessed replacement of the dart and atlatl by the bow and arrow. Coastal maritime adaptations flourished. Territorial boundaries were well established. Distinctions in social status linked to wealth became more common. Regularized inter-group exchange included abundant, often diverse, materials. The Upper Emergent (500-150 Cal B.P.) is characterized by appearance of a “monetized” clam shell disk bead economy. More goods were moving farther in space. The growth of local specializations in production and exchange took place and there was an interpenetration of central and southern exchange systems.

Regional Cultural Chronology

Prior to 5,000 B.P., there is little direct evidence of human occupation (Kowta 1988:46-57; also see Moratto 1984: Chapters 2 and 3). Sometime prior to ca. 11,000 B.P., people entered North America, and occupied the western part of the continent. The period from approximately 11,000 to 8,000 B.P. witnessed the presence of the Fluted Point and Western Pluvial Lakes Traditions in California, and other parts of western North America (cf., Erlandson et al. 2007; Moratto 1984; Rondeau et al. 2007). These late Pleistocene-Early Holocene traditions respectively are argued to represent lifeways focused upon hunting big game mammals and exploitation of arid region wetlands. The lack of archaeological evidence of human occupation is especially true for the California Central Valley. Geological studies revealed episodes of erosion and deposition during the Holocene (11,500 B.P. to present). Thus, any archaeological deposits prior to 8,000 B.P. have likely been destroyed or are underneath earlier alluvial deposits (Rosenthal and Meyer 2004; White 2003).

The following period between ca. 8,000 B.P. and 5,000 B.P., (Kowta 1988:58-66) is predominantly understood from assemblages marked by occurrence of handstones and milling slabs, and the presence of Pinto and Borax Lake dart points, as well as infrequent occurrence of obsidian flakes. This evidence is assumed to represent a subsistence base emphasizing the exploitation of seeds and other vegetal resources, as well as food derived from hunting.

Later periods are accorded different labels, and differing time frames and are represented by a host of sites and assemblages. In the Northern Sacramento Valley, the Augustine Complex is the primary component which marks the most diverse artifact assemblage of the previous periods (Rosenthal et al 2007: 157). An important highlight of this period is the introduction of the bow and arrow, which replaced the atlatl and dart as the primary hunting instrument (Bennyhoff 1994).

Specific manifestations of local/regional prehistory are defined in the temporal sequence first developed by James Bennyhoff in the early 1970s and further advanced by Dave Fredrickson. The earliest archaeological complex, the *Windmiller Complex* (ca. 5,550-2,000 B.P.) is characterized by westerly oriented burials, sophisticated grave offerings, mortars and pestles, fishing technology, cordage and twined basketry, simple pottery, and other baked clay objects. An exchange of mutual significant commodities like obsidian, shell bead and ornaments was widespread throughout the valley (Rosenthal et al 2007).

During the subsequent *Berkeley Complex* (ca. 2,000-900 B.P.), use of more specialized bone, shell, and obsidian technologies evolved in the Central Valley. At this time, people probably lived in large, mounded villages (Rosenthal et al 2007). From these homebases, smaller task groups went out to hunt and fish with nets held down by grooved and notched sinker stones; gather acorns and hard seeds which were processed on millingstones, and probably in wooden mortars; and to collect freshwater shellfish. Steatite vessels were used for cooking. At main settlements, the dead were buried in flexed, dorsal, or lateral positions (Moratto 1984).

The *Augustine Complex* (ca. 1,000-Historic B.P.) witnessed the advent of the bow and arrow (Kowta 1988:150-152). Arrows were tipped with small, lightweight projectile points, assignable to the Rosegate and Gunther Series. The steatite industry was elaborated, with cups, platters, bowls, and tubular smoking pipes being produced. A large variety of bone artifacts, and an expanded inventory of shell artifact types occurred as well. Burial patterning shifted from flexed to extended or semi-extended interments, with utilitarian grave offerings such as pestles and mortars that have been “killed” (Rosenthal et al 2007).

HISTORIC CONTEXT

Cook (1955, 1960, 1962) notes between 1772 and 1840, a number of Spanish and Mexican expeditions into the Sacramento-San Joaquin Delta and Sacramento Valley occurred. After the late 1820s, parties of fur trapper and Euro-American settlers began filtering into the region. The most significant, with respect to potential impacts to Native Americans living in the Proposed Project area and vicinity, were the trips by Gabriel Moraga in 1808, Luis Arguello in 1821, Jedediah Smith in 1828, and John Work in 1833.

Moraga led several expeditions to the Central Valley between 1806 and 1808 (Cook 1960:247-255). His expedition in the Fall of 1808 was to select a suitable mission site(s), further explore the Central Valley and Sierra foothills, visit Native American villages, bring converts to the missions, round up mission runaways, and punish Native American horse thieves. After a foray into the San Joaquin Valley, Moraga's party headed north, reaching the American River on October 8, 1808. Continuing north from the American, his group reached the Feather River at Nicolaus the next day, crossed it, and proceeded north-northwest through the Sutter Basin, observed the Sutter Buttes, and turned west, reaching the Sacramento River north of Grimes. They then followed the east bank of the Sacramento north to a point between Princeton and Butte City. There, on October 12, Moraga turned south, probably retracing his route back to the San Francisco Presidio.

In the Fall of 1821, Luis Arguello and Father Blas Ordaz, searching for Euro-American intruders, journeyed north through the Sacramento Valley (McGowan 1961:I:20-21). After crossing the Carquinez Straits on October 20-21, they rode northeast through the Suisun Plain and the west side of the lower Sacramento Valley. They followed the river north to the vicinity of Cottonwood, and then turned west. During their trip, the Arguello-Ordaz party encountered numerous Native Americans and a number of villages, some with approximately 900-1,000 inhabitants.

Jedediah Smith's expedition into the Sacramento Valley began in late February 1827 (Barbour 2009). From the American River, the party headed north. Between March 1 and March 26, they followed the Feather River from its confluence with the Sacramento River past the Sutter Buttes to present-day Oroville. On the way, they camped on the Bear River and trapped beaver. Smith named the 20-yard-wide Bear River, Brush Creek, because of the dense vegetation present along its banks. He also noted the banks of the Bear River were very high. This, plus the presence of numerous sloughs, made it difficult to cross. Many Native Americans and numerous settlements were seen during Smith's trip.

John Work led a party of Hudson's Bay trappers from Oregon past Klamath Lake and into the upper Sacramento Valley (Cook 1955:316-317; Maloney 1943). Numerous Native American villages were observed along the Feather River. Several thousand people are thought to have inhabited the area. On January 6-8, 1833, Work camped on a dry plain near Wheatland, seeing numerous elk, deer, and pronghorn. Between January 9 and 12, he traveled south to the South Fork of the American River, then returned to camp again on the Bear River for another five days. Work and his men then continued wandering around the Sacramento Valley searching for good trapping grounds before heading west to the Pacific Coast in April. Work spent June and July trapping in the Sacramento-San Joaquin Delta and then headed north again.

He reached the Bear River on August 1, 1833, visiting a Native American village, many of whose inhabitants were ill. The next day Work's party went up the Bear River to hunt game. On August 3, they headed over to the Yuba River before leaving for Fort Vancouver. All along the Feather River, Work observed numerous Native Americans who were ill. Work's party is believed to have introduced the malarial pandemic that severely devastated Native American populations in the region (Cook 1955). As many as 20,000 people contracted the disease and died as a result.

Settlement – Yolo County

In the 1840s, William "Billy" Gordon arrived at Sutter's Fort on the Sacramento River and was directed to the other side of the river, ten miles west of Woodland. Gordon settled on the Gordon Grant and became the first official European settler in what would later be known as Yolo County (Gregory 1913). In March 1849, Jonas Spect sailed up the Sacramento River from San Francisco and eventually founded the city of Fremont, after John C. Fremont who was instrumental in the formation of the State of California beginning in 1846 (Gregory 1913). When California became an official State in 1850, Yolo County was counted as one of the original 27 California counties, with the newly formed Fremont as the county seat. The name Yolo is derived from the Patwin word "*Yo-Doi*" (probably P-57-000010/CA-YOL-007) (Johnson 1978). Yolo City was established in 1960 and was eventually renamed Woodland for the abundance of oak trees and the "perfect garden spot of fertility" (Gregory 1913: Chapter XIV). In 1862, the newly renamed city of Woodland was voted as the county seat.

In 1843, Dr. William Knight, a physician from Baltimore, Maryland, settled where Cache Creek and the Sacramento River converge. According to records, the first structures that Knight constructed here were placed on the "a slight elevation or mound built by the Indians in the far past" which was known as the "Yodoy Mound" (Gregory 1913). Knight soon established a ferry and a town named Baltimore was laid out. But then the sale of the town lots could not be peaceable arranged, the name Baltimore was lost. In 1853, the land was resurveyed and was named Knights Landing. In 1890, the California-Pacific/Southern Pacific Railroad completed the Knights Landing branch of the rail which was accompanied by the Knights Landing Railroad Bridge (Gregory 1913).

3.5.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of cultural resources in the IS/MND.

FEDERAL

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires federal undertakings to consider the effects of the action on historic properties. Historic properties are defined by the Advisory Council on Historic Preservation (ACHP) regulations (36 Code of Federal Regulations [CFR] Part 800) and consist of any prehistoric or historical archaeological site, building, structure, historic district, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria (36 CFR Part 800.16[l]).

To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP.

For projects involving a lead federal agency, cultural resource significance is evaluated in terms of eligibility for listing in the NRHP. For a property to be considered for inclusion in the NRHP, it must be at least 50 years old and meet the criteria for evaluation set forth in 36 CFR Part 60.4.

The quality of significance in American history, architecture, archaeology, engineering, and culture must be present in districts, sites, buildings, structures, and objects that possess integrity of design, setting, materials, workmanship, feeling, and association. They must also meet one or more of the four criteria for inclusion on the NRHP:

- Criterion A, Association with events that have made a significant contribution to the broad patterns of history;
- Criterion B, Association with the lives of persons significant in the past;
- Criterion C, Embodiment of distinctive characteristics of a type, period, or method of construction, the work of a master, high artistic values, or a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D, History of yielding, or the potential to yield, information important in prehistory or history.

If a cultural resources professional meeting the Secretary of Interior's Qualification Standards determines a particular resource meets one of these criteria, it is considered as an eligible historic property for listing in the NRHP. Among other criteria considerations, a property that has achieved significance within the last 50 years is not considered eligible for inclusion in the NRHP unless certain exceptional conditions are met.

Resources listed on, or eligible to, the NRHP are automatically considered historical resources for the purposes of CEQA.

Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 25 U.S.C. 3001)

Under the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001) and implementing regulations 43 CFR Part 10, federal agencies are responsible for the protection of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are discovered on lands under the agency's jurisdiction. All human remains and potential human remains must be treated with respect and dignity at all times.

STATE

California Register of Historical Resources: Public Resources Code Section 5024

The term historical resource includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of Public Resources Code (PRC) (PRC Section 5020.1[j]).

Historical resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (PRC Section 5020.1[k]);

2. A local survey conducted pursuant to PRC Section 5024.1(g); or
3. The property is listed in or eligible for listing in the NRHP (PRC Section 5024.1[d][1]).

The process for identifying historical resources is typically accomplished by applying the criteria for listing in the California Register of Historical Resources (CRHR), which states that a historical resource must be significant at the local, state, or national level under one or more of the following four criteria.

It is associated with events that have made a significant contribution to the broad patterns of:

1. California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or may be likely to yield, information important in prehistory or history. (CCR 14 Section 4852).

To be considered a historical resource for the purpose of CEQA, the resource must also have integrity, which is the authenticity of a resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is eligible for listing in the CRHR (CCR 14 Section 4852[c]).

Unique Archeological Resources
The PRC also requires the Lead Agency to determine whether or not a project would have a significant effect on unique archaeological resources (PRC Section 21083.2[a]).

The PRC defines a unique archaeological resource as follows.

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
  - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
  - Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
  - Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2).

In most situations, resources that meet the definition of a unique archaeological resource also meet the definition of a historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR.

California Health and Safety Code Section 7050.5
Regarding the discovery of human remains on non-federal lands, Section 7050.5 of the California Health and Safety Code (CHSC) states the following:

a) Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the PRC or to any person authorized to implement Section 5097.98 of the PRC.
b) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the California Government Code (CGC), that the remains are not subject to the provisions of Section 27491 of the CGC or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the PRC. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.
c) If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) (CHSC Section 7050.5).

Of particular note to cultural resources is subsect (c). After notification, NAHC would follow the procedures outlined in PRC Section 5097.98, which include notification of Most Likely Descendant (MLD), if possible, and recommendations for treatment of the remains. The MLD would have 24 hours after notification by the NAHC to make their recommendation (PRC Section 5097.98). In addition, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under State law (PRC Section 5097.99).

California Graves Protection and Repatriation Act of 2001
Section 8010 and 8011 of the CHSC also address the protection of Native American human remains and cultural items and state:

8010. This chapter shall be known and may be cited as the California Native American Graves Protection and Repatriation Act (CALNAGPRA) of 2001.

8011. It is the intent of the Legislature to do all of the following:

a) Provide a seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect.
b) Apply the state's repatriation policy consistently with the provisions of the Native American Graves Protection and Repatriation Act (25 U.S.C. Sec. 3001 et seq.), which was enacted in 1990.
c) Facilitate the implementation of the provisions of NAGPRA with respect to publicly funded agencies and museums in California.
d) Encourage voluntary disclosure and return of remains and cultural items by an agency or museum.
e) Provide a mechanism whereby lineal descendants and culturally affiliated California Indian tribes that file repatriation claims for human remains and cultural items under the Native American Graves Protection and Repatriation Act (25 U.S.C. Sec. 3001 et seq.) or under this chapter with California state agencies and museums may request assistance from the commission in ensuring that state agencies and museums are responding to those claims in a timely manner and in facilitating the resolution of disputes regarding those claims.
f) Provide a mechanism whereby California tribes that are not federally recognized may file claims with agencies and museums for repatriation of human remains and cultural items.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The County's *2030 Countywide General Plan* (Yolo County 2009a) adopted 14 policies regarding archaeological sites, tribal resources, and historic buildings. Implementation of these policies is through a series of Actions (Actions CO-A55 through CO-A70) designed to ensure compliance with all applicable local, state and federal laws.

- **Policy CO-4.1**: Identify and safeguard important cultural resources.
- **Policy CO-4.2**: Implement the provisions of the State Historical Building Code and Uniform Code for Building Conservation to balance the requirements of the Americans with Disabilities Act with preserving the architectural integrity of historic buildings and structures.
- **Policy CO-4.3**: Encourage owners of historic resources to preserve and rehabilitate their properties.
- **Policy CO-4.4**: Encourage historic resources to remain in their original use whenever possible. The adaptive use of historic resources is preferred when the original use can no longer be sustained. Older residences may be converted to office/retail use in commercial areas and to tourist use in agricultural areas, so long as their historical authenticity is maintained or enhanced.
- **Policy CO-4.5**: Increase knowledge of historic preservation through public education and outreach programs.
- **Policy CO-4.6**: Support historically oriented visitor programs at the local and regional level through the Yolo County Visitor's Bureau and similar efforts.
- **Policy CO-4.7**: Encourage the identification of historic resources through the integrated use of plaques and markers.

- **Policy CO-4.8**: Explore opportunities for promoting heritage tourism, including cooperation with regional and State marketing efforts.
- **Policy CO-4.9**: Promote the use of historic structures as museums, educational facilities, or other visitor-serving uses.
- **Policy CO-4.10**: Encourage voluntary landowner efforts to protect cultural resources consistent with State law.
- **Policy CO-4.11**: Honor and respect local tribal heritage.
- **Policy CO-4.12**: Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process.
- **Policy CO-4.13**: Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.
- **Policy CO-4.14**: Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable cultural resources policies of the *Land Use and Resource Management Plan of the Delta Protection Commission*.

3.5.3 Method of Analysis

The location and eligibility status of previously recorded archaeological, ethnographic, and built environment resources were identified using:

- Records search data of previously conducted cultural resource studies and previously recorded cultural resources on file with the California Historical Resources Information System (CHRIS) housed at the Northwest Information Center (NWIC) of at Sonoma State University and the Northeast Information Center (NEIC) at California State University, Sacramento – database searches conducted in August 2018 and April 2021.
- Listings of the NRHP.
- Listings of the California Register of Historical Resources (CRHR).
- Listings of the California Office of Historic Preservation's (OHP) Build Environment Resources Directory (BERD).
- California Points of Historical Interest (1992).
- California State Landmarks (1996).
- California Inventory of Historic Resources (1988).
- Knights Landing Historic Properties Directory (2012).
- Regional geological maps compiled by the California Division of Mines and Geology and the United States Geological Survey for Yolo County.
- Caltrans Historic Bridge Survey.
- The Web Soil Survey online mapping tool available from the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) (2022).
- Historic aerials and topographic maps available at (www.historicaerials.com).

Unrecorded cultural resources were identified via intensive pedestrian surveys of the Sacramento River Right Bank Levee improvements area and the Knights Landing Ridge Cut improvements area in June 2021. The field survey and recording of cultural resources followed

the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (NPS 1983) and the State of California OHP publication *Instructions for Recording Historical Resources* (OHP 1995).

SACRAMENTO RIVER RIGHT BANK LEVEE IMPROVEMENTS

As a result of the records searches, pedestrian survey, and consultation, six resources were identified within the proposed Sacramento River Right Bank Levee improvements area: P-57-000010, P-57-000312, P-57-000519, P-57-000705, P-57-000976, and P-57-001009.

P-57-00010 is the remnant of a precontact "mound" site and may be the Patwin ethnographic village of *Yodoi*. Site constituents include obsidian and basalt flaked stone debitage and tools, ground stone, marine and freshwater shell, animal bone (both burned and modified), fire-affected rock, and human remains. The site vicinity has been subject to substantial development associated with the general growth of Knights Landing and much of the site has been covered by development in Knights Landing. Due to the development, previous archaeological observations regarding this site have primarily been based on the SR 45 cut bank adjacent to the trailer/mobile park. However, this bank has been recently covered in rip rap by Caltrans and is no longer accessible. Dense vegetation in the general vicinity precluded a more thorough surficial investigation. A cursory examination in June 2021 of spoils from a shallow waterline trench on the east side of the trailer park did not reveal any cultural material. P-57-000010 has not been evaluated for eligibility to the CRHR or the NRHP.

P-57-000132 is the remnant of a natural oak grove forest – no precontact or historic-era artifacts or features were recorded in association with the forest. Although the grove was originally recorded in 1986 as a historic-era resource, a 2013 update to the site record indicates that the resource does not qualify as either a historic site or as a built environment resource. The resource has not been evaluated for the NRHP or CRHR but does not require further management as an archaeological resource under CEQA.

P-57-000519 was constructed in 1930-1939 under the Sacramento River Flood Control Project (SRFCP) as Levee Unit 127. The levee unit includes the levees on either side of the KLRC, the southeast levee of Sycamore Slough between the KLRC and the Sacramento River in Knights Landing, the south levee of the Sacramento River from Knights Landing to the Fremont Weir, and the west levee of the Yolo Bypass between Fremont Weir and Wallace Weir. P-57-000519 has been previously evaluated and is not eligible for listing in the CRHR/NRHP and does not contribute to the significance of the SRFCP.

P-57-000705 is the Colusa Basin Drainage Canal consisting of the physical channel on the waterside of the Sacramento River levee at the northwestern tip of the Knights Landing basin. The Colusa Basin Drainage Canal has been previously evaluated and is not eligible for listing in the CRHR or NRHP.

P-57-000976 is the remains of the Colusa Basin Drainage Canal Bridge which served to carry the no longer extant California-Pacific railroad spur line (P-57000194) over the Colusa Basin Drainage Canal (P-500705), connecting a sugar beet farm to the northwest with the main California-Pacific railroad line in Knights Landing. The remains consist of at least eight sets of

pilings although the railroad deck has been removed and at least one set of pilings has been truncated. The resource has not been evaluated for eligibility to the CRHR or NRHP.

P-57-001009 is the Knights Landing Drawbridge which carries State Route 113 over the Sacramento River. The bridge was constructed in 1933 by the Judson Pacific Murphy Company which was a successor to several metal fabrication and construction firms that had operated in California since the 1860s. The bridge is listed in Table 7 ("Bridges that do not appear eligible for listing in the National Register") in the Caltrans Bridge Inventory and is noted as ineligible for the NRHP (which also makes it ineligible for the CRHR) on its National Bridge Inventory Data Sheet.

KNIGHTS LANDING RIDGE CUT IMPROVEMENTS

As a result of the records searches, pedestrian survey, and consultation, two resources were identified within the proposed Knights Landing Ridge Cut improvements area:P-57-000519 (Levee Unit 127) and P-57-000709 (the Knights Landing Ridge Cut). Both resources have been previously evaluated and are not eligible for listing in the CRHR/NRHP.

CEQA SIGNIFICANCE CRITERIA

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5; and
- Disturb any human remains, including those interred outside of dedicated cemeteries.

APPROACH TO ANALYSIS

The potential impacts from construction, operation and maintenance of the Proposed Project on cultural resources were evaluated qualitatively using known historical records search data and pedestrian survey information; and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.5.4 Impact Analysis

Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.

As defined in Section 15064.5, the Proposed Project improvements along the Sacramento River Right Bank would not cause a substantial adverse change in the significance of P-57-000519, P-57-000705, and P-57-001009 during construction or long-term operations and maintenance. All three resources have been previously evaluated and do not qualify as CEQA historical resources per the CRHR eligibility criteria.

As described in Section 2.3 Proposed Project, no in-water work is anticipated and, therefore, P-15-000976 would be avoided during construction and long-term operations and maintenance.

Although P-15-000976 has not been evaluated for CRHR or NRHP eligibility, no significant impacts are expected.

As defined in Section 15064.5, the Proposed Project improvements along the Knights Landing Ridge Cut would not cause a substantial adverse change in the significance of P-57-000519 and P-57-000709 during construction or long-term operations and maintenance. Both resources have been previously evaluated and do not quality as CEQA historical resources per the CRHR eligibility criteria.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant** impact on historical resources and mitigation is not required or recommended.

Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

SACRAMENTO RIVER RIGHT BANK LEVEE IMPROVEMENTS

As noted above, P-57-00010 is the remnant of a precontact “mound” site and may be the Patwin ethnographic village of *Yodoi*. Since its initial recording in 1934, the site vicinity has been subject to residential and commercial development associated with the general growth of Knights Landing. The remnants of the site now appear to be primarily covered by development in Knights Landing. P-57-000010 has not been evaluated for eligibility to the CRHR or the NRHP nor have its boundaries ever been fully defined.

A cursory examination in June 2021 of spoils from a shallow waterline trench on the east side of the trailer park did not expose any cultural material. If archaeological material from P-57-00010 extends under the Sacramento River Right Bank Levee, disturbance associated with the Proposed Project would likely intersect with these deposits, which could result in a substantial adverse change in the significance of an archaeological resource. Given the available information regarding P-57-00010, the inability to define the limits of the site due to the risk associated and regulations governing the Sacramento River Right Bank levee, and the extent of excavation for the proposed cutoff wall in this vicinity there is a higher likelihood to encounter and intersect deposits. Utility relocations required for cutoff wall construction also have the potential to encounter and intersect deposits. However, relocations would be limited to previously disturbed areas.

For construction of the seepage stability berm to address seepage in the Sacramento River Right Bank Levee in Knights Landing, the likelihood to encounter and intersect deposits is reduced because less excavation would be required. Utilities encountered for the construction of a seepage berm would be left in place and extended through the new berm for continued use. If significant archaeological deposits are exposed during implementation of the Proposed Project, either associated with P-57-00010 or another archaeological resource, mitigation would be required to minimize impacts.

KNIGHTS LANDING RIDGE CUT IMPROVEMENTS

No archaeological resources have been identified within the Knights Landing Ridge Cut improvements area and, therefore, there would be no impact. Although unlikely, should a previously unrecorded resource be identified during the Proposed Project, mitigation would be necessary.

With the implementation of mitigation measures **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3**, construction impacts to archaeological resources would be minimized for cutoff wall construction. For the proposed seepage berm in the vicinity of P-57-00010 and the rest of the Proposed Project areas, implementation of mitigation measures **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3** would reduce construction impacts to archaeological resources to a less than significant level. With the implementation of **MM-CUL-1**, **MM-CUL-2**, and **MM-CUL-3,** operations and maintenance of the Proposed Project would have a less than significant impact on archaeological resources. As such, with the implementation of mitigation measures, impact CUL-2 would be reduced to a **less than significant** level.

Mitigation Measures:

MM-CUL-1: **Cultural Resources Awareness Training.** Before any ground-disturbing work (including vegetation clearing, grading, and equipment staging) commences, a qualified archaeologist will conduct a mandatory cultural resources awareness training for all construction personnel. The training will cover the cultural history of the area, characteristics of archaeological sites, applicable laws, and the avoidance and minimization measures to be implemented. Proof of personnel attendance will be provided to overseeing agencies as appropriate. If new construction personnel are added to the Proposed Project, the contractor will ensure that the new personnel receive the mandatory training before starting work.

MM-CUL-2: Unrecorded Cultural Resources Discovery. If unrecorded cultural resources are encountered during Project-related ground-disturbing activities, even in the absence of an onsite archaeological monitor, a qualified cultural resources specialist shall be contacted to assess the potential significance of the find. If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, bottle glass, ceramics, structure/building remains) is made during Project-related construction activities, ground disturbances in the area of the find will be halted, and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist will determine whether the resource is potentially significant per the CRHR and, in consultation with the County and Native American Tribes as appropriate, develop appropriate additional mitigation measures, such as avoidance and protection measures or data recovery.

If the find is determined to be an important cultural resource, the County will make available contingency funding and a time allotment sufficient to allow recovery of an archaeological sample or to implement an avoidance measure. Construction work can continue in other parts of the Proposed Project while archaeological mitigation takes place.

MM-CUL-3: **Inadvertent Discovery Plan.** Prior to implementation of the Proposed Project, a formalized *Archaeological and Tribal Monitoring and Inadvertent Discovery Plan* will be prepared which details the Proposed Project's inadvertent discovery protocol, archaeological site definitions, archaeological and tribal monitoring procedures and responsibilities, provisions

for additional identification efforts if deemed necessary, and requirements for dealing with the inadvertent discovery of human remains including coordination with the Yolo County Coroner and the designation of a Most Likely Descendant (detailed further in MM-CUL-4). The Plan will be developed in consultation with the County and participating Native American Tribes, particularly the Yocha Dehe Wintun Nation, will be afforded an opportunity to review and comment on the Plan prior to implementation. The Plan may include provisions for Native American Tribes to conduct additional analyses, if requested.

Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries?

No evidence for prehistoric or early historic interments in surface contexts has been found directly in the Sacramento River Right Bank Levee improvements area or the Knights Landing Ridge Cut improvements area. However, remains have been purportedly observed eroding from the SR 45 cut bank adjacent to P-57-00010 (this bank has been recently covered with rip rap by Caltrans precluding a verification of these observations for the Proposed Project). Additionally, the lack of surface observations does not preclude the existence of buried human remains. Human remains are known to occur in the general vicinity of Knights Landing and California law recognizes the need to protect historic-era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction during construction, operation, or maintenance of the Proposed Project.

Although the levee is an artificial landform and adjacent work areas have been disturbed by previous development, it is possible that previously unknown buried human remains could be unearthed and damaged or destroyed during excavation activities associated with the Proposed Project. Damage to or destruction of human remains during construction of the Proposed Project or other Project-related activities would be considered a significant impact. If human remains are exposed during construction of the Proposed Project, mitigation would be required to minimize impacts.

With the implementation of mitigation measure **MM-CUL-4** impacts on human remains would be reduced to a less than significant level. Therefore, with implementation of **MM-CUL-4**, construction, operations, and maintenance of the Proposed Project would have **a less than significant impact** on human remains, including those interred outside of dedicated cemeteries, and in the vicinity of P-57-00010.

Mitigation Measure:

MM-CUL-4: Inadvertent Discovery of Human Remains: In accordance with the California Health and Safety Code Sections 7050.5 and 7052, Public Resources Code Section 5097.98, and CEQA Section 15064.5; if human remains are uncovered during ground-disturbing activities, all such activities in the vicinity of the find would be halted immediately, and Yolo County's designated representative would be notified. The County's representative would immediately notify the Yolo County Coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If

the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The County's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The County or its appointed representative and the professional archaeologist would contact the Most Likely Descendent (MLD), as determined by the NAHC (presumably a representative from the Yocha Dehe Wintun Nation), regarding the remains. The MLD, in cooperation with Yolo County and the landowner, would determine the ultimate disposition of the remains.

3.6 Energy

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact 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?	☐	☐	☐	☒

3.6.1 Environmental Setting

PG&E provides both electric and gas services to Yolo County, where the Proposed Project area is located. It is also the electric and gas service provider for Knights Landing. Some PG&E power poles and power lines exist within the Proposed Project area. As stated in the Project Description, several PG&E power poles would need to be relocated as a result of the Proposed Project.

Valley Clean Energy (VCE) is a local public electricity provider formed by Yolo County and the Cities of Woodland and Davis. VCE began providing its services in 2018 and services to customers located within the Cities of Woodland and Davis as well as the unincorporated areas of Yolo County. The mission of VCE is to deliver cost-competitive clean electricity, product choice, price stability, energy efficiency, and greenhouse gas emission reductions to its customers. Additionally, back in 2016, Yolo County and the City of Davis formed the Community Choice Energy Program. This program allows local governments to purchase electricity on behalf of their respective communities. The program is currently under review; however, if the program is approved, residents would be able to choose between continued PG&E service for their homes and businesses or enrolling in the program, which would allow residents to choose a different approved energy service provider (Yolo County 2022).

3.6.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of energy in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of energy.

STATE

California Clean Energy and Pollution Reduction Act (SB 350)
The California Clean Energy and Pollution Reduction Act (SB 350) established clean energy, clean air, and greenhouse gas reduction goals, including the reduction of greenhouse gas to 40% below 1990 levels by 2030 and to 80% below 1990 levels by 2050.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan
The *Conservation and Open Space Element* of the Yolo County *2030 Countywide General Plan* focuses on the management of Yolo County's natural and cultural resources. The section titled 'Energy Conservation' has goals and policies relating to energy production, usage, and conservation within Yolo County. The general plan element includes the following pertinent goal as it relates to energy (Yolo County 2009a):

- **Goal CO-7**: Promote energy efficiency and conservation.
- **Policy CO-7.3**: Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.

3.6.3 Method of Analysis

This section describes the methods used to analyze energy characteristics and the potential impacts of energy within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of energy. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to energy.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact energy were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed.

Would the project:

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

APPROACH TO ANALYSIS

The evaluation of potential impacts of the Proposed Project on energy was assessed by reviewing existing energy utility services and power lines within the Proposed Project area. The following methods were utilized to determine how construction, operation and maintenance of the Proposed Project could impact energy efficiency and consumption in the Proposed Project area as well as conflict with state and local plans and regulations related to energy:

- Analysis of GIS open data provided by both PG&E and the California Energy Commission.
- Analysis of construction methods, rights-of-way, and staging areas and their potential impact on energy resources and consumption.
- Analysis of the Proposed Project's consistency with the requirements of plans, policies, and regulations listed in the regulatory setting of the resource section.

3.6.4 Impact Analysis

Impact EN-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The energy consumption of the proposed improvements would result from the delivery and use of large earthmoving construction equipment and material during Project construction. Operation of construction equipment would be required to complete the proposed improvements and would not be wasteful, inefficient, or unnecessary. As discussed in Section 3.3, *Air Quality* and Section 3.13, *Noise*, idling of vehicles and equipment such as commercial vehicles and internal combustion engines would be limited. Energy consumption from all construction activities would be short term and temporary and would only occur over the 8-month construction period. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to energy consumption. Construction of the Proposed Project would require PG&E utility relocations and installation and replacement of power poles. These activities would be completed in coordination with PG&E and in accordance with the California Public Utility Commissions' General Order 95 Rules (CPUC General Order 95) for Overhead Electric Line Construction and all applicable California Building Codes. Utility relocations would be carried out in a manner to avoid service interruptions. Utility relocations are discussed further in Section 3.19, *Utilities and Service Systems*. It is anticipated that future operation and maintenance of the proposed improvements would not result in a substantial change from existing energy consumption. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on energy as it relates to the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and mitigation is not required or recommended.

Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The overall Project objective is to provide flood protection for the community of Knights Landing and to reduce flood risk to the Knights Landing Basin. The Proposed Project is consistent with all relevant state and local management plans and regulations for energy and energy efficiency. Table 3.6-1 provides a consistency analysis of these respective laws, regulations, and goals adopted for the purpose of avoiding or mitigating environmental effects. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on energy as it relates to conflicting with or obstructing a state or local plan for renewable energy or energy efficiency; mitigation is not required or recommended.

Table 3.6-1. Consistency with State and Local Plans, Policies, and Regulations

Goals and Policies	Project Consistency
California Clean Energy and Pollution Reduction Act (SB 350)	Consistent. The Proposed Project would follow all relevant County and energy management programs and regulations.
Yolo County *2030 Countywide General Plan*	
Goal CO-7: Promote energy efficiency and conservation.	Consistent. The Proposed Project would result in the temporary consumption of energy during construction work. However, it would not be considered wasteful, inefficient, or unnecessary during both project construction and operation.
Policy CO-7.3: Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.	Consistent. The Proposed Project would result in the temporary consumption of energy during construction work. However, it would not be considered wasteful, inefficient, or unnecessary during both project construction and operation.

3.7 Geology and Soils

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
• 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?	☐	☐	☐	☒
• Strong seismic ground shaking?	☐	☐	☒	☐
• Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
• 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 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risk 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?	☐	☒	☐	☐

3.7.1 Environmental Setting

REGIONAL GEOLOGY

Approximately 70 percent of eastern Yolo County is located in the Great Valley geomorphic province of California, and the remaining 30 percent of the County is located in the Coast Range geomorphic province (Yolo County 2009b). The Great Valley geomorphic province is largely

comprised of alluvium or basin deposits, and the Quaternary Riverbank Formations, both of which consist of somewhat older alluvium (Yolo County 2009b). Rocks in the Coast Range are comprised of numerous Quaternary and Cretaceous geologic formations, including upturned marine sandstones, shales, mudstones, and conglomerates, with some volcaniclastic rocks (Yolo County 2009b). Quaternary alluvium deposits, including marine and nonmarine sedimentary rocks underlie the Proposed Project area (DOC 2015a).

FAULT RUPTURE

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults traverse the Proposed Project area (DOC 2015b; DOC 2019).

SEISMICITY AND GROUND SHAKING

Ground shaking (or seismic shaking) is a general term referring to all aspects of motions of the earth's surface resulting from an earthquake. Seismically induced ground shaking can cause substantial damage to roadways, bridges, and other infrastructure. Ground shaking is usually the primary cause of damage in seismic events. The extent of ground shaking is a result of the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. As shown in Figure IV.L-4, Regional Ground Shaking Hazard, of the Yolo County *2030 Countywide General Plan* Final EIR, (Yolo County 2009), the Proposed Project is located within an area with a low potential for ground shaking during an earthquake.

Fault areas considered to be of greatest risk in California are identified as Alquist-Priolo fault zones. Hunting Creek Fault and the Dunnigan Hills Fault are two known active or potentially active faults in Yolo County. Most of the Hunting Creek Fault is located in Lake and Napa counties, leaving only a small portion of the fault in the extreme northwestern corner of Yolo County. The Hunting Creek Fault has been identified by the California Geological Survey (CGS) as being subject to surface rupture (i.e., is delineated as an Alquist-Priolo Earthquake Fault Zone) (Yolo County 2009b). The Hunting Creek Fault is approximately 37 miles from the Proposed Project area.

The Dunnigan Hills Fault is located approximately 10 miles from the Proposed Project area. The fault extends west of Interstate 5 between the town of Dunnigan and northwest of the town of Yolo. The fault has not caused historic (i.e., within the last 200 years) displacement; however, it has caused Holocene (i.e., the last 11,000 years) displacement. According to CGS, the Dunnigan Hills Fault is not delineated as an Alquist-Priolo Earthquake Fault Zone, indicating that CGS does not consider it likely to generate surface rupture (Yolo County 2009b).

SOILS

Yolo County contains important soil resources. As shown in Table IV.L-1 of the Yolo County General Plan EIR, twelve soil associations have been identified in Yolo County. The Proposed Project is located in the Yolo-Brentwood association and the Capay-Clear Lake association. Soils of the Yolo-Brentwood association are defined as being well-drained; nearly level silt loams to silty clay loams; on alluvial fans (Yolo County 2009b). Soils of the Capay-Clear Lake association are defined as being moderately well drained to poorly drained, nearly level silty clays and clays; on basin rims and in basins (Yolo County 2009b).

SUBSIDENCE AND LIQUEFACTION

The term subsidence describes the compression of soils after groundwater withdrawal or oxidation of buried organic material. Areas consisting of fine-grained sediments are more susceptible to ground subsidence. While mining and extraction activities might also lead to subsidence, excessive groundwater pumping is the predominant cause of this phenomenon. Since the 1950s, as much as 4 feet of land subsidence due to groundwater withdrawal has occurred in Yolo County (Yolo County 2005). The land subsidence has damaged or reduced the integrity of highways, levees, irrigation canals, and wells in Yolo County, particularly near the communities of Zamora, Knights Landing and Woodland (Yolo County 2005).

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. Liquefaction is expected to be relatively higher in the Great Valley portion of Yolo County, particularly along the floodplains of streams, where the sediments are generally sandier than other areas (Yolo County 2009b). According to the California Department of Conservation Earthquake Zones of Required Investigation, the Proposed Project is located in an area that has not been evaluated for liquefaction (DOC 2019).

LANDSLIDE, SLOPE FAILURE AND LATERAL SPREADING

Slope failure can occur either as rapid movement of large masses of soil (“landslide”) or slow, continuous movement (“creep”). Landslides are commonly triggered by unusually high rainfall and the resulting soil saturation, by earthquakes, or a combination of these conditions. As shown in Figure IV.L-6, Landslide Susceptibility, of the Yolo County General Plan EIR, the potential for landslides in the Proposed Project area is low (Yolo County 2009b). On a smaller scale, gently sloping ground (with a slope of 5 percent or less) along riverbanks or exposed embankments can undergo horizontal displacement, a phenomenon known as lateral spreading. Saturated, loosely consolidated soils and precipitation events increase the likelihood that an earthquake will trigger landslides, slope failure, or lateral spreading. Areas most prone to lateral spreading are those that consist of fill material that has been improperly engineered, that have steep, unstable banks, and that have high groundwater tables. The banks along the Deep Water Ship Channel and Turning Basin in West Sacramento may have such a condition (Yolo County 2009b). However, the Sacramento River Right Bank Levee has not been identified as prone to lateral spreading.

EXPANSIVE SOILS

Expansion and contraction of volume can occur when soils containing clay minerals with potential for excessive swelling undergo alternating cycles of wetting (swelling) and drying (shrinking). According to Figure IV.L-5, Expansive Soils, of the Yolo County General Plan EIR, soils in the Proposed Project area have low to high shrink-swell potential (Yolo County 2009b).

PALEONTOLOGICAL RESOURCES AND UNIQUE GEOLOGICAL FEATURES

A paleontological resource is defined as the fossilized remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils. In California, paleontological resources are generally observed in sedimentary and metasedimentary deposits.

For the purposes of this analysis, a unique geological feature is defined as one that:

- Is the best local example or “type locality” of a geological feature;
- Embodies the distinctive characteristics of a geologic principle that is exclusive locally or regionally;
- Provides a key piece of geologic information important in geology or geologic history;
- Is a geologic formation that is exclusive locally or regionally;
- Contains a mineral that is not known to occur elsewhere in the County; or
- Is used repeatedly as a teaching tool.

The Proposed Project is located along the Sacramento River, which forms the eastern boundary of Yolo County. The Proposed Project area is underlain by unconsolidated and semi-consolidated Quaternary alluvium deposits of Holocene age (DOC 2015a). Late Holocene alluvial deposits overlie older Pleistocene alluvium and/or the upper Tertiary bedrock formations in the southern and eastern portions of Yolo County. This alluvium consists of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments. This unit is typically in smooth, flat valley bottoms, in medium-sized drainages, and in other areas where the terrain allows a thin veneer of this alluvium to deposit. These alluvial deposits contain vertebrate and invertebrate fossils of extant, modern taxa, which are generally not considered paleontologically significant (Yolo County 2009b).

3.7.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of energy in the IS/MND.

FEDERAL

Earthquake Hazards Reduction Act

In October 1977, the United States Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States. The Earthquake Hazards Reduction Act established the National Earthquake Hazard Reduction Program. The purpose of this program is to reduce the risks to life and property in the United States from earthquakes through the establishment and maintenance of an effective national earthquake risk reduction program. Member agencies in the National Earthquake Hazard Reduction Program are the USGS, the National Science Foundation, FEMA, and the National Institute of Standards and Technology.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act was passed on March 30, 2009. The Paleontological Resources Preservation Act is intended to preserve, manage, and protect paleontological resources on lands administered by the Bureau of Land Management, the Bureau of Reclamation, the National Parks Service, and the USFWS.

STATE

California Building Code and California Health and Safety Code

California provides minimum standards for building design through the California Building Code (CBC, CCR, Title 24). The state earthquake protection law (California Health and Safety Code

Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC identifies seismic factors that must be considered in structural design, as well as regulates the excavation of foundations and retaining walls, construction on unstable soils, such as expansive soils and areas subject to liquefaction, and regulates grading activities, including drainage and erosion control.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC Sections 2621 to 2630) was enacted in 1972 to reduce the hazard of surface faulting to structures designed for human occupancy. The act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and issue appropriate maps, which are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the permitting agency must require a geologic investigation to demonstrate that buildings intended for human habitation would not be constructed on active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690 to 2699.6) directs the DOC to identify and map areas prone to earthquake liquefaction hazards, earthquake-induced landslides, and amplified ground shaking. The act requires the State Geologist to establish regulatory zones (Zones of Required Investigation) and to issue appropriate maps (Seismic Hazard Zone maps). These maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling construction and development.

General Permit for Construction Activities

Under the National Pollutant Discharge Elimination System (NPDES), the State of California adopted the Construction General Permit (CGP), Order No. 2022-0057-DWQ, effective September 1, 2023. The CGP regulates construction site stormwater management. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the general permit for discharges of stormwater associated with construction activity.

Permit applicants are required to submit a Notice of Intent to the State Water Resources Control Board (SWRCB) and to prepare a stormwater pollution prevention plan (SWPPP). The SWPPP identifies best management practices (BMPs) that must be implemented to reduce construction effects on receiving water quality based on pollutants. The BMPs identified are directed at implementing both sediment and erosion control measures and other ‘good housekeeping’ measures to control chemical contaminants.

Paleontological Resources

CEQA includes in its definition of historical resources “…any object [or] site …that has yielded or may be likely to yield information important in prehistory…” (14 California Code of Regulations [CCR] Section 15064.5[a][3]), which is typically interpreted as including fossils and other paleontological resources. More specifically, destruction of a “…unique paleontological resource or site or unique geologic feature…” constitutes a significant impact under CEQA

pursuant to CEQA Guidelines in Appendix G. Treatment of paleontological resources under CEQA is generally similar to treatment of cultural resources, requiring evaluation of resources in the project; assessment of potential impacts on significant or unique resources; and development of mitigation measures for potentially significant impacts, which may include monitoring, data recovery excavation, and/or avoidance.

Public Resources Code Section 5097.5
PRC Section 5097.5 states that no person will knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.

Society of Vertebrate Paleontology
The Society of Vertebrate Paleontology has guidance for assessing and mitigating paleontological resources that could potentially be impacted from land development. This guidance is included in the Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (Society of Vertebrate Paleontology 2010). As part of the assessment process for paleontological resources, the Society of Vertebrate Paleontology's guidance groups rock units into a high, undetermined, low, or no potential category for containing significant paleontological resources. These categories then determine the level of mitigation required, or further assessment prior to construction, for adequate protection or salvage of paleontological resources within a project area.

REGIONAL/LOCAL

Yolo County Improvement Standards Section 10 – Grading
The Count of Yolo Department of Planning and Public Works adopted the Yolo County Improvement Standards in August 2008. These Improvement Standards provide minimum standards of improvements to be built within County rights of way or easements, and private works that may be required as a condition for any entitlement granted by the County under Title 8 of the Yolo County Code. In particular, these Improvement Standards are intended to serve as the "County Standards" referenced in Title 8, Chapter 1, Article 7. "Design Standards" of the Yolo County Code. Section 10, Grading, sets forth standards for grading in conformance with Title 7 of the Yolo County Code.

Yolo County 2030 Countywide General Plan
The following goals and policies of the Yolo County *2030 Countywide General Plan – Health and Safety Element* are applicable to the Proposed Project:

- **Goal HS-1 Geologic Hazards**: Protect the public and reduce damage to property from earthquakes and other geologic hazards.
- **Policy HS-1.1**: Regulate land development to avoid unreasonable exposure to geologic hazards.

- **Policy HS-1.2**: All development and construction proposals shall be reviewed by the county to ensure conformance to applicable building standards.
- **Policy HS-1.3**: Require environmental documents prepared in connection with CEQA to address seismic safety issues and to provide adequate mitigation for existing and potential hazards identified.
- **Action HS-A2**: Rely upon the most current and comprehensive geological hazard mapping available in the evaluation of potential seismic hazards associated with proposed and new development. (Policy HS-1.3).

3.7.3 Method of Analysis

This section describes the methods used to analyze geology, soils and paleontological resources characteristics within the study area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of geology and soils. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to geology and soils.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on geology, soils and paleontological resources if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - 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;
    - Strong seismic ground shaking;
    - Seismic-related ground failure, including liquefaction; and/or
    - Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- 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.
- Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risk to life or property.

- 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.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

APPROACH TO ANALYSIS

Construction, Operations and Maintenance
The methods used for analyzing impacts on geology, soils and paleontological resources included a review of information from published maps, and Yolo County publications and reports pertaining to geology and soils in the Proposed Project area. The primary data sources for impact analysis include the following:

- Yolo County *2030 Countywide General Plan* (Yolo County 2009a)
- Yolo County *2030 County Wide General Plan EIR* (Yolo County 2009ab)
- U.S. Geological Survey geologic maps (USGS 2003; 2016)
- Yolo County Improvement Standards (Yolo County 2008)
- Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (Bureau of Land Management 2016)
- Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (Society of Vertebrate Paleontology 2010)

The potential impacts from construction, operation and maintenance of the Proposed Project on geology, soils and paleontological resources were evaluated qualitatively using known geology, soils and paleontological resources data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.7.4 Impact Analysis

Impact GEO-1a: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving 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)

The Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults traverse the Proposed Project area (DOC 2015b; DOC 2019). Therefore, construction, operations, and maintenance of the Proposed Project would result in **no impact** from the substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault; therefore, mitigation is not required or recommended.

Impact GEO-1b: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving strong seismic ground shaking?

Hunting Creek Fault, located approximately 37 miles from the Proposed Project area and Dunnigan Hills Fault, located approximately 10 miles from the Proposed Project area, are the two known active or potentially active faults in Yolo County. According to the Yolo County General Plan EIR, the Proposed Project is located within an area with a low potential for ground shaking during an earthquake (Yolo County 2009b). Therefore, the Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. As a result, construction, operations and maintenance of the Proposed Project would have a **less than significant impact** on seismic ground shaking; therefore, mitigation is not required or recommended.

Impact GEO-1c: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction?

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. Liquefaction is expected to be relatively higher in the Great Valley portion of Yolo County, particularly along the floodplains of streams, where the sediments are generally sandier than other areas (Yolo County 2009b). According to the California Department of Conservation Earthquake Zones of Required Investigation, the Proposed Project is located in an area that has not been evaluated for liquefaction (DOC 2019). The Proposed Project is underlain by unconsolidated and semi-consolidated Quaternary alluvium deposits and could experience liquefaction in the event of a large regional earthquake (DOC 2015). However, the Proposed Project is not located in an earthquake hazard zone and the risk of a large earthquake affecting the Proposed Project is considered low (DOC 2019). Therefore, the likelihood of liquefaction occurring in the Proposed Project area would be low. Ground disturbing activities and the use of vibration-generating construction equipment could exacerbate liquefaction in the Proposed Project area. However, the proposed levee improvements would be designed to meet USACE standards and would be composed of approved materials that have a low potential for liquefaction. The levee improvements would also be compacted during construction to meet USACE criteria and limit the potential for levee failure. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to seismic-related ground failure, including liquefaction.

Operation and maintenance activities would not include activities that require the use of vibration-generating equipment. Operations and maintenance activities would involve minor ground disturbing activities; however, these activities would occur on previously disturbed land and would not involve subsurface ground disturbance. Therefore, the Proposed Project would not exacerbate liquefaction in the Proposed Project Area. Construction, operations and maintenance would have a **less than significant impact** on seismic related ground failure, including liquefaction; therefore, impacts would be less than significant, and no mitigation is required.

Impact GEO-1d: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving landslides?

A landslide is rapid movement of large masses of soil. The potential for landslides in the Proposed Project area is considered low according to the Yolo County *2030 Countywide General Plan* (Yolo County 2009b). The topography in the Proposed Project area is generally flat, but the levee itself is sloped. The proposed levee improvements would be compacted during construction to meet USACE criteria and limit the potential for levee failure.

Operation and maintenance activities would not involve the use of vibratory equipment. Operations and maintenance activities would involve minor ground disturbing activities; however, these activities would occur on previously disturbed land and would not involve subsurface ground disturbance. Therefore, the Proposed Project would not exacerbate landslides in the Proposed Project area. Construction, operations and maintenance would have a **less than significant impact** on landslides; therefore, mitigation is not required or recommended.

Impact GEO-2: Result in substantial soil erosion or the loss of topsoil?

Construction activities often increase runoff potential of disturbed areas. Construction activities, including ground disturbance, excavation, clearing and grubbing of trees and vegetation, removal of pipe penetrations, and grading could remove ground cover and expose or disturb soil. Exposed and disturbed soils are vulnerable to wind and water erosion. However, as part of the Proposed Project, NPDES coverage under the CGP would be obtained from the RWQCB and a SWPPP would be implemented. The CGP requires SWPPP implementation for projects with greater than one acre of disturbance to control storm water runoff within construction and staging areas, thus minimizing soil erosion and sedimentation impacts to surface waters to the extent possible. SWPPP BMPs include measures to reduce erosion from disturbed areas, prevent sediment from migrating off site, provide dust and tracking control, and prescribe good housekeeping practices for material storage and stockpile management.

Operation and maintenance of the Proposed Project would involve minor ground disturbing activities; however, these activities would occur on previously disturbed land and would not involve subsurface ground disturbance. Therefore, operations and maintenance activities are not likely to exacerbate soil erosion or result in loss of topsoil. Therefore, the Proposed Project would not result in substantial soil erosion or topsoil loss. Construction, operations and maintenance would have a **less than significant impac**t on erosion and the loss of topsoil; therefore, mitigation is not required or recommended.

Impact GEO-3: 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?

The potential for landslides in the Proposed Project area is low (Yolo County 2009b). As stated above, the Proposed Project area is underlain by unconsolidated and semi-consolidated Quaternary alluvium deposits (DOC 2015) and could potentially experience liquefaction in the

event of a large regional earthquake. However, as stated above the risk of a large regional earthquake affecting the Proposed Project area is low. Therefore, the likelihood of liquefaction occurring in the Proposed Project area would be low. In fact, the proposed levee improvements would be designed to meet USACE standards and would be composed of approved materials to meet USACE standards for liquefaction hazards. Furthermore, the proposed levee improvements would be compacted during construction to meet USACE criteria and limit the potential for levee failure, thereby meeting the Proposed Project objectives. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts from unstable geologic units or soils. In addition, the proposed levee improvements would not trigger the soil to become unstable in the Proposed Project area because graded and disturbed areas would be revegetated. Although, the Proposed Project may be located on a geologic unit or soil that has a marginal potential for liquefaction and subsidence, due to the nature of the proposed improvements and conformance with USACE design standards during construction, impacts would be less than significant.

Operation and maintenance would involve minor ground disturbing activities on previously disturbed land and would not involve subsurface ground disturbance. Therefore, the Proposed Project would not exacerbate landslide, lateral spreading, subsidence, liquefaction, or collapse. Construction, operations and maintenance of the Proposed Project would have a **less than significant impact** from being located on a geologic unit or soil that is unstable; therefore, no mitigation is required or recommended.

Impact GEO-4: Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risk to life or property?

According to the Yolo County General Plan EIR, soils in the Proposed Project area have low to high shrink-swell potential (Yolo County 2009b). As stated above, the proposed levee improvements, including the use of a bentonite slurry for construction of the cutoff wall, would be designed to meet USACE standards and would be composed of approved materials to avoid hazards from expansive soils. Additionally, due to the nature of the proposed improvements, this risk would be low and would exist with or without the Proposed Project. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to risk of life or property due to expansive soils.

Operation and maintenance would occur on existing levees and previously disturbed surfaces, would be minor and would occur periodically. These activities would not create risk to life or property. As such, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** from being located on expansive soil; therefore, mitigation is not required or recommended.

Impact GEO-5: 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?

No septic tanks or alternative wastewater disposal systems are included as part of the Proposed Project. As a result, construction, operations and maintenance of the Proposed Project would have **no impact** from the use of septic tanks or alternative wastewater disposal systems; therefore, mitigation is not required or recommended.

Impact GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Proposed Project area is underlain by Quaternary alluvium deposits of Holocene age (DOC 2015a). Holocene alluvial deposits contain vertebrate and invertebrate fossils of extant, modern taxa, which are generally not considered paleontologically significant (Yolo County 2009b). Although much of the Proposed Project area has been previously disturbed, unique paleontological or geologic features could be discovered during subsurface work, which would be considered a potentially significant impact. Therefore, **MM-GEO-1** (described below) would be implemented to minimize impacts resulting from the potential for discovery of buried paleontological resources during short-term construction.

Long-term operations and maintenance activities within the Proposed Project area would involve minor ground disturbing activities on previously disturbed land and would not involve subsurface ground disturbance. Therefore, operations and maintenance of the Proposed Project would not have the potential to encounter unique paleontological or geologic resources. Operation and maintenance of the Proposed Project would have no impact on a unique paleontological resource or site or unique geologic.

Mitigation Measures:
MM-GEO-1: Paleontological Resources. Before the start of construction activities, construction personnel involved with earth-moving activities would be informed of the proper notification procedures if fossils are encountered. If paleontological resources are encountered during earth-moving activities, the construction crew would immediately stop work, and a qualified paleontologist would evaluate the resource and prepare a proposed mitigation plan based on the discovery.

With implementation of **MM-GEO-01**, impacts to paleontological resources during construction would be **less than significant**.

3.8 Greenhouse Gas Emissions

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

3.8.1 Environmental Setting

CLIMATE CHANGE

Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle or volcanic eruptions. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil, and gas (United Nations 2022).

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the World Meteorological Organization and United Nations for assessing the science related to climate change. IPCC is an international body that provides scientific, technical, and socioeconomic assessment of climate change, its impacts and future risks, and options for adaptation and mitigation. The IPCC finds that greenhouse gases (GHG) emissions from human activities are responsible for approximately 1.1 degrees Celsius of warming since 1900 (IPCC 2021). The IPCC predicts that global temperature over the next 20 years will reach or exceed 1.5 degrees Celsius of warming (IPCC 2021).

Climate change is already having visible effects on the world. For example, many places have experienced changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced changes – oceans are warming and becoming more acidic, ice caps are melting, and sea level is rising. As these and other changes become more pronounced in the coming decades, they will likely present challenges to our society and our environment (USEPA 2022a).

GREENHOUSE GAS EMISSIONS

Greenhouse gases (GHGs) absorb infrared radiation, thereby trapping heat in the atmosphere and making the planet warmer. The most important GHGs directly emitted by humans include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and several fluorine-containing halogenated substances such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Although CO_2, CH_4, and N_2O occur naturally in

the atmosphere, atmospheric concentration of these GHGs have increased globally due to human activities (USEPA 2022b). The important GHGs are described below (USEPA 2022c).

Carbon Dioxide (CO_2). CO_2 enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and also as a result of certain chemical reactions (e.g., manufacture of cement). CO_2 is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane (CH_4). CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills.

Nitrous Oxide (N_2O). N_2O is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.

Fluorinated gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of household, commercial, and industrial applications and processes. Fluorinated gases include HFCs, PFCs, SF_6, and NF_3. Fluorinated gases are typically emitted in smaller quantities than other greenhouse gases, but they are potent GHGs.

GHGs have varying potential to trap heat in the atmosphere, known as global warming potential. CO_2 is considered as the reference and has a global warming potential of one (USEPA 2022d). CH_4 has a global warming potential of 27-30 times that of CO_2, and N_2O has a global warming potential of 273 times of CO_2 (USEPA 2022d). The family of fluorinated gases have substantially greater global warming potential, ranging from thousands to tens of thousands (USEPA 2022d).

GHG EMISSIONS INVENTORIES

An emissions inventory that identifies and quantifies the primary human generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, federal, state, and regional/local GHG emission inventories.

Global GHG Emissions

Total global GHG emissions in 2019 were estimated at 46,2880 million metric tons (MT) of carbon dioxide equivalent (CO_2e) (World Bank 2022).

Federal GHG Emissions

In 2020, GHG emissions in the U.S. totaled 5,222 million MT CO_2e (USEPA 2022b). GHG emissions decreased from 2019 to 2020 by 11 percent. This decrease was primarily due to a 13 percent decrease in transportation emissions driven by decreased demand due to the COVID-19 pandemic (USEPA 2022b). Electric power sector emissions also decreased 10 percent, reflecting both a slight decrease in demand from the COVID-19 pandemic and a continued shift from coal to less carbon intensive natural gas and renewables. GHG emissions in 2020 were 21 percent below 2005 levels (USEPA 2022b). In 2020, total GHG emissions within U.S. by sector were: transportation (27 percent), electricity (25 percent), industrial (24 percent), commercial and residential (13 percent), and agriculture (11 percent) (USEPA 2022b).

California GHG Emissions

In 2019, total statewide GHG emissions were 418.2 million MT CO_2e (ARB 2021). GHG emissions in 2019 were 7.1 million MT CO_2e lower than 2018 levels and almost 13 million MT CO_2e below the 2020 GHG limit of 431 million MT CO_2e established by AB 32 (ARB 2021). Refer to *Regulatory Framework* for a discussion of AB 32. Since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. In 2016, statewide GHG emissions dropped below the 2020 GHG limit and have remained below the limit since that time (ARB 2021). In 2019, total GHG emissions within California by sector were: transportation (41 percent), industrial (24 percent), in-state electricity (9 percent), residential (8 percent), agriculture and forestry (7 percent), commercial (6 percent), and electricity imports (5 percent) (ARB 2021).

Regional/Local

In 2016, the most recent year for which data is available, the overall community wide GHG emissions for the unincorporated Yolo County were 1,082,801 MT CO_2e (Yolo County 2018). The largest proportion of GHG emissions in Yolo County in 2016 came from the on-road transportation sector, followed by agriculture, energy consumption, off-road transportation, solid waste, and wastewater treatment (Yolo County 2018). The total GHG emissions in 2016 were 8 percent below the 2008 levels, which is the baseline year for GHG emissions inventory for community wide sources in unincorporated Yolo County (Yolo County 2018). GHG emissions reductions in 2016, compared to the 2008 inventory, occurred in the energy consumption, on-road transportation, agriculture, and wastewater treatment sectors (Yolo County 2018).

3.8.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of greenhouse gas emissions in the IS/MND.

FEDERAL

United States Environmental Protection Agency

On April 2, 2007, in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497, the U.S. Supreme Court found that GHGs are air pollutants covered by the FCAA. The Supreme Court held that USEPA must determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. To regulate GHGs from passenger vehicles, the USEPA issued an endangerment finding on December 7, 2009. The finding identifies emissions of six key GHGs — CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 — that threaten the public health and welfare of current and future generations (USEPA 2022e).

Mandatory Reporting of Greenhouse Gases Rule

On September 22, 2009, the USEPA issued a final rule for the mandatory reporting of GHG data and other relevant information from large sources in the United States (Code of Federal Regulations Title 40, Part 98). This comprehensive, nationwide emissions data is intended to provide a better understanding of the sources of GHGs and guide development of policies and programs to reduce emissions. The mandatory reporting rule applies to direct GHG emitting

sources; suppliers of fossil fuel, industrial gas, and other products that would result in GHG emissions if released, combusted, or oxidized; and facilities that inject carbon dioxide underground for geologic sequestration or other reasons. In general, facilities that emit 25,000 MT CO_2e or more per year of GHGs are required to submit annual reports to the USEPA.

Corporate Average Fuel Economy

The Corporate Average Fuel Economy (CAFE) standards were first introduced by Congress in 1975 to help reduce the country's dependence on foreign oil. CAFE standards are regulated by Department of Transportation's National Highway Traffic and Safety Administration (NHTSA). NHTSA sets and enforces the CAFE standards, while the USEPA calculates average fuel economy levels for manufacturers, and also sets related GHG standards. The regulations have become more stringent over time. The regulations at first applied only to passenger cars in 1978, then included light duty trucks up to 6,000 pounds in 1980, and finally increased to all vehicles up to 8,500 pounds the next year. Regulations varied during the 1980s for both cars and trucks before reaching a steady target for cars in 1990 through 2010, with trucks moderately increasing during the period from 20 to 21 miles per gallon (mpg) through 2005, then reaching 23.5 mpg by 2010.

On April 1, 2010, the USEPA and the NHTSA announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States. The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2012 through 2016. This phase required these vehicles to meet a fuel economy standard of 35.5 mpg. The second phase applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 through 2025. This phase required these vehicles to meet an estimated fuel economy standard of 54.5 mpg.

On September 15, 2011, the USEPA and NHTSA issued a final rule for the first national standards to improve fuel efficiency of medium- and heavy-duty trucks and buses, model years 2014 through 2018 by up to 20 percent.

On October 25, 2016, the USEPA and NHTSA issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 through 2027 to achieve vehicle fuel savings as high as 25 percent, depending on the vehicle category.

On March 31, 2020, the USEPA and NHTSA, issued the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule. The SAFE Vehicles Rule set new CAFE targets and tailpipe carbon dioxide emissions standards for passenger cars and lights trucks that increase 1.5 percent in stringency each year from model years 2021 through 2026.

In August 2021, NHTSA released its Notice of Proposed Rulemaking offering new standards for the 2024–2026 model years. The new standards would increase fuel efficiency 8 percent annually for model years 2024-2026 and increase the estimated fleetwide average by 12 mpg for model year 2026, relative to model year 2021. President Biden issued Executive Order (EO) 14037 on August 5, 2021, which requires NHTSA to develop fuel economy standards for

passenger cars and light duty trucks for model years 2027-2030. In addition, NHTSA will develop medium and heavy-duty fuel efficiency standards beginning as early as model year 2027. At the time of IS/MND preparation, new CAFE standards have not been adopted.

STATE

Executive Order S-3-05

In June 2005, Governor Schwarzenegger issued EO S-3-05, which established the following GHG emissions reduction targets: 1) reduce GHG emissions to 2000 levels by 2010, 2) reduce GHG emissions to 1990 levels by 2020, and 3) reduce GHG emissions to 80 percent below 1990 levels by 2050.

Assembly Bill 32

In September 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as AB 32. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. California met its 2020 reduction goal in 2018.

Executive Order B-30-15

On April 20, 2015, Governor Brown signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. California's emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius, the warming threshold at which there will likely be major climate disruptions such as super droughts and rising sea levels.

Senate Bill 32

SB 32 was signed into law on September 8, 2016. SB 32 expands upon AB 32 to reduce GHG emissions. SB 32 sets into law the mandated GHG emissions target of 40 percent below 1990 levels by 2030 written into EO B-30-15.

Climate Change Scoping Plan

In December 2008, the ARB adopted the *Climate Change Scoping Plan* (2008 Scoping Plan) to achieve the goals outlined in AB 32. The 2008 Scoping Plan, developed by ARB in coordination with the Climate Action Team, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify the state's energy sources, save energy, create new jobs, and enhance public health. According to the 2008 Scoping Plan, California will implement strategies to achieve a reduction of approximately 118 million MT of CO_2e, or approximately 22 percent from the State's projected 2020 emission level of 545 million MT of CO_2e under a business-as-usual scenario. This is a reduction of 47 million MT CO_2e, or almost 10 percent, from 2008 emissions (ARB 2008). The ARB's original 2020 projection was 596 million MT CO_2e, but this revised 2020 projection considered the economic downturn that occurred in 2008.

The *First Update to the Climate Change Scoping Plan* (2014 Scoping Plan) was approved by the ARB in May 2014 and built upon the 2008 Scoping Plan with new strategies and

recommendations. The 2014 Scoping Plan contained the main strategies California will implement to achieve a reduction of 80 million MT of CO_2e emissions, or approximately 16 percent, from the state's projected 2020 emission level of 507 million MT of CO_2e under the business-as-usual scenario defined in the 2014 Scoping Plan (ARB 2014). The 2014 Scoping Plan also included a breakdown of the amount of GHG reductions ARB recommended for each emissions sector of the state's GHG inventory. Several strategies to reduce GHG emissions were included: Low Carbon Fuel Standard, Pavley Rule, Advanced Clean Cars program, Renewable Portfolio Standard, and Sustainable Communities Strategy.

In 2016, the Legislature passed SB 32, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With the passage of SB 32, the Legislature passed companion legislation AB 197, which provided additional direction for developing the Scoping Plan. The ARB adopted *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan) in November 2017. The 2017 Scoping Plan represents a second update to the scoping plan to reflect the 2030 target as codified by SB 32. According to the 2017 Scoping Plan, the 2030 target of 260 million MT of CO_2e requires the reduction of 129 million MT of CO_2e, or approximately 33.2 percent, from the state's projected 2030 business-as-usual scenario emissions level of 389 million MT of CO_2e (ARB 2017).

Executive Order B-55-18

EO B-55-18, signed on September 10, 2018, established a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The EO requires the ARB to work with relevant State agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Assembly Bill 1493

AB 1493 of 2002 (Pavley Bill) requires ARB to develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light duty truck and other vehicles determined by ARB to be vehicles whose primary use is non-commercial personal transportation in the state." In September 2004, pursuant to this directive, the ARB approved regulations to reduce GHG emissions from new motor vehicles beginning with the 2009 model year. These regulations created the Pavley standards. In September 2009, the ARB adopted amendments to the Pavley standards to reduce GHG emissions from new motor vehicles through the 2016 model year. These regulations created the Pavley II standards.

Advanced Clean Cars Program

In January 2012, the ARB approved a new emissions control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero emission vehicles into a single packet of standards called Advanced Clean Cars. The Advanced Clean Cars Program includes the Zero Emission Vehicle Program, which is designed to achieve California's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of zero-emission vehicles, which include battery electric, fuel cell, and plug-in hybrid electric vehicles.

Senate Bill 375

SB 375, known as the Sustainable Communities and Climate Protection Act, was adopted In September 2008. The intent of SB 375 is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Under SB 375, ARB is required, in consultation with the metropolitan planning organizations (MPOs), to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. ARB set targets for 2020 and 2035 for each of the 18 MPOs in 2010 and adopted revised targets in 2018 (ARB 2018).

Sacramento Area Council of Governments (SACOG) is the MPO for the 6-county Sacramento region, including Yolo County. ARB's updated targets for the SACOG region require a 7 percent per capita GHG reduction in 2020 from 2005 levels (same as the 7 percent under the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 16 percent) (ARB 2018).

REGIONAL/LOCAL

2020 Metropolitan Transportation Plan/Sustainable Communities Strategy

On November 18, 2019, SACOG adopted the *2020 Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS). The 2020 MTP/SCS is the third update to the MTP/SCS and describes development of the Sacramento region for the next twenty years. It integrates transportation and land use planning and strategies to reduce automotive travel and increase walking, bicycling, and transit use for the purpose of achieving the 19 percent per capita GHG reduction target for SACOG established under SB 375. The 2020 MTP/SCS projects its implementation would result in meeting the SB 375 GHG reduction target for SACOG.

Yolo Solano Air Quality Management District

YSAQMD is the air quality regulating authority in Yolo County. Although YSAQMD's *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007) includes thresholds and analysis methodology for criteria pollutants, the YSAQMD has not yet established or adopted methodology or thresholds for the assessment of impacts related to GHG emissions.

Yolo County 2030 Countywide General Plan

The following Yolo County *2030 Countywide General Plan* (Yolo County 2009a) goals and policies related to GHGs are applicable to the Proposed Project:

- **Goal CO-8 Climate Change**: Reduce GHG emissions and plan for adaptation to the future consequences of global climate change.
- **Policy CO-8.2**: Use the development review process to achieve measurable reductions in GHG emissions.
- **Policy CO-8.5**: Integrate climate change planning and program implementation into County decision making.

Yolo County Climate Action Plan

The Yolo County Board of Supervisors adopted the *Yolo County Climate Action Plan* (CAP) (Yolo County 2011) on March 15, 2011. The CAP includes an inventory of GHG emissions from unincorporated areas in Yolo County during the years 1990 and 2008 as well as projections of emissions for the years 2020, 2030, 2040, and 2050. The CAP established the following GHG emissions reduction targets based on AB 32 goals: 1990 levels by 2020, 27 percent below 1990 levels by 2030, 53 percent below 1990 levels by 2040, and 80 percent below 1990 levels by 2050. The CAP contains 15 primary measures that will help the community achieve GHG reductions and successfully adapt to climate change. The CAP measures are grouped into the following five categories: agriculture, transportation and land use, building energy, solid waste and wastewater, and adaptation. As discussed above in the *GHG Emissions Inventories* section, the GHG emissions inventory for Yolo County was updated in 2018 using new data sources, emissions factors and current methodologies to a 2016 GHG emissions inventory (Yolo County 2018). Yolo County is in the process of developing a new 2030 Climate Action and Adaptation Plan. The new plan will chart a path toward achieving a countywide goal of reaching net-negative carbon emissions by 2030 (Yolo County 2023).

3.8.3 Method of Analysis

This section describes the methods used to analyze GHG emissions characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of greenhouse gas emissions. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to greenhouse gas emissions.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reduction the emissions of GHGs.

APPROACH TO ANALYSIS

The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance. The methods for analyzing GHG impacts associated with construction and operation and maintenance of the Proposed Project are described below.

Construction

The potential impacts from construction of the Proposed Project on GHG emissions were evaluated quantitatively using industry accepted software tools and adopted thresholds of significance for Yolo County. Construction of the Proposed Project would generate GHG emissions from equipment and vehicle exhaust during site clearing, grading, material delivery, construction of proposed improvements, and site cleanup. Major construction activities would require use of off-road construction equipment such as excavators, dozers, and graders. On-road vehicles such as haul trucks would be used for material and equipment hauling. On-road vehicles such as pickup trucks would be used for worker commutes.

GHG emissions from construction of the Proposed Project were estimated using CalEEMod. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operation from a variety of land use projects. Construction emissions were estimated in CalEEMod using a combination of Project-specific information presented in Chapter 2, Project Description, and CalEEMod defaults. Construction of the Knights Landing Ridge Cut would take place in 2025 followed by the Sacramento River Right Bank Levee improvements in 2026 and 2027 (cutoff wall in 2026 and stability berms in 2027).

Construction activities associated with each Proposed Project element would occur between January and December of the construction year. Construction would generally occur Monday through Saturday from 7 a.m. to 5 p.m. The area of disturbance, including staging areas, for each Project element presented in Section 2.3.1 Construction Details, were used as inputs in CalEEMod. Equipment types, equipment quantities, worker crew size, construction material quantities, and excavated topsoil quantities presented in Section 2.3.1 were also used as inputs in CalEEMod. Model inputs and assumptions for each Proposed Project element can be found in Appendix B Air Quality and Greenhouse Gas Emissions Modeling.

The Project's total GHG emissions were amortized over the expected 30-year life of the Proposed Project to yield a yearly emissions volume. The amortized GHG emissions were compared against the appropriate thresholds to determine significance of GHG impacts. See *Greenhouse Gas Emissions Thresholds* below for a discussion of the GHG threshold used in this analysis.

Operations and Maintenance

Upon completion of construction, the Proposed Project would require routine maintenance for the Project elements. Minimal quantities of equipment and vehicles would be required for vegetation control, rodent control, grading levee crowns, mechanical mastication/limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5-10 years. Given

the limited and infrequent nature of operation and maintenance activities, impacts on GHG emissions are evaluated qualitatively.

Greenhouse Gas Emissions Thresholds

As noted above, YSAQMD has not adopted methodology or thresholds for analysis of impacts related to GHG emissions. Yolo County is in the process of updating its Climate Action and Adaptation Plan, which set GHG emissions reduction targets based on AB 32 goals, to be consistent with current legislation within the state for reduction of GHG emissions. SB 32, which expands on AB 32, is the current legislation to reduce GHG emissions within California.

In the absence of locally adopted numeric thresholds for GHG emissions, it is appropriate to evaluate the Proposed Project's impacts against thresholds established by another jurisdiction. The adjoining air districts are Bay Area Air Quality Management District (comprising of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties), Lake County Air Quality Management District (comprising of Lake County), Colusa County Air Pollution Control District (comprising of Colusa County), Feather River Air Quality Management District (comprising of Sutter and Yuba counties), Sacramento Metropolitan Air Quality Management District (SMAQMD) (comprising of Sacramento County), and San Joaquin Valley Air Pollution Control District (comprising of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and western Kern counties).

Except for SMAQMD, none of these air districts have established or adopted thresholds of significance for construction GHG emissions based on SB 32 goals, which is the current legislation to reduce GHG emissions within California. For typical land use projects, SMAQMD recommends use of a 1,100 MT CO_2e per year threshold for construction and operational emissions (SMAQMD 2021). SMAQMD thresholds are consistent with GHG emissions reduction goals set forth by SB 32, which mandates a GHG emissions target of 40 percent below 1990 levels by 2030. Refer to *Regulatory Framework* for more information on SB 32. Therefore, for the purposes of this IS/MND, the SMAQMD threshold of 1,100 MT CO_2e per year is used to determine significance of construction GHG emissions for the evaluation of the Proposed Project's impacts.

3.8.4 Impact Analysis

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The Proposed Project would generate GHG emissions during site clearing, grading, material delivery, construction of proposed improvements, and site cleanup. GHG emissions generated during construction were estimated using CalEEMod. Table 3.8-1 presents a summary of the Proposed Project's unmitigated construction GHG emissions. Refer to Appendix B Air Quality and Greenhouse Gas Emissions Modeling, for the detailed results.

Table 3.8-1. Unmitigated GHG Construction Emissions Summary

Project Element	GHG Emissions MT CO_2e
Knights Landing Ridge Cut improvements (2025)	1,173
Sacramento River Right Bank Levee cutoff wall (2026)	1,993
Sacramento River Right Bank Levee stability berms (2027)	2,728
Total Emissions from Proposed Project[2]	**5,894**
Amortized Emissions over 30 Years[3,4]	197
SMAQMD Threshold of Significance[4]	1,100
Exceeds Threshold?	No

Sources: Appendix B SMAQMD 2021

Notes: GHG = greenhouse gas; MT = metric tons; CO_2e = carbon dioxide equivalent; SMAQMD = Sacramento Metropolitan Air Quality Management District

[1] The highest (maximum) emissions during years 2025, 2026, or 2027 are shown.

[2] Total GHG emissions from Proposed Project is the sum total of GHG emissions from Knights Landing Ridge Cut improvements (in 2025), GHG emissions from Sacramento River Right Bank Levee cutoff wall (in 2026), and GHG emissions from Sacramento River Right Bank Levee stability berms (in 2027).

[3] Amortized GHG emissions over 30 years = Total GHG emissions of 5,894 MT CO_2e / 30 years =197 MT CO_2e per year.

[4] Expressed in MT CO_2e per year.

As shown in Table 3.8-1, construction of the Proposed Project would generate GHG emissions that are below SMAQMD's threshold. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to GHG emissions. Therefore, construction of the Proposed Project would not generate GHG emissions and would not have a significant impact on the environment.

Operation and maintenance activities would generate limited GHG emissions from the use of minimal amounts of equipment and vehicles. Given the limited and infrequent nature of operation and maintenance activities, GHG emissions from operation and maintenance would be substantially less than those generated during construction, and thus, would not exceed SMAQMD thresholds. Therefore, operation and maintenance of the Proposed Project would not generate GHG emissions and would not have a significant impact on the environment.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on GHG emissions; mitigation is not required or recommended.

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed above in the *Regulatory Framework* section, SB 32 is the current legislation to reduce GHG emissions within California.

The Proposed Project would generate GHG emissions during construction. As presented under *Impact GHG-1*, the GHG emissions generated during construction would not exceed SMAQMD's threshold of significance of 1,100 MT CO_2e per year. SMAQMD's threshold is consistent with GHG emissions reduction goals set forth by SB 32, which mandates a GHG

emissions target of 40 percent below 1990 levels by 2030. Since the Proposed Project's construction GHG emissions are below SMAQMD's threshold of significance, the Proposed Project would not conflict with SB 32 GHG emissions reduction goals. Therefore, construction of the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

The Proposed Project would generate limited GHG emissions during operation and maintenance. As discussed under Impact GHG-1, the GHG emissions from operation and maintenance would not exceed SMAQMD thresholds, and thus, the, the Proposed Project would not conflict with SB 32 GHG emissions reduction goals. Therefore, operation and maintenance of the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Therefore, construction, operations, and maintenance of the Proposed Project would have **no impacts** from conflicting with a plan, policy, or regulation adopted for reducing GHG emissions; mitigation is not required or recommended.

3.9 Hazards and Hazardous Materials

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 likely 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?	☐	☐	☒	☐

3.9.1 Environmental Setting

This section describes the existing hazards and hazardous materials resources in the Proposed Project area, including a description of the Proposed Project's proximity to existing schools, hazardous materials database listings, airports in the Proposed Project area, emergency response plans and evacuation routes, and fire hazards.

SCHOOLS

Science and Technology Academy is an elementary school located at 9544 Mill Street in Knights Landing, approximately 0.25 mile south of the Sacramento River Right Bank Levee improvements within the Proposed Project area. No other schools are located within 0.25 mile of the Proposed Project area (Google Earth 2022).

DATABASE LISTINGS

Database searches were conducted on the Department of Toxic Substances Control (DTSC) Envirostor database (DTSC 2022) and the State Water Resources Control Board (SWRCB) GeoTracker database (SWRCB 2022) to identify any active and closed sites where releases or spills of hazardous materials have occurred within the study area. The search performed for this assessment was conducted in June 2022. Sites were identified as containing potentially hazardous materials handling, storage, or incidents in the computerized regulatory databases searched on a list of sites complied pursuant to California Government Code Section 65962.5. The following properties within ½ mile of the Proposed Project were identified as having a history of hazardous materials releases onsite.

- Wallace Ranch Property: County Road 116, Knights Landing. This site is located approximately 0.35 mile south of the Sacramento River Right Bank Levee. This site is a Cleanup Program Site with an Open Site Assessment status as of 7/13/2010. Diesel is the potential contaminant of concern. The potential media of concern is not specified (SWRCB 2022).
- Interstate Oil Knights Landing: 9518 Locust Street, Knights Landing. This site is located approximately 0.20 mile south of the Sacramento River Right Bank Levee. This site is a Leaking Underground Storage Tank (LUST) Cleanup Site. The status is Completed-Case Closed as of 6/2/2017. Potential contaminants of concern include benzene, diesel, and gasoline. An aquifer used for drinking water supply, indoor air, soil and soil vapor are the potential media of concern (SWRCB 2022).
- Plug-N-Jug Market: 9425 Locust Street, Knights Landing. This site is located approximately 0.10 mile south of the Sacramento River Right Bank Levee. This site is a LUST Cleanup Sit–. The status is Completed - Case Closed as of 2/24/2014. Gasoline, other solvent or non-petroleum hydrocarbons are the contaminants of concern. Groundwater (uses other than drinking) is the potential media of concern (SWRCB 2022).
- Private residence: Ensley Road (exact address is undisclosed), Knights Landing. This site is located approximately 0.40 mile north of the Sacramento River Right Bank Levee. This site is a LUST Cleanup Site. The status is Completed – Case Closed as of 9/19/2005. Gasoline is the potential media of concern. An Aquifer used for drinking water supply is the potential media of concern (SWRCB 2022).

AIRPORTS

There are no public airport or public use airport within 2 miles of the Proposed Project are. However, the Proposed Project area is located in the western portion of the *Sacramento International Airport Land Use Compatibility Plan* (ALUCP) referral area 2 (SACOG 2013).

EMERGENCY RESPONSE AND EMERGENCY EVACUATION

The Yolo County Office of Emergency Services (OES) is the emergency management agency for Yolo County. OES coordinates the County government's response to disaster or other large-scale emergencies (Yolo County OES 2022).

According to the Yolo County OES, jurisdictions throughout Yolo County have participated in a joint planning project to identify evacuation zones that can be used during large scale evacuation and shelter in place events. The Proposed Project area is located in Evacuation Zones 14 and 23. Primary evacuation routes for Zone 23 include CR 116, CR 102, SR 113, CR 16 west, or CR 17 west. Evacuation routes for Zone 14 include SR 45, SR 113, or CR 116 (Yolo County OES 2022).

FIRE HAZARDS

According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Map for Yolo County, the Proposed Project is predominantly located in a Local Responsibility Area (LRA) Unzoned Area. Portions of the Proposed area along the eastern boarder of Yolo County are located in a Moderate Fire Hazard Severity Zone (CAL FIRE 2007).

3.9.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of hazards and hazardous materials in the IS/MND.

FEDERAL

Hazardous Waste Management

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste.

Asbestos National Emission Standards for Hazardous Air Pollutants

The USEPA's Asbestos National Emission Standards for Hazardous Air Pollutants regulations specify work practices for asbestos to be followed during demolition and renovation of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units).

Universal Waste Management

40 CFR Part 273 governs the collection and management of widely generated waste, including batteries, pesticides, mercury-containing equipment, and bulbs. This regulation streamlines the hazardous waste management standards and ensures that such waste is diverted to the appropriate treatment or recycling facility.

US Department of Labor, Occupational Safety and Health Administration

29 CFR Part 1910, Occupational Safety and Health Standards, requires facilities that use, store, manufacture, handle, process, or move hazardous materials to conduct employee safety training; inventory safety equipment relevant to potential hazards; have knowledge on safety equipment use; prepare an illness prevention program; provide hazardous substance exposure

warnings; prepare an emergency response plan, and prepare a fire prevention plan. 29 CFR Part 1926 establishes similar safety and health regulations for construction.

U.S. Department of Transportation
Transportation of hazardous materials is regulated by the US Department of Transportation's Office of Hazardous Materials Safety. The office formulates, issues, and revises hazardous materials regulations under the Federal Hazardous Materials Transportation Law.

STATE

California Hazardous Waste Control Law
The California Hazardous Waste Control Law is administered by the California Environmental Protection Agency to regulate hazardous wastes. The California Hazardous Waste Control Law lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Occupational Safety and Health Administration
The California Occupational Safety and Health Administration is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace.

Field Act
Under the Field Act, the Department of General Services is required to supervise the design and construction, reconstruction, or alteration of any school buildings to ensure that the plans and specifications comply with adopted rules, regulations, and building standards for the protection of life and property.

Lead-Based Paint
The California Department of Public Health enforces lead laws and regulations related to the prevention of lead poisoning in children, prevention of lead poisoning in occupational workers, accreditation and training for construction-related activities, lead exposure screening and reporting, disclosures, and limitations on the amount of lead found in products. Accredited lead specialists are required to find and abate lead hazards in a construction project and to perform lead-related construction work in an effective and safe manner. Specific regulations include:

- California Health & Safety Code Section 105250: Establishes a program to accredit lead-related construction training providers and certify individuals to conduct lead-related construction activities.
- California Civil Code Sections 1102 to 1102.16: Requires the disclosure of known lead-based paint hazards upon sale of a property.
- California Labor Code Sections 6716 to 6717: Provides for the establishment of standards that protect the health and safety of employees who engage in lead-related construction work, including construction, demolition, renovation, and repair.
- California Health & Safety Code Sections 105185 to 105197: Establishes an occupational lead poisoning prevention program to register and monitor laboratory

reports of adult lead toxicity cases, monitor reported cases of occupational lead poisoning to ascertain lead poisoning sources, conduct investigations of take-home exposure cases, train employees and health professionals regarding occupational lead poisoning prevention, and recommended means for lead poisoning prevention.

State Water Resources Control Board
The SWRCB protects water quality in California by setting statewide policy. The SWRCB supports the nine Regional Water Quality Control Boards, which, within their areas of jurisdiction, protect surface and groundwater from pollutants discharged or threatened to be discharged to the waters of the state.

California Health and Safety Code – Handling and Storage of Hazardous Waste
In California, the handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan.

California Health and Safety Code – Transportation of Hazardous Waste
In California, transportation of hazardous waste is regulated under Chapter 6.5 of the California Health and Safety Code. Under Section 21560, hazardous waste generators must complete a manifest for the waste before it is transported or offered for transportation.

Emergency Response/Evacuation Plans
The state of California passed legislation authorizing the Office of Emergency Services to prepare a Standard Emergency Management System program, which sets forth measures by which a jurisdiction should handle emergency disasters.

California Disaster and Civil Defense Master Mutual Aid Agreement
The California Disaster and Civil Defense Master Mutual Aid Agreement states that all resources and facilities of the state, including all political subdivisions, shall voluntarily aid and assist each other in the event of a disaster by the interchange of services, including rescue, relief, evacuation, rehabilitation, and reconstruction (California Office of Emergency Services 1950).

REGIONAL/LOCAL

Yolo County Community Services Department Environmental Health Division
Environmental Health regulates the use, storage and disposal of hazardous materials in Yolo County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities. Acting as the California Unified Program Agency, Environmental Health oversees remediation of certain contaminated sites resulting from leaking underground storage tanks.

Yolo County Office of Emergency Services
The Yolo County OES is the emergency management agency for Yolo County. OES coordinates the County government’s response to disaster or other large-scale emergencies.

Yolo County Emergency Operations Plan (Yolo County 2013)

The *Yolo County Emergency Operations Plan* (EOP) (Yolo County 2013) is the primary document that discusses how disasters will be managed by the County. The Oils and Hazardous Materials Response Annex – Emergency Support Function #10 (Yolo County 2015) represents an alliance of discipline-specific stakeholders who possess common interests and share a level of responsibility to provide emergency management services related to oil and hazardous materials within the Yolo Operational Area. The Function #10 stakeholders will work together within their statutory and regulatory authorities to effectively and efficiently coordinate during all four phases of emergency management – mitigation, preparedness, recovery and response.

Regional Water Quality Control Board

23 CCR charges the nine RWQCBs with responsibility for overseeing water quality control. The RWQCBs are responsible for protecting actual or potential beneficial uses of water, including municipal, industrial, and agricultural water supplies and recreation. Each RWQCB has authority to supervise hazardous waste cleanup at sites referred by local agencies and in cases where water quality is affected or threatened. Either the DTSC or the RWQCB may be responsible for cleanup of sites of significant contamination by hazardous wastes. The two agencies often work together to ensure that their requirements are consistent and are implemented as intended.

2018 Yolo Operational Area Multi-Jurisdictional Hazard Mitigation Plan (Yolo County 2018)

The 2018 *Yolo County Operational Area Multi-Jurisdictional Hazard Mitigation Plan* (HMP) was prepared to establish an inter-jurisdictional process for the development and implementation of effective hazard mitigation strategies in association with identified hazards that pose a real or potential threat to the Yolo Operational Area.

Yolo County 2030 Countywide General Plan (Yolo County 2009a)

The following goals, actions, and policies of the Yolo County*2030 Countywide General Plan* (Yolo County 2009a) are applicable to the Project:

- **Goal HS-3 Wildland Fires**: Protect the public and reduce damage to property from wildfire hazard
- **Policy HS-3.1**: Manage the development review process to protect people, structures, and personal property from unreasonable risk from wildland fires
- **Action HS-A44**: Implement State recommendations for fire prevention in Fire Hazard Severity Zones
- **Goal HS-4**: Hazardous Materials: Protect the community and the environment from hazardous materials and waste.
- **Policy HS-4.1**: Minimize exposure to the harmful effects of hazardous materials and waste
- **Policy HS-4.3**: Encourage the reduction of solid and hazardous wastes generated in the county.

- **Goal HS-5 Airport Operations**: Protect the community from risks associated with airport operations and protect airports from the economic impacts of encroachment from incompatible land uses.
- **Policy HS-5.1**: Ensure that land uses within the vicinity of airports are compatible with airport restrictions and operations.
- **Policy HS-5.2**: Ensure that new development near commercial and public use airports is consistent with setbacks, height, and land use restrictions as determined by the Federal Aviation Administration and the Sacramento Area Council of Governments Airport Land Use Commission. Ensure that development proximate to private airstrips addresses compatibility issues.

3.9.3 Method of Analysis

This section describes the methods used to analyze hazards and hazardous materials characteristics within the study area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of hazards and hazardous materials. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to hazards and hazardous materials.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

- 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;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

APPROACH TO ANALYSIS

Construction, Operations and Maintenance
A desktop analysis was completed to collect and analyze data related to hazards and hazardous materials in the study area. Information was collected on known hazardous material sites within the study area and geographic information system (GIS) data and aerial imagery were used to identify the hazardous sites within the study area. Additionally, the following resources were used for data collection:

- Envirostor Database (Envirostor 2022)
- GeoTracker Database (GeoTracker 2022)
- CAL FIRE Fire Hazard Severity Zone Maps (Cal Fire 2007)

The potential impacts from construction, operation, and maintenance of the Proposed Project on hazards and hazardous materials were evaluated qualitatively using known hazards and hazardous materials data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.9.4 Impact Analysis

Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The Proposed Project would involve the transport and use of common construction materials such as vehicle fuels, grease, lubricants, and drilling fluids which could pose a threat as hazardous materials. Using these materials, including their routine transport and disposal, carries the potential for an accidental release into the local environment, including near the Sacramento River and Knights Landing Ridge Cut. During excavation, levee removal, removal of levee pipe penetrations, relocation of PG&E power poles, replacement of levee gates, use of large earthmoving construction equipment, vehicle and equipment fueling, and other construction activities for the Proposed Project, it is anticipated that limited quantities of miscellaneous hazardous substances (such as petroleum-based products/fluids, solvents, oils, and potentially asbestos bearing materials from old structures onsite) would be used in the Proposed Project area and staging area.

All construction wastes would be trucked offsite for disposal, and the Proposed Project would not discharge liquid construction wastes to surface or groundwaters in the area. The bentonite

slurry wall mix for the Sacramento River Right Bank Levee improvements would be contained and solidified in place and would not contribute to additional waste. Construction disturbance, including disturbance near surface waters, has the potential to result in the accidental release of fuel and other construction material to the environment. However, with the implementation of a SWPPP for the Proposed Project, BMPs would be employed to control erosion and sedimentation into surface waters and prescribe good housekeeping practices to reduce the extent of potential spills or release of hazardous materials into the environment. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts from the transport, use, or disposal of hazardous materials.

The Proposed Project would comply with all relevant federal, state, and local statutes and regulations related to transport, use (including material storage procedures), or disposal, of hazardous materials. The SWPPP and BMPs (as required by federal state and local regulations), would minimize hazards resulting from routine transport, use, or disposal of hazardous materials. Additionally, the Proposed Project would follow procedures in the 2018 *Yolo Operational Area Multi-Jurisdictional Hazard Mitigation Plan* (Yolo County 2018) and the *Yolo County Emergency Operations Plan* (Yolo County 2013) related to spills and releases of hazardous materials to minimize potential impacts. In general, these documents call for hazardous materials disaster mitigation through effective education, code enforcement, and monitoring of production, transportation, use and storage of hazardous materials. Therefore, impacts related to transport, use, or disposal of hazardous materials would be less than significant and no mitigation is required.

Routine operation and maintenance activities may include vegetation control, rodent control, and maintenance of levee patrol roads. These activities would be infrequent and would be similar to existing operations and maintenance activities performed by the KLRDD, CSA6, and the Yolo Habitat Conservancy. All activities would be performed in conformance with relevant federal, state, and local statutes and regulations related to transport, use, or disposal, of hazardous materials. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; therefore, mitigation is not required or recommended.

Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?

As discussed above, the Proposed Project would involve the use of common construction materials such as vehicle fuels, grease, lubricants, and drilling fluids that would be hazardous if they were to accidentally be released into the environment. The bentonite slurry wall mix for the Sacramento River Right Bank Levee improvements would be contained and solidified in place; therefore, it is unlikely that it would result in a spill. Additionally, spill prevention measures would be included in the construction plans and monitored in the SWPPP for the proposed

improvements to address the accidental or inadvertent release of oil, grease, or fuel into adjacent waterways.

Such measures would include rules requiring the storage of reserve fuel and the refueling of construction equipment within designated secondary containment in construction areas and staging areas, and inspection of vehicles for oil and fuel leaks. Any contaminated soils or groundwater encountered by the project will be managed, stored, and disposed of in accordance with requirements of the SWPPP and NPDES construction general permit and DTSC requirements reducing impacts to a less than significant level.

Additionally, with the implementation of a SWPPP for the Proposed Project, BMPs would be employed to control erosion and sedimentation into surface waters. In the event of an emergency, potential impacts would be minimized through the application of procedures outlined in the *Yolo Operational Area Multi-Jurisdictional Hazard Mitigation Plan* and *Yolo County Emergency Operations Plan*. Therefore, the Proposed Project would not 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 and impacts would be less than significant.

As discussed above, Operation and Maintenance of the Proposed Project may include vegetation control, rodent control, and maintenance of levee patrol roads. These activities would be infrequent and would be similar to existing operations and maintenance activities performed by the KLRDD, CSA6, and the Yolo Habitat Conservancy. All activities would be performed in conformance with relevant federal, state, and local statutes and regulations related to hazardous materials releases. Construction, operations, and maintenance of the Proposed Project would have **a less than significant impact** on the release of hazardous materials into the environment; therefore, mitigation is not required or recommended.

Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Science and Technology Academy is an elementary school located at 9544 Mill Street in Knights Landing, approximately 0.25 mile south of the Sacramento River Right Bank Levee improvements within the Proposed Project area.

As discussed above, although the Proposed Project has the potential to emit hazardous materials or substances through the use of common construction materials, the risk of release would be reduced through implementation of the Project SWPPP.

The Proposed Project would require construction vehicles to be operated within the study area over the construction duration, which could result in emissions of air quality pollutants within one-quarter mile of an existing school. Fuel combustion results in the release of air quality pollutants that can be considered hazardous. Air quality impacts are discussed in Section 3.3 Air Quality.

As discussed in Section 3.3, construction activities would be temporary and short-term. Only portions of the study area would be disturbed at a time throughout the construction period, with operation of construction equipment occurring intermittently throughout the course of a day rather than continuously at any one location in the Proposed Project area. Periodic operation of construction equipment would allow for the dispersal of diesel particulate matter (DPM) by avoiding continuous construction activity in the portions of the Proposed Project area closest to existing sensitive receptors. Furthermore, compliance with the ARB airborne toxic control measures anti-idling measure, which limits idling to no more than 5 minutes at any location for diesel-fueled commercial vehicles, would further minimize DPM emissions in the Proposed Project area. Therefore, construction of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. With implementation of a Project SWPPP, compliance with the ARB airborne toxic control measures anti-idling measure, and consistency with hazardous materials handling and air quality district requirements, impacts from construction within one-quarter mile of an existing school would be less than significant.

As discussed above, operation and maintenance of the Proposed Project would require vegetation control, rodent control, and maintenance of levee patrol roads. This would involve the use of a small number of trucks and equipment that would use and emit potentially hazardous materials. However, these vehicles would be operated in areas near schools that already experience vehicle use and these inspections would be performed infrequently; therefore, the inspections would not increase the potential for emissions significantly over existing levels. Additionally, as discussed in Section 3.3, no long-term generators or stationary sources are included as part of the Proposed Project. The Proposed Project would not generate significant quantities of operational DPM because operation and maintenance activities would be infrequent and require minimal diesel-powered equipment. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on emitting hazardous emissions or handling hazardous materials within one-quarter mile of an existing school; therefore, mitigation is not required or recommended.

Impact HAZ-4: 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?

A desktop search of the Envirostor and GeoTracker databases was performed to find known potentially hazardous sites in the Proposed Project area. As discussed in the Hazards and Hazardous Materials Environmental Setting, there are no listed properties located within or adjacent to the Proposed Project area. There are four properties located within ½ mile of the Proposed Project area with a history of known contamination; however, three of these cases have been remediated and closed. The only open listing, located on County Road 116, is located 0.35 mile south of the Sacramento River Right Bank Levee and is not considered a high risk for the Proposed Project given its distance from the site.

Most work would be done on existing levees. However, potentially contaminated soils or groundwater encountered during ground disturbing activities would be managed, stored, and disposed of in accordance with requirements of the SWPPP and NPDES construction general

permit thus reducing impacts. Additionally, any hazardous materials encountered, including contaminated soils and groundwater, will be managed and disposed of in accordance with California Department of Toxic Substances Control regulations.

Operations and maintenance would not occur on sites with a history of known contamination. Further, the Proposed Project will have to comply with regional, state, and federal requirements for the transport, use, and disposal of hazardous materials. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on hazardous materials sites; therefore, mitigation is not required or recommended.

Impact HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

There are no public airport or public use airport within 2 miles of the Proposed Project area. However, the Proposed Project area is located in the western portion of the *Sacramento International Airport Land Use Compatibility Plan* (ALUCP) referral area 2 (SACOG 2013). The Proposed Project would comply with policies and procedures outlined in the ALUCP, such as those related to tall structures and airspace impediments, visual hazards, and noise sensitive land uses, to protect the public, airport operations, and workers within the Proposed Project area. The Proposed Project would not include tall structures that have the potential to intrude upon protected airspace and would not include land use features, such as towers, which have the potential to attract birds and certain other potentially hazardous wildlife to the airport area. Visual hazards, including certain types of lights, sources of glare, and sources of dust, steam or smoke would be minimized during construction through project controls.

For example, the project SWPPP would include BMPs such as dust reduction measures that would reduce visual hazards. Additionally, nighttime work during construction is not proposed and therefore would not create additional sources lighting or glare. Further, electronic hazards, such as radio towers, which may cause interference with aircraft communications or navigation, are not used in the Proposed Project. Construction workers would be required to wear personal protective equipment (PPE), such as hearing protection, to protect them from excessive noise from construction equipment or surrounding noise levels, including aviation noise, while onsite. The Proposed Project is not considered a noise sensitive land use. Construction activities would occur on a temporary basis and no additional noise hazards from being located with the ALUCP would occur over existing conditions.

Similarly, operations and maintenance activities would be occasional, would not involve permanent structures, and would not create hazards associated with being located within the Sacramento Airport ALUCP. Construction, operations, and maintenance of the Proposed Project would have **less than significant impacts** from being located within an airport land use plan; therefore, mitigation is not required or recommended.

Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

According to the Yolo County OES, the Proposed Project area is located in Evacuation Zones 14 and 23. Primary evacuation routes for Zone 23 include CR 116, CR 102, SR 113, CR 16 west, or CR 17 west. Evacuation routes for Zone 14 include SR 45, SR 113, or CR 116 (Yolo County OES 2022).

Proposed haul routes include Locust Street and existing agricultural farm roads. These access routes would be used by two-way traffic. The proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles. Access to the site would also be provided by CR 116B. Construction staging and material stockpiling would occur along the levee as construction progresses down the levee.

CR 116B and Locust Street would remain open to 2-way traffic during construction. Traffic flow on access routes would be coordinated by the contractor as construction work progresses along the levee. It is anticipated that roads used to access the site are wide enough to accommodate all truck and equipment traffic for the Proposed Project. No road widening would be required. Based on these factors, construction and operation of the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

No full or partial road closures would be required for operations, routine inspections, or maintenance activities. These activities would occur periodically and would require relatively few vehicles so they would not alter the traffic volumes on access roads for the Proposed Project. Therefore, construction, operations and maintenance of the Proposed Project would have **less than significant impacts** on interfering with an adopted emergency response plan or emergency evacuation plan; therefore, mitigation is not required or recommended.

Impact HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone Map for Yolo County, the Proposed Project is predominantly located in a Local Responsibility Area (LRA) Unzoned Area. Portions of the Proposed area along the eastern boarder of Yolo County are located in a Moderate Fire Hazard Severity Zone (CAL FIRE 2007). The Proposed Project would not add any new land uses that could create a greater fire risk than currently exists. Fire suppression equipment, including fire extinguishers would be kept onsite during construction in accordance with local fire codes and standards. In addition, construction activities that could generate sparks, such as equipment maintenance, would be conducted in the staging areas.

Operations and maintenance activities would be periodic and would also occur outside of areas designated as high and very high fire hazard severity zones. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** from exposing people or structures to a significant risk of loss, injury or death involving wildland fires; therefore, mitigation is not required or recommended.

3.10 Hydrology and Water Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 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 offsite;	☐	☐	☐	☒
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
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?	☐	☐	☒	☐

3.10.1 Environmental Setting

SURFACE WATER

The Proposed Project is located in Yolo County along the Sacramento Right Bank Levee, and the Knights Landing Ridge Cut, a manmade leveed drainage channel. The Proposed Project area discharges surface water to the Sacramento River. The Sacramento River is a 447-mile-

long river that begins in Shasta County and passes west of the City of Sacramento. Its tributaries include the Pit, Feather, McCloud, and American Rivers.

Regular water quality monitoring is performed in Yolo County by various organizations. Chemicals such as boron, diazinon, mercury and unknown toxics are pollutants found in the surface waters of Yolo County. According to the Yolo County *2030 Countywide General Plan*, studies on the physical and chemical characteristics of the Sacramento River and its tributaries within Yolo County have identified high concentrations of nutrients and contaminants, particularly after major storms (Yolo County 2009a). The Central Valley Regional Water Quality Control Board (CVRWQCB) has adopted Total Maximum Daily Load (TMDL) for diazinon in the Sacramento River. The *Central Valley RWQCB's Water Quality Control Plan* (Basin Plan) covers the Sacramento and San Joaquin River basin (which includes the Proposed Project area) and consists of a designation or establishment for waters of beneficial uses to be protected, water quality objectives to support those protected uses, and a program of implementation needed for achieving the objectives (RWQCB 2018). Water quality objectives include objectives for bacteria, biostimulatory substances, chemical constituents, cryptosporidium and giardia, color, dissolved oxygen, floating material, mercury, methylmercury, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

GROUNDWATER

The Proposed Project area is located in the Sacramento Valley Groundwater Basin and the Yolo Subbasin. The Yolo Subbasin is bounded on the west by the Sacramento River, on the west by the Coast Range, on the north by Cache Creek, and on the south by Putah Creek (DWR 2004). The Yolo Subbasin Groundwater Agency (YSGA) Board developed the 2022 Yolo Subbasin Groundwater Sustainability Plan, which governs the area (YSGA 2021; YSGA 2022). California's Groundwater (Bulletin 118) is the State's official publication on the occurrence and nature of groundwater in California. The publication defines the groundwater basin boundaries and summarizes groundwater information for each of the State's 10 hydrologic regions (DWR 2022). Depth to groundwater on average is greater than 6 feet in the Proposed Project area (NRCS 2021). Geotechnical studies performed in support of the Proposed Project suggest that depth to groundwater is closer to 50 feet.

Yolo County has an extensive system of shallow and deep aquifers on which the County depends for domestic and agricultural water supply. The primary sources of groundwater recharge in the County include applied irrigation water and direct rainfall. Wells in the County are increasingly tapping deeper aquifers because of issues related to subsidence and contamination. Subsidence can cause permanent loss of aquifer capacity when upper soil layers collapse. It can also compromise wells, irrigation canals, levees, and highways. Contamination from coliform, nitrates and dissolved salts are primary concerns for groundwater quality in the County. These contaminants are a consequence of septic system usage and over-fertilization of agricultural and open space areas (Yolo County 2009a).

TSUNAMI, SEICHE AND FLOODING

The Proposed Project is located in Flood Zone A, which is designated as special flood hazard areas subject to inundation with the 1 percent annual chance of flood with no base flood elevations determined (FEMA 2010).

The Proposed Project is located within Knights Landing Unit 2 – Yolo Bypass – Service Area 6 levee system, which is a portion of the Sacramento River Flood Control Project, a large-scale levee project authorized by Congress. Knights Landing Unit 2 – Yolo Bypass – Service Area 6 levee system reduces the risk of flooding for Yolo and Sutter County and adjacent agricultural lands from flood waters in Kings Landing. A nonurban population and a small number of structures are present within the leveed area. The Knights Landing Unit 2 – Yolo Bypass – Service Area 6 levee system is constructed of earthen embankments and requires occasional maintenance. Upon completion of construction, Yolo County Service Area No. 6 (CSA 6) would continue to perform routine maintenance in the area of the Sacramento River Right Bank Levee improvements.

The KLRDD would continue to perform routine operation and maintenance activities in the area of the Knights Landing Ridge Cut improvements. According to the California Department of Conservation, California Tsunami Map, the Proposed Project is located outside of a tsunami hazard area (DOC 2019). The Proposed Project is not located in a seiche zone because it is not located in close proximity to a large body of water such as a lake or ocean.

3.10.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of hydrology and water quality in the IS/MND.

FEDERAL

Clean Water Act

The Federal Water Pollution Control Act of 1948 was the first major United States law to address water pollution. Amended in 1972, the law became commonly known as the CWA (33 USC Section 1251). The CWA established the structure for regulating discharge of pollutants into waters of the United States and regulating quality standards for surface waters.

CWA Section 404 (33 USC Section 1344) enables regulation of the discharge of dredged or fill material into waters of the United States, including wetlands. To comply with CWA Section 404, a permittee must document the measures taken to avoid and minimize impacts on waters of the United States and provide compensatory mitigation for any unavoidable impacts.

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit or license for any activity that may result in discharges to waters of the United States, unless a state or tribe where the discharge originates either grants, waives or denies CWA Section 401 certification. Decisions made by states or tribes are based on the proposed project's compliance with USEPA water quality standards as well as applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any

other appropriate requirements of state or tribal law. In California, the SWRCB is the primary regulatory authority for CWA Section 401 requirements.

National Pollutant Discharge Elimination System
The NPDES permit was established in the CWA to regulate municipal and industrial discharges to surface waters of the US. The ultimate objective of the CWA is zero pollutant discharge, but it recognizes the need for a system to regulate non-zero pollutant discharges until the zero-pollutant objective is feasible. CWA Section 402 established NPDES for this purpose. The NPDES regulates all pollutant discharges, particularly point source discharges, to the waters of the US.

Construction General Permit
Also established through the CWA Section 402 NPDES program, the California Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ authorizes the discharge of stormwater (and certain unauthorized non-stormwater discharges) from construction sites that disturb 1 acre or more of land, and from smaller sites that are part of a larger, common plan of development. For all projects subject to the CGP, the applicant is required to hire a qualified developer and practitioner to develop and implement an effective SWPPP. All project registration documents, including the SWPPP, are required to be uploaded into the SWRCB's online Stormwater Multiple Application and Report Tracking System prior to ground disturbing activities.

Section 14 of the Rivers and Harbors Appropriation Act of 1899, Section 408
Under Section 408 (33 USC Section 408), any use or alteration of a Civil Works project is subject to the approval of USACE. This requirement was established in Section 14 of the Rivers and Harbors Act of 1899. Section 408 provides that USACE may grant permission for another party to alter a Civil Works project upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project.

STATE

Porter-Cologne Water Quality Control Act
The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15) is the primary state regulation that addresses water quality. The requirements of the act are implemented by the SWRCB at the state level and the regional water boards within the nine regions designated. The regional water boards carry out planning, permitting, and enforcement activities related to water quality in California. The regional water boards are responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements or conditional waivers to waste discharge requirements. Waste discharge requirements are required by the regional water boards for activities that may affect water quality.

Clean Water Act Section 401 Water Quality Certification
A CWA Section 401 water quality certification is required for activities that require CWA Section 404 permits issued by USACE. As mentioned above, the SWRCB has primary regulatory authority for CWA Section 401 requirements for protecting water resources. Enforcement of

these requirements is also handled by the nine regional water boards depending upon location of the potential impacts. The RWQCB will be responsible for CWA Section 401 compliance for this project if needed.

Delegated Permit Authority
California has been delegated permit authority for the NPDES permit program, including storm water permits for all areas except tribal lands. Issuance of CWA Section 404 permits remains the responsibility of USACE; however, the state actively uses its CWA Section 401 certification authority to safeguard that CWA Section 404 permits will comply with state water quality standards.

State Definition of Covered Waters
Under California state law, waters of the state refer to "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050). Therefore, water quality laws apply to both surface water and groundwater. After the United States Supreme Court decision in Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, the Office of Chief Counsel of the State Water Resources Control Board released a legal memorandum confirming the state's jurisdiction over isolated wetlands. In general, the SWRCB regulates discharges to isolated waters in much the same way as they do for waters of the United States, but the regulation is via Porter-Cologne Water Quality Control Act rather than the CWA.

Central Valley Flood Protection Board
The Central Valley Flood Protection Board exercises regulatory authority within its jurisdiction to maintain the integrity of the existing flood control system and designated floodways by issuing permits for encroachments (CCR Title 23, Division 1, Chapter 1). The jurisdiction of the Central Valley Flood Protection Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River, the San Joaquin River, and designated floodways (23 CCR Section 112). Projects that encroach in a designated floodway or regulated stream, or within 10 feet of the toe of a state-federal flood control structure (levee), require an encroachment permit and the submission of an associated application, including an environmental assessment questionnaire. A project must demonstrate that it will not reduce the channel flow capacity and that it will comply with channel and levee safety requirements (23 CCR Section 120). In cooperation with USACE, the Central Valley Flood Protection Board enforces standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods.

State Water Resources Control Board and Regional Water Quality Control Boards
The SWRCB adjudicates water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

REGIONAL/LOCAL

Water Quality Control Plan (Basin Plan)

The Proposed Project is under the jurisdiction of the RWQCB. The RWQCB implements the *Water Quality Control Plan* (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region (RWQCB 2018) to regulate surface and groundwater quality in the region. The Basin Plan covers the entire Sacramento and San Joaquin River Basins. The Basin Plan lists beneficial uses and water quality objectives to protect those uses. The Proposed Project is in the Sacramento River Basin and will follow the requirements laid out in that portion of the Basin Plan.

2007 Integrated Regional Water Management Plan

In 2007, the County adopted the *Integrated Regional Water Management Plan* (IRWMP). The IRWMP was developed by the Water Resources Association of Yolo County (WRA), in conjunction with DWR. The IRWMP serves as an update to the County's 1992 water management plan, addressing major topics such as water supply, water quality, flood management, enhancement of aquatic and riparian habitat, and improvement of the County's recreational opportunities.

Yolo Subbasin Groundwater Agency 2022 Groundwater Sustainability Plan (2022)

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, comprised of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley) collectively known as the Sustainable Groundwater Management Act (SGMA). This legislation provides for the local control of groundwater while requiring the sustainable management of groundwater resources. Yolo Subbasin Groundwater Agency (YSGA) is the recognized GSA for the entire Yolo Subbasin. The *Yolo Subbasin Groundwater Sustainability Plan* documents monitoring conditions, establishes management criteria to avoid undesirable results, and identifies potential actions that will achieve and maintain sustainable groundwater management by 2042 (YSGA 2022).

Yolo County Stormwater Management Program

The Yolo County Stormwater Management Program (SWMP) was developed by the Yolo County Planning and Public Works Department in conjunction with other Yolo County agencies. The SWMP analyzes various activities in urbanized areas that are sources of pollutants in stormwater and identifies Best Management Practices to reduce their levels. The SWMP responds to the issues and regulations of the 1987 Clean Water Act.

Yolo County Natural Heritage Program

The Yolo County Natural Heritage Program serves as a water management plan with respect to wetlands and riparian corridors, in compliance with the Federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA).

Yolo County 2030 Countywide General Plan

The following goals and policies of the Yolo County *2030 Countywide General Plan* (Yolo County 2009a) are applicable to the Project:

- **Goal CO-5 Water Resources**: Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.
- **Policy CO-5.6**: Improve and protect water quality for municipal, agricultural, and environmental uses.
- **Policy CO-5.12**: Support the integrated management of surface and groundwater, stormwater treatment and use, the development of highly treated wastewater, and desalinization where feasible.
- **Policy CO-5.13**: Ensure that regional, State and federal water projects protect local water rights and areas of origin.
- **Policy CO-5.23**: Support efforts to meet applicable water quality standards for all surface and groundwater resources.
- **Policy CO-5.30**: Anticipate and adapt to changes in the amount and timing of water availability due to predicted effects of global warming.

3.10.3 Method of Analysis

This section describes the methods used to analyze hydrology and water quality characteristics within the study area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of hydrology and water quality. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to hydrology and water quality.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on or off-site

  - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site
  - Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff
  - Impede or redirect flood flows
- In flood hazard zones, risk release of pollutants due to Project inundation
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

APPROACH TO ANALYSIS

Construction, Operations and Maintenance

A desktop analysis was completed to collect and analyze data related to hydrology and water quality in the Proposed Project area. Key sources of information and plans include the following:

- Yolo County *2030 Countywide General Plan Conservation and Open Space Element* (Yolo County 2009a)
- California's Groundwater (Bulletin 118) (DWR 2022)
- California Department of Conservation (DOC) *California Tsunami Maps and Data* (DOC 2019)
- U.S. Army Corps of Engineers National Levee Database (USACE 2016)
- Yolo Subbasin Groundwater Agency *2022 Groundwater Sustainability Plan* (YSGA 2022)
- FEMA Flood Insurance Rate Map (FEMA 2010)

The potential impacts from construction, operation and maintenance of the Proposed Project on hydrology and water quality were evaluated qualitatively using known hydrology and water quality data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.10.4 Impact Analysis

Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction of the Sacramento River Right Bank Levee improvements would involve the use of a bentonite slurry mix for construction of the cutoff wall. The bentonite slurry mix would be prepared in a designated portion of the staging area and would have secondary containment around it to prevent accidental spill or release of the slurry material. To construct the cutoff wall, the existing levee would need to be degraded, a trench would be dug, the bentonite slurry wall would be poured in place, and then the levee would be rebuilt. Water side work may be required for the construction of the cutoff wall and erosion and sediment control would be implemented along the shoreline. However, no in-water work is anticipated.

Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to surface or groundwater quality. The Knights Landing Ridge Cut improvements would involve excavating the face of the landslide levee slope and reconstructing the levee with imported fill to widen the levee crown. Construction BMPs for the accidental release of the bentonite slurry mix would be employed by the contractor.

In general, construction disturbance and degrading the Proposed Project area has the potential to impact surface water quality through erosion and sedimentation, and groundwater quality through the accidental release of fuel and other construction materials, including herbicides. However, the Proposed Project would be required to implement a SWPPP, and BMPs would be employed to control erosion and sedimentation, reduce the extent of potential spills or release of hazardous materials, and prevent the discharge of materials into surface waters and groundwater.

During operation of the Proposed Project, maintenance would be occasional and minimally invasive and would not impact surface water and groundwater quality. Additionally, the Proposed Project would be required to conform to applicable federal, State and local regulations to protect water quality, such as CWA Section 402. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on hydrology and water quality; therefore, mitigation is not required or recommended.

Impact HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The Proposed Project would address under-seepage, through-seepage, stability, and freeboard deficiencies in the Proposed Project area through the construction of cutoff walls and seepage stability berms. Specifically, the purpose of the cutoff walls and seepage stability berms are to reduce seepage from the Sacramento River through the levee and to provide a more stable landside slope along the Knights Landing Ridge Cut. The proposed cutoff wall in Knights Landing would be constructed using a bentonite slurry mix to create a layer impermeable to flood seepage. While the proposed cutoff wall would be constructed to varying depths of up to 80 ft., it is not anticipated to interfere with regional groundwater flow in the Proposed Project area. The proposed cutoff wall would consist of a short structure, which would be relatively small in comparison to the Knights Landing basin and the Sacramento Valley Groundwater Basin - Yolo Subbasin. The seepage stability berms and stability improvements would not interfere with groundwater flow in the Project area. Additionally, most work for the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements would occur on existing levees and would not substantially alter or interfere with existing groundwater recharge in the Proposed Project area.

Because impermeable improvements like the cutoff wall would be limited in size when compared to the Knights Landing basin as a whole, it is not anticipated that the Proposed Project would impede groundwater flows, decrease groundwater supplies, or interfere with groundwater recharge thus impeding groundwater management in the basin.

Additionally, groundwater would not be used or extracted during operation and maintenance. Construction, operations, and maintenance of the Proposed Project would have **less than significant impacts** on groundwater supplies in the Proposed Project area; therefore, mitigation is not required.

Impact HYD-3a: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off-site.

The Proposed Project would include the construction of cutoff walls and seepage stability berms in the existing levee system to address seepage and stability along the levee. This would help to further preserve existing drainage patterns for the Sacramento River and Knights Landing Ridge Cut so that drainage patterns are not altered by seepage or flooding. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to drainage patterns. Additionally, as described above under Impact HYDRO -1, erosion and sediment control measures would be installed prior to the commencement of ground disturbing activities on site in accordance with the project SWPPP to be developed by the contractor. Further, the Proposed Project would primarily be located on existing levees and would not create any permanent or impervious surfaces that could alter drainage patterns or create additional erosion or siltation.

Operation and maintenance activities would not involve the addition of impervious surfaces and would not change the drainage pattern of the site or area. Construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on erosion or siltation; therefore, mitigation is not required or recommended.

Impact HYD-3b: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

The Proposed Project would include the construction of cutoff walls and seepage stability berms in the existing levee system to address seepage and stability along the levee and preserve existing drainage patterns for the Sacramento River and Knights Landing Ridge Cut. The Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements would be designed to prevent flooding from the Sacramento River and Knights Landing Ridge Cut to adjacent land uses in Knights Landing and the Knights Landing basin.

The Project would not involve the addition of impervious surfaces and would not change the drainage patterns of the site or area. Construction, operations, and maintenance of the Proposed Project would have **no impact** on surface runoff and flooding or on- or offsite, rather impacts would be beneficial; therefore, mitigation is not required or recommended.

Impact HYD-3c: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would 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.

The Proposed Project would not create additional stormwater runoff because no new impervious surfaces would be created. A project SWPPP would manage any additional sources off polluted runoff created by construction activities. Therefore, there would be no impact on stormwater drainage systems and the Proposed Project would not create substantial additional sources of polluted runoff during construction.

Construction, operations, and maintenance of the Proposed Project would have **no impact** on the creation or contribution of runoff and polluted runoff; therefore, mitigation is not required or recommended.

Impact HYD-3d: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

By the nature of the improvements, the Proposed Project would redirect flood flows in the Proposed Project area; however, the purpose and intent of the Proposed Project under the SCFRRP is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin. The Proposed Project would include the construction of cutoff walls and seepage stability berms in the existing levee system to address seepage and stability along the levee and prevent flooding from the Sacramento River and Knights Landing Ridge Cut to adjacent land uses in Knights Landing and the Knights Landing basin. As a result, the Proposed Project would result in beneficial impacts, such as sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability through flood protection. Most improvements would occur on existing levees and no large new structures are proposed. No imperious surfaces would be created.

Construction, operations, and maintenance of the Proposed Project would have **no impact** on impeding or redirecting flood flows. Rather, beneficial impacts would occur; therefore, mitigation is not required or recommended.

Impact HYD-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Proposed Project is located in Flood Zone A, which is designated as special flood hazard areas subject to inundation with the 1 percent annual chance of flood with no base flood elevations determined (FEMA 2010). The structures in the community of Knights Landing are subject to flood depths greater than 3.5 ft (Yolo County 2019). According to the California Department of Conservation, California Tsunami Map, the Proposed Project is located outside of a tsunami hazard area (DOC 2019). The Proposed Project is not located in a seiche zone because it is not located in close proximity to a large body of water such as a lake or ocean. Construction of the

Proposed Project would involve the use and storage of potential pollutants during project inundation; however, due to the location of the levees, the risk of inundation would be minor. Further, with implementation of a SWPPP, the potential for release of pollutants would be controlled by BMPs. Operation and maintenance of the Proposed Project would be routine and periodic and would not exacerbate the risk of release of pollutants due to project inundation. Additionally, the purpose of the Proposed Project is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin, which would improve flooding conditions in the Proposed Project area and reduce risk of release of pollutants due to project inundation. Construction, operations, and maintenance of the Proposed Project would have **a less than significant impact** on the risk of release of pollutants due to project inundation; therefore, mitigation is not required or recommended.

Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Central Valley RWQCB's *Water Quality Control Plan* (Basin Plan) covers the Sacramento and San Joaquin River basins, which includes the Proposed Project area. The Basin Plan consists of a designation or establishment for waters with beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives (RWQCB 2018). The Yolo Subbasin Groundwater Sustainability Plan documents monitoring conditions, establishes management criteria to avoid undesirable results, and identifies potential actions that will achieve and maintain sustainable groundwater management by 2042 (YSGA 2022).

With the implementation of the Proposed Project SWPPP and associated sediment and sanitary controls, impacts to water quality objectives such as bacteria, biostimulatory substances, chemical constituents, cryptosporidium and giardia, dissolved oxygen, floating material, oil and grease, pH, pesticides, sediment, settleable material, suspended material, and turbidity during construction would be controlled by BMPs. The Proposed Project would not use materials that would cause impacts to objectives for radioactivity, mercury and methylmercury, color, salinity, tastes and odors, temperature, or toxicity. Additionally, as discussed in Impact HYD-2, no impacts on groundwater quality would occur because the Proposed Project would not impede groundwater recharge or flow. As discussed in Impact HYD-3 (a), large amounts of impervious surfaces that could affect hydraulic flows would not be created.

Similarly, operation and maintenance of the Proposed Project would not impede groundwater recharge or flow or create impervious surfaces that could affect hydraulic flows. Construction, operation and maintenance of the Proposed Project would have **less than significant impact** on a water quality control plan or sustainable groundwater management plan; therefore, mitigation is or required or recommended.

3.11 Land Use and Planning

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☒	☐

3.11.1 Environmental Setting

The Proposed Project is located in and around the community of Knights Landing in Yolo County. The Proposed Project consists of two project elements: the Sacramento River Right Bank Levee improvements and Knights Landing Ridge Cut improvements.

The Proposed Project falls within the land use jurisdiction of Yolo County. Land in the Proposed Project area is designated as agriculture land, rural residential land, high density residential land, commercial land, and quasi-public land (Yolo County GIS Viewer 2022). Land is presently used for agriculture and residential use (Yolo County 2009a). The closest residential land use designation is located in Knights Landing, less than 25 feet from the closest section of the project footprint of Sacramento River Right Bank Levee improvements.

3.11.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of land use and planning in this IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of land use and planning.

STATE

California State Planning and Zoning Law (Gov. Code 65000 to 66037)

The California State Planning and Zoning Law delegates most of the state's local land use and development decisions to the respective city or county and describes the laws that pertain to the land use regulations set by the local government's general plan requirements, specific plans, and zoning.

California Relocation Act (California Gov. Code 7260 et. seq)
The California Relocation Act requires state and local governments to provide relocation assistance and benefits to persons displaced as a result of projects undertaken by state or local governments that do not involve federal funds.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan
The Yolo County *2030 Countywide General Plan* is a statement of the community's land use values and guides all land use decisions in the County. The general objective of the General Plan is to guide decision-making in the areas in the County toward the most desirable future possible. It identifies the County's land use, circulation, environmental, economic, and social goals, and policies as they relate to land use. The general plan includes the following pertinent goals and policies as it relates to land use and planning:

a) **Goal AG-1**: Preserve and defend agriculture as fundamental to the identity of Yolo County.
b) **Goal AG-2**: Protect the natural resources needed to ensure that agriculture remains as essential part of Yolo County's future.
c) **Goal LU-1**: Maintain an appropriate range and balance of land uses to maintain the variety of activities necessary for a diverse, healthy, and sustainable society.
d) **Goal LU-2**: Preserve farmland and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy.
e) **Goal LU-3**: Manage growth to preserve and enhance Yolo County's agriculture, environment, rural setting, and small-town character.

3.11.3 Method of Analysis
This section describes the methods used to analyze land use and planning characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA
The Proposed Project would comply with relevant state and local laws, regulations, and orders that are relevant to the analysis of land use and planning. This includes compliance with the California State Planning and Zoning Law and all applicable goals set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to land use and planning.

CEQA, requires consideration of whether the Proposed Project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. It is important to note that an inconsistency with regional and local plans and policies is not necessarily considered a

significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of the analysis, the Proposed Project would result in a significant impact on land use if it would:

- Physically divide an established community?
- 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?

APPROACH TO ANALYSIS

A desktop analysis was completed to collect and analyze data related to land use and planning in the Proposed Project area. Data was collected using GIS maps (both static and interactive) which provide land use designation and zoning information for each respective jurisdiction. If a jurisdiction did not have a GIS map available, a static land use designation or zoning map was utilized and found via the respective general plan. In addition to the GIS maps, aerial imagery and project construction methods were utilized in order to analyze land use impacts from the Proposed Project. The following GIS resource was utilized for data collection:

- Yolo County GIS Viewer 2022

Plans, policies, and regulations listed in the regulatory setting of the memorandum were found in each jurisdiction's general plan. The Proposed Project's consistency and compliance with these plans, policies, and regulations were assessed. The following resource was utilized for data collection and for determining significance to the potential a conflict with any land use plan, policy, or regulation:

Yolo County 2030 Countywide General Plan

Additionally, the following key resource was utilized for data collection and for determining significance to the potential a conflict with any land use plan, policy, or regulation:

- Yolo County *2030 Countywide General Plan*

The analysis of land use and planning characteristics considers the potential for the Proposed Project to affect any land use designation by physically dividing a community and/or cause causing conflict with any relevant land use plans, policies, and regulations.

3.11.4 Impact Analysis

Impact LU-1: Physically divide an established community?

Proposed levee improvements along the Sacramento River Right Bank Levee adjacent to the community of Knights Landing would consist of construction of freeboard improvements, a seepage-stability berm, and a cutoff wall. Between LM 0.0 and 0.2 freeboard deficiencies would be corrected. Between SR 45 and LM 0.3 a seepage-stability berm would be constructed. Between LM 0.3 and 0.75 an 80-foot-deep clay cutoff wall would be installed through the center of the existing Sacramento River Right Bank Levee. No in-water work is anticipated in these stretches. All utility relocation would be coordinated with utility providers and would be

consistent with existing land uses and within the Proposed Project area. While there would be the use of large earthmoving construction equipment along existing roadways, which would be utilized as access routes, no road closures would be required. Additionally, all construction staging and material stockpiling would occur along the levee and within the construction work areas. A flood easement exists in the Boat Yard RV Park located at 42100 4th Street currently and would be extended to support the increased area required for the seepage-stability berm improvements. Currently this area is used for unpermitted high density residential uses. The proposed levee improvements and extension of the flood easement would require the relocation of several unpermitted trailers at the Boat Yard RV Park outside the levee footprint and flood easement.

The proposed seepage-stability berm in this short stretch would not divide the community because it would run along the existing levee and would only affect one parcel. Current, unpermitted trailers within the footprint of the seepage berm would need to be relocated. If there is a need, all property acquisitions would be conducted in compliance with Federal and State relocation law requiring appropriate compensation.

Construction of the proposed Knights Landing Ridge Cut improvements would involve the excavation of the existing landside levee slope and reconstruction of the levee in order to widen the levee crown. Construction would also involve remediation of existing levee encroachments. Utility relocation, which include PG&E power poles, would be done in coordination with PG&E and would be within the project footprint. No residents would be displaced, and no buildings or structures would be removed.

Construction of levee improvements would occur within the existing levee corridors, and as such no proposed activities would create a physical barrier within the established community of Knights Landing that would result in a division. All construction activities would be temporary. Operation and maintenance of all elements of the Proposed Project would continue after project construction is complete. This would include routine maintenance performed by all respective entities in charge of maintenance activities. Maintenance activities would be conducted within the Proposed Project area and would not physically divide an established community. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** and would not physically divide an established community, and mitigation is not required or recommended.

Impact LU-2: Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The overall project objective is to provide flood protection for the community of Knights Landing and to reduce flood risk to the Knights Landing Basin. By reducing flood risk, the Proposed Project would allow economic and agricultural stability, improve river access, and improve riverine habitat viability. The Proposed Project would be consistent with all applicable land use and planning laws, regulations, and goals identified in Section 3.11.2. Table 3.11-1 demonstrates that the proposed project would be consistent with these respective laws, regulations, and goals. As stated above, land would need to be acquired for the seepage

stability berm footprint. Currently this area is used for unpermitted high density residential uses. Current unpermitted trailers within the footprint of the seepage berm would need to be relocated. All property acquisitions would be conducted in compliance with Federal and State relocation law requiring appropriate compensation. Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on land uses and would not result in any impacts due to a conflict with land use plans, policies, or regulations. No mitigation is required or recommended.

Table 3.11-1. Consistency with State and Local Plans, Policies, and Regulations

Goals and Policies	Project Consistency
California State Planning and Zoning Law	**Consistent**. The State's Planning and Zoning Law delegates most of the state's local land use decisions to the city or county. The Proposed Project would follow Yolo County laws and regulations as it relates to land use.
Yolo County 2030 Countywide General Plan	
Goal AG-1: Preserve and defend agriculture as fundamental to the identity of Yolo County.	**Consistent**. The objective of the Proposed Project is to provide flood protection and reduce flood risk to the Knights Landing basin in order to sustain agriculture and regional economy. The Proposed Project would improve flood protection for the surrounding agricultural areas, which would help preserve and defend agricultural-designated lands.
Goal AG-2: Protect the natural resources needed to ensure that agriculture remains as essential part of Yolo County's future.	**Consistent**. The objective of the Proposed Project is to provide flood protection and reduce flood risk to the Knights Landing basin in order to sustain agriculture and regional economy. The Proposed Project would improve flood protection for the surrounding agricultural areas, which would help preserve and defend agricultural-designated lands.
Goal LU-1: Maintain an appropriate range and balance of land uses to maintain the variety of activities necessary for a diverse, healthy, and sustainable society.	**Consistent**. The Proposed Project would not change the existing agricultural land use in the area. Rather, the Proposed Project intends to allow economic and agricultural stability, improve river access, and improve riverine habitat viability. The Proposed Project would also improve a large array of public benefits. These benefits include the increase in reliability of transportation and public services such as police and fire services. Construction activities could temporarily conflict with existing agricultural-designated land; however, upon completion of construction there would be no conflict.
Goal LU-2: Preserve farmland and expand opportunities for related business and infrastructure to ensure a strong local agricultural economy.	**Consistent**. The objective of the Proposed Project is to provide flood protection and reduce flood risk to the Knights Landing basin in order to sustain agriculture and regional economy. The Proposed Project would improve flood protection for the surrounding agricultural areas, which would help preserve farmland and promote strong local agricultural economy.
Goal LU-3: Manage growth to preserve and enhance Yolo County's agriculture, environment, rural setting, and small-town character.	**Consistent**. The Proposed Project would not create any new homes or businesses, expand existing roads or other infrastructure that would induce growth.

3.12 Mineral Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

3.12.1 Environmental Setting

According to the Surface Mining and Reclamation Act, a mineral is "any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances, including, but not limited to coal, peat, and bituminous rock, but excluding geothermal resources, natural gas, and petroleum." The extraction of mineral resources in Yolo County has historically been limited to the extraction of clay, sand, soils, rock, and natural gas (Yolo County 2009a).

Yolo County contains important mineral resources and numerous minerals were once mined in the County. The minerals mined in the County include aggregate and natural gas. The State of California has mapped the aggregate resources along lower Cache Creek as three mineral resource zones (MRZ): MRZ-1, MRZ-2, and MRZ-3 (Yolo County 2009b). Six aggregate mines are currently operational in Yolo County, including the following:

- Syar Industries, Inc. (Madison plant)
- Teichert Aggregates (Esparto plant)
- CEMEX, Inc. (Madison plant)
- Granite Construction Company (Capay plant)
- Teichert Aggregates (Woodland plant)
- Schwarzgruber & Sons (Cache Creek plant)

Each of these plants are located on the stream terraces of Cache Creek and all are commercial operations (Yolo County 2009b). The aggregate resources areas in Yolo County are depicted in Figure IV.L-2, Regional Mineral and Gas Resources, of the Yolo County General Plan EIR. Knights Landing, including the Proposed Project area, is not located within any of the three MRZ (Yolo County 2009b).

According to the California Department of Conservation, there are approximately 25 gas fields located within Yolo County (Yolo County 2009a). However, according to Figure IV.L-2, Regional

Mineral and Gas Resources, of the Yolo County General Plan EIR, no gas fields are located within the Proposed Project Area (Yolo County 2009b).

According to USGS Mineral Resource Online Spatial Data, no mineral resources, critical minerals, major mineral deposits of the world, or US mine features are present in the Proposed Project area (USGS 2022).

3.12.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of mineral resources in the IS/MND.

FEDERAL

There are no federal regulations that pertain to mineral resources.

STATE

Surface Mining and Reclamation Act (SMARA)

SMARA regulates the mining activities (PRC Section 2710 et seq. and its regulations at 14 CCR Section 3500 et seq.). Under this Act, the California State Mining and Geology Board provides a comprehensive surface mining and reclamation policy to assure that adverse environmental impacts are minimized, and mined lands are reclaimed. SMARA also encourages the production, conservation, and protection of the state's mineral resources.

The purpose of this act is to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

- adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses;
- the production and conservation of minerals are encouraged, while considering values relating to recreation, wildlife, range and forage, and aesthetic enjoyment; and
- residual hazards to the public health and safety are eliminated. These goals are achieved through land use planning by allowing a jurisdiction to balance the economic benefits of resource reclamation with the need to provide other land uses.

California Geological Survey

The CGS (formally the Division of Mines and Geology) has classified regions of the state according to the presence or absence of significant mineral resources. The land classification is presented in the form of MRZs (DOC 2020c). CGS guidelines for establishing the MRZs are as follows:

- **MRZ-1**: Areas where available geologic information indicates there is little or no likelihood for presence of significant mineral resources.
- **MRZ-2a**: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.

- **MRZ-2b**: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain discovered mineral deposits that are either inferred reserves as determined by limited sample analysis, exposure, and past mining history or are deposits that presently are sub-economic. Further exploration and/or changes in technology or economics could result in upgrading areas classified MRZ-2b to MRZ-2a.
- **MRZ-3a**: Areas containing known mineral occurrences of undetermined mineral resource significance. Further exploration within these areas could result in the reclassification of specific localities as MRZ-2a or MRZ-2b.
- **MRZ-3b**: Areas containing inferred mineral occurrences of undetermined mineral resource significance. Land classified MRZ-3b represents areas in geologic settings that appear to be favorable environments for the occurrence of specific mineral deposits. Further exploration could result in the reclassification of all or part of these areas as MRZ-3a or specific localities as MRZ-2a or MRZ-2b.
- **MRZ-4**: Areas of no known mineral occurrences where geologic information does not rule out the presence or absence of significant mineral resources.

REGIONAL/LOCAL

Yolo County Code

Chapter 5. Surface Mining Reclamation, in Title 10 of the Yolo County code (known as the Surface Mining Reclamation Ordinance of Yolo County) ensures reclamation of mined lands to minimize the adverse effects of mining on the environment and to protect public health and safety. It requires that reclamation plans be adapted to site-specific conditions and be designed to reclaim mined areas so as to maximize beneficial uses; in particular, agriculture, wildlife habitat, or recreation.

Yolo County 2030 Countywide General Plan

The following goals and policies of the Yolo County *2030 Countywide General Plan – Open Space Element* are applicable to the Proposed Project:

- **Policy CO-3.1**: Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.
- **Policy CO-3.2**: Ensure that mineral extraction and reclamation operations are compatible with land uses both onsite and within the surrounding area and are performed in a manner that does not adversely affect the environment.
- **Policy CO-3.3**: Encourage the extraction of natural gas where compatible with both onsite and surrounding land uses, and when performed in a manner that does not adversely affect the environment.
- **Policy CO-3.4**: Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable, natural gas policies of the *Land Use and Resource Management Plan* of the Delta Protection Commission.

3.12.3 Method of Analysis

This section describes the methods used to analyze mineral resources characteristics within the study area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of minerals. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to minerals.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state
- 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

APPROACH TO ANALYSIS

Construction, Operations and Maintenance

The methods used for analyzing impacts on mineral resources included a review of information from published maps, and Yolo County publications and reports pertaining to mineral resources in the Proposed Project area. The primary data sources for impact analysis include the following:

- U.S. Geological Survey (USGS) Mineral Resources Online Spatial Data (USGS 2022)
- Yolo County 2030 *Countywide General Plan Conservation and Open Space Element* (Yolo County 2009a)
- Yolo County 2030 General Plan EIR (Yolo County 2009b)

The potential impacts from construction, operation and maintenance of the Proposed Project on mineral resources were evaluated qualitatively using known mineral resources data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

3.12.4 Impact Analysis

Impact MIN-1: 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?

The minerals predominantly mined in the County include aggregate and natural gas. However, according to Figure IV.L-2, Regional Mineral and Gas Resources, of the Yolo County General Plan EIR, no MRZ or gas fields are located in the Proposed Project area (Yolo County 2009b). As such, construction, operations and maintenance of the Proposed Project would have **no impact** on the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; therefore, mitigation is not required or recommended.

Impact MIN-2: 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?

The Proposed Project is not located within an area known to contain mineral resources (Yolo County 2009b, Figure IV.L-2). No locally important mineral resource recovery sites are located within the Proposed Project area. As a result, construction, operations and maintenance of the Proposed Project would have **no impact** on 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; therefore, mitigation is not required or recommended.

3.13 Noise and Vibration

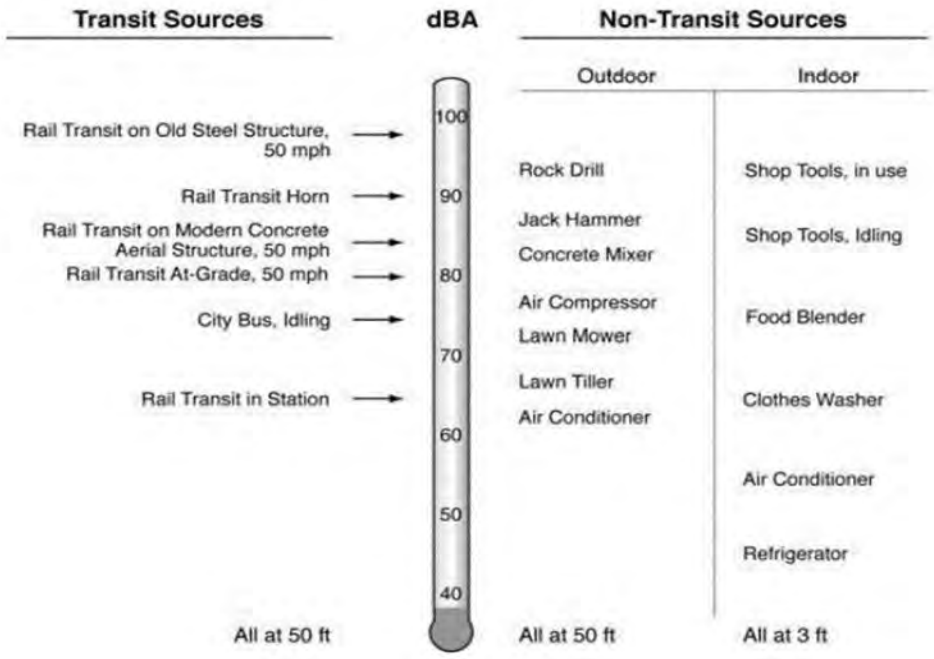
Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project 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?	☐	☐	☒	☐

3.13.1 Environmental Setting

OVERVIEW OF NOISE AND SOUND

Noise levels are presented on a logarithmic scale to account for the large pressure response range of the human ear and are expressed in units of decibels (dB). A decibel is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing defined as 20 micropascals. Because the human ear does not perceive every frequency with equal loudness, sounds are often adjusted with a weighting filter. The A-weighted filter is applied to compensate for the frequency response of the human auditory system and is known as an A-weighted decibel (dBA). Figure 3.13-1 shows typical A-weighted sound levels for transit and non-transit sources.

Figure 3.13-1. Typical A-weighted Sound Levels



Source: Federal Transit Administration (FTA) 2018

With respect to how the human ear perceives changes in sound pressure level relative to changes in "loudness," scientific research demonstrates the following general relationships between sound level and human perception for two sound levels with the same or very similar frequency characteristics (Yolo County 2009b):

- One dBA is the practical limit of accuracy for sound measurement systems and corresponds to an approximate 10 percent variation in the sound pressure level. A 1 dBA increase or decrease is an imperceptible change in sound.
- A 3 dBA increase or decrease is a doubling (or halving) of acoustic pressure level, and it corresponds to the threshold of change in loudness perceptible in a laboratory environment. In practice, the average person is not able to distinguish a 3 dBA difference in environmental sound outdoors.
- A 5 dBA increase or decrease is described as a perceptible change in sound level and is a discernible change in an outdoor environment.
- A 10 dBA increase or decrease is a tenfold increase or decrease in acoustic pressure level but is perceived as a doubling or halving in loudness (that is, the average person would judge a 10 dBA change in sound level to be twice or half as loud).

Noise levels can be measured, modeled, and presented in various formats. The noise descriptors used in this analysis have the following definitions (Yolo County 2009b):

- Equivalent Sound Level (L_{eq}): Conventionally expressed in dBA, the L_{eq} is the energy averaged, A weighted sound level over a specified period. It is defined as the steady,

continuous sound level over a specified period that has the same acoustic energy as the actual varying sound levels over the specified period. It is a mean average sound level.

- Maximum Sound Level (L_{max}): The L_{max} is the maximum A-weighted sound level as determined during a specified measurement period. It can also be described as the maximum instantaneous sound pressure level generated by a piece of equipment or during a construction activity.
- Day-Night Average Sound Level (L_{dn}): The L_{dn} is the average hourly A-weighted L_{eq} for a 24-hour period with a 10 dB penalty added to sound levels occurring during the evening hours (7 p.m. to 10 p.m.) to account for people's increased sensitivity to noise levels during nighttime hours.
- Community Noise Equivalent Level (L_{eq}): The community noise equivalent level is another average A-weighted L_{eq} sound level measured over a 24-hour period; however, this noise scale is adjusted to account for some people's increased sensitivity to noise levels during the evening and nighttime hours. A community noise equivalent level noise measurement is obtained after adding 5 dB to sound levels occurring during evening hours (7 p.m. to 10 p.m.) and 10 dB to noise levels occurring during nighttime hours (10 p.m. to 7 a.m.).

OVERVIEW OF GROUNDBORNE VIBRATION

Activities such as pile-driving and operation of heavy equipment may cause groundborne vibration during construction of the Proposed Project. Vibration is an oscillatory motion that can be described in terms of the displacement, velocity, or acceleration (Federal Transit Administration [FTA] 2018). Velocity or acceleration is typically used to describe vibration. The vibration descriptors used in this analysis have the following definitions:

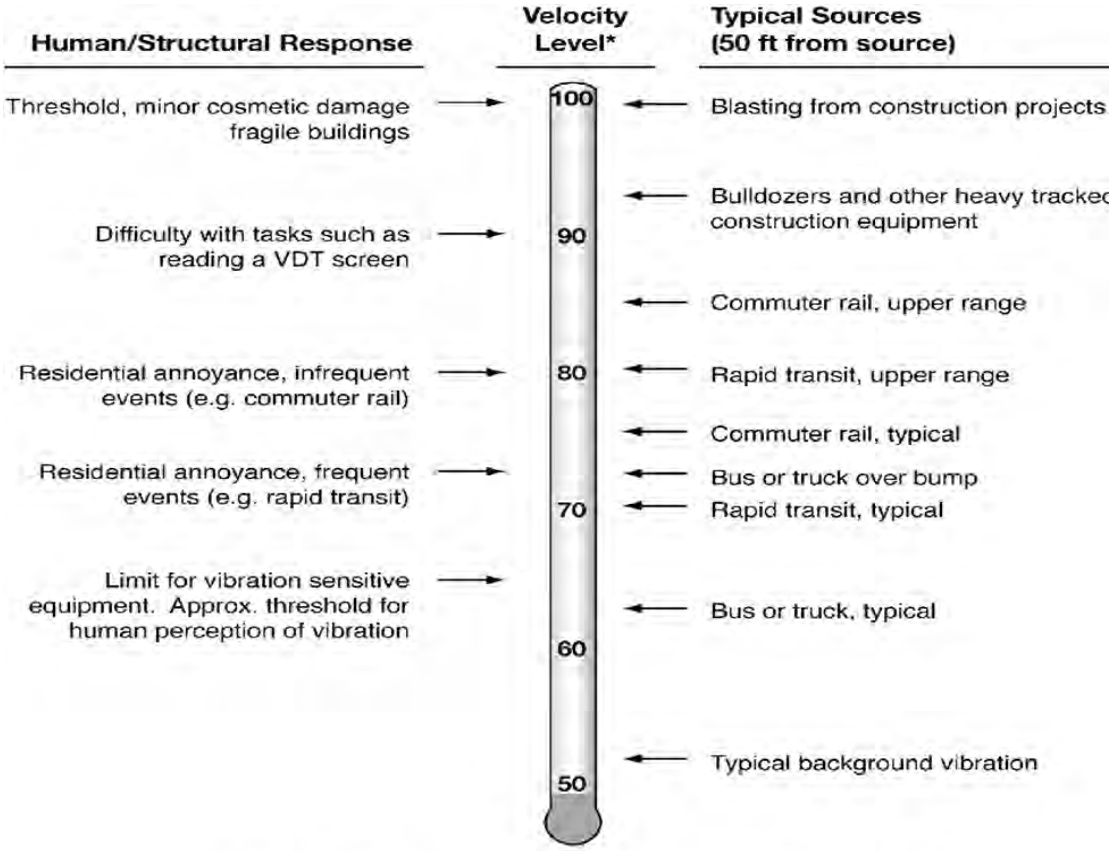
- Peak Particle Velocity (PPV): The maximum instantaneous positive or negative peak of the vibration signal. The potential for damage to buildings as a result of construction related vibration is evaluated using PPV. PPV is expressed in inch per second (in/sec).
- Root Mean Square (RMS): The square root of the average of the squared amplitude of the vibration signal, typically calculated over a 1 second period. The potential to annoy humans as a result of construction-related vibration is evaluated using RMS. RMS is expressed in in/sec.
- Vibration Velocity Level (L_V): Ten times the common logarithm of the ratio of the square of the amplitude of the RMS vibration velocity to the square of the amplitude of the reference RMS vibration velocity. The reference velocity in the United States is 1 micro-inch per second. L_V is expressed in vibration decibel (VdB).

Groundborne vibrations are generally reduced with distance depending on the local geological conditions. A receiver is a vibration-sensitive building (for example, residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers. Groundborne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces.

Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings. The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. In this analysis, vibration velocity (VdB) is the primary measure to evaluate the effects of vibration.

Figure 3.13-2 illustrates typical groundborne vibration velocity levels for common sources and thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of vibration velocity level (that is, from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.

Figure 3.13-2. Typical Groundborne Vibration Levels



Source: FTA 2018

EXISTING NOISE ENVIRONMENT

Noise sources that affect the baseline noise levels throughout Yolo County include vehicular traffic, aircraft, trains, and stationary sources. Stationary noise sources in Yolo County include farming, mining, industry and food processing, and construction (Yolo County 2009b).

Existing ambient noise levels in the Proposed Project area are relatively low due to its rural location. Existing sources of noise in the Proposed Project area include vehicular traffic on CR 116 and farming activities.

NOISE SENSITIVE LAND USES

Certain land uses are considered more sensitive to noise than others. Examples of these types of land uses include residential areas, educational facilities, hospitals, childcare facilities, and senior housing.

Several sensitive receptors, such as residences, occur in the vicinity of the Proposed Project. The closest sensitive receptors to the Proposed Project are the residences along Front Street in Knights Landing, which are located within 25 feet of the Proposed Project area (Google Earth 2022).

3.13.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of noise in the IS/MND.

FEDERAL

Noise Control Act

The Noise Control Act of 1972 (42 USC 4901 to 4918) was the first comprehensive statement of national noise policy. The Noise Control Act declared “it is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare.” Although the Noise Control Act, as a funded program, was ultimately abandoned at the federal level, it served as the catalyst for comprehensive noise studies and the generation of noise assessment and mitigation policies, regulations, ordinances, standards, and guidance for many states, counties, and municipal governments.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration established standards for occupational noise exposure under 29 CFR 1910.95. These regulations protect employees from excessive noise exposure and require a Hearing Conservation Program when routine exposure to high noise levels would occur. The regulations identify permissible daily noise exposures and stipulate that personal protection against the effects of noise exposure must be provided if those levels are exceeded.

Federal Transit Administration

The FTA developed the *Transit Noise and Vibration Impact Assessment Manual* (Noise Manual) in September 2018. The Noise Manual provides technical guidance for conducting noise and vibration analyses for transit projects. While these standards and impact assessment methodologies are not directly applicable to the Proposed Project, they are routinely used as guidelines for projects in state and local jurisdictions. The Noise Manual provides vibration criteria for structural damage by building/structural category as shown in Table 3.13-1.

Table 3.13-1. Groundborne Vibration Structural Damage Criteria

Building Category	PPV (in/sec)	L_V (VdB)
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2018
Notes: PPV = peak particle velocity, in/sec = inch per second, L_V = vibration velocity level, VdB = vibration decibel

The Noise Manual also includes criteria for acceptable levels of groundborne vibration by vibration-sensitive land uses as shown in Table 3.13-2.

Table 3.13-2. Groundborne Vibration Human Annoyance Criteria

Land Use Category	Maximum L_V (VdB)	Description
Workshop	90	Vibration is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential – daytime	78	Vibration is barely felt. Adequate for land uses that are sensitive to vibration.
Residential – nighttime	72	Vibration is not felt, but groundborne noise may be audible inside quiet rooms.

Source: FTA 2018
Notes: L_V = vibration velocity level, VdB = vibration decibel

STATE

California Noise Control Act

The California Noise Control Act, enacted in 1973 (Health and Safety Code 46010 et seq.), finds that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The act declares that the State of California has a responsibility to protect the health and welfare of its citizens through the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians that is free from noise which jeopardizes their health or welfare. The act requires the Office of Noise Control in the Department of Health Services to aid local communities in developing local noise control programs. The Office of Noise Control also works with the Office of Planning and Research to provide guidance for preparing required noise elements in city and county general plans, pursuant to Government Code Section 65302(f).

Governor's Office of Planning and Research

The *State of California General Plan 2017 Guidelines* published by the Governor's Office of Planning and Research provides a basis for local programs to control and abate environmental noise and to protect residents from excessive exposure (Governor's Office of Planning and Research 2017). These guidelines include a noise level/land use compatibility chart that categorizes various outdoor L_{dn} ranges into up to four compatibility categories: normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable,

depending on land use. The normally and conditionally acceptable L_{dn} ranges are intended to indicate that local conditions (existing noise levels and community attitudes toward dominant noise sources) should be considered in evaluating land use compatibility at specific locations. These guidelines are used by many agencies, environmental planners, and acoustical specialists as a starting point to evaluate the potential for noise impacts on and by a project. The guidelines are also used to evaluate methods for achieving noise compatibility with respect to nearby existing uses.

However, it is important to note that the guidance does not take local conditions into account, including a particular community's sensitivity to noise, noise reduction goals, or assessment of the relative importance of noise pollution. As a result, noise standards developed by local jurisdictions typically differ somewhat from the Governor's Office of Planning and Research's guidance.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The following Yolo County *2030 Countywide General Plan* (Yolo County 2009a) goals and policies related to noise are applicable to the Proposed Project:

- **Goal HS-7 Noise Compatibility**: Protect people from the harmful effects of excessive noise
- **Policy HS-7.1**: Ensure that existing and planned land uses are compatible with the current and projected noise environment.
- **Policy HS-7.3**: Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.
- **Policy HS-7.4**: For proposed new discretionary development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB Community Noise Equivalent Level or less using practical application of the best-available noise reduction measures, greater exterior noise levels may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.
- **Policy HS-7.5**: Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.
- **Policy HS-7.8**: Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization and retrofits, use of alternative fuel vehicles, and installation of mufflers or other noise reducing equipment.

3.13.3 Method of Analysis

This section describes the methods used to analyze noise characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of noise. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to noise.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

- Generate 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 in applicable standards of other agencies.
- Generate excessive groundborne vibration or groundborne noise levels.
- Be 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, expose people residing or working in the Project area to excessive noise levels.

APPROACH TO ANALYSIS

The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance. The methods for analyzing noise and groundborne vibration impacts associated with construction and operation and maintenance of the Proposed Project are described below.

Construction

Noise. The potential impacts from construction of the Proposed Project on noise were evaluated qualitatively and quantitatively. Construction traffic noise was assessed qualitatively based on the likelihood of a noticeable increase in traffic noise at sensitive land uses along Proposed Project haul routes. Construction equipment noise was assessed quantitatively based on the methodology developed by the FTA. The increase in noise levels during construction of the Proposed Project and the effect on noise-sensitive receptors were estimated using typical noise levels associated with Project construction equipment, derived from representative data presented in the Noise Manual (FTA 2018). Reference noise levels were used to estimate noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise).

Noise impacts were determined by comparing the noise levels during construction of the Proposed Project against the applicable noise standards. Yolo County has not yet adopted a comprehensive noise ordinance that sets specific noise levels for different zoning districts or for different land uses in the unincorporated area. Since Yolo County has no established quantitative noise standards that are applicable to the Proposed Project, construction-related noise impacts were evaluated relative to FTA's construction noise assessment criteria. FTA has identified a daytime hourly L_{eq} of 90 dBA as the noise level from onsite construction activities at which an adverse community reaction could occur on residential land uses (FTA 2018).

Therefore, for the purposes of this analysis, a significant impact would occur if noise generated during construction of the Proposed Project exceeds 90 dBA at the nearest sensitive receptors (residences) to the Proposed Project.

Groundborne Vibration. The potential impacts from construction of the Proposed Project on groundborne vibration were evaluated quantitatively. Yolo County does not have specific limits or thresholds for groundborne vibration. Groundborne vibration levels during construction of the Proposed Project were estimated using typical groundborne vibration levels associated with construction equipment obtained from the Noise Manual (FTA 2018).

Groundborne vibration impacts were determined by comparing the groundborne vibration levels associated with Project construction equipment against FTA's groundborne vibration criteria for structural damage and human annoyance. As shown in Table 3.13-1, FTA identifies 0.2 in/sec PPV as the level at which potential damage could occur in non-engineered timber and masonry buildings. This type of material is typical to buildings of conventional construction, including the residential structures in the Proposed Project area. Therefore, this analysis uses a threshold of 0.2 in/sec to determine if the Proposed Project could result in vibration levels that would cause structural damage. As shown in Table 3.13-2, FTA identifies 78 VdB as the daytime annoyance threshold for residential uses. Therefore, this analysis uses a threshold of 78 VdB to determine if the Proposed Project could result in vibration levels that would cause human annoyance.

Operations and Maintenance
Upon completion of construction, the Proposed Project would require routine maintenance for the Project elements. Minimal amounts of equipment and vehicles would be required for vegetation control, rodent control, grading levee crowns, mechanical mastication/ limbing of larger vegetation, and occasional maintenance of levee patrol roads every 5-10 years. Given the limited and infrequent nature of operation and maintenance activities, impacts on noise and groundborne vibration are evaluated qualitatively.

3.13.4 Impact Analysis

Impact NOI-1: 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?

Construction of the Proposed Project would introduce new sources of noise in the Proposed Project area in the form of construction traffic and construction equipment. Construction activities, although temporary, could affect existing noise-sensitive receptors. Several sensitive receptors, such as residences, occur in the vicinity of the Proposed Project. The closest sensitive receptors to the Proposed Project are the residences along Front Street in the community of Knights Landing, which are located within 25 feet of the Proposed Project area (Google Earth 2022).

During construction, the traffic noise on roadways in the Proposed Project area would increase due to commute of construction crews and the transport of equipment and materials on a short-term basis. Although construction traffic would temporarily increase noise along local roadways,

the effect of construction traffic on long-term (i.e., hourly or daily) ambient noise levels would be minimal.

During construction, the Proposed Project would require use of construction equipment that would be audible at existing sensitive receptor locations. Construction equipment required for the Proposed Project is presented in Chapter 2, Project Description (Table 2.3-1 through Table 2.3-8). The construction noise level at a given receiver location would vary depending on the construction activity type, equipment type, and distance between noise source and receiver as construction progresses along the levee. Table 3.13-3 shows typical noise levels produced by various types of construction equipment required for the Proposed Project. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in the community of Knights Landing, as well as associated utility relocation, would result in similar noise exposure to sensitive receptors.

Table 3.13-3. Construction Equipment Noise Levels

Construction Equipment	Typical Noise Level (dBA) 50 feet from Source
Grader	85
Dozer	85
Truck	84
Compactor	82
Crane	83
Pump	77
Generator	82

Source: FTA 2018
Notes: dBA = A-weighted decibel

As shown in Table 3.13-1, construction equipment associated with the Proposed Project would generate noise levels of up to 85 dBA at 50 feet. However, noise levels from a source decrease at a rate of 6 dB per doubling of distance from the noise source. Therefore, at 25 feet, the nearest sensitive residences would be exposed to noise levels of up to 91 dBA from construction equipment. Therefore, construction of the Proposed Project would generate noise levels in excess of the 90 dBA threshold, resulting in a potentially significant impact. To minimize noise impacts during construction, mitigation measure **MM-NOI-1** (described below) would be implemented.

Operation and maintenance activities would result in a minimal increase in noise levels in the Proposed Project area from the occasional use of equipment and vehicles. Given the limited and infrequent nature of operation and maintenance activities, noise levels from operation and maintenance would be substantially less than those generated during construction. Therefore, operation and maintenance of the Proposed Project would not result in noise levels that exceed the 90 dBA threshold.

With the implementation of mitigation measure **MM-NOI-1**, construction of the Proposed Project would not generate a substantial temporary increase in ambient noise levels in the vicinity of the

project in excess of standards. Therefore, after mitigation, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact**.

Mitigation Measures

MM-NOI-1: Construction Noise and Vibration Reduction. Prior to construction, Yolo County will incorporate the following measures into all construction plans and agreements to reduce noise and vibration levels during construction:

- Maintain and tune all equipment in accordance with the manufacturer's recommendations to minimize noise emissions.
- Equip all internal combustion engine-driven equipment with mufflers, silencers, or engine shrouds.
- Locate stationary equipment (e.g., generators, pumps, idling trucks) as far as possible from noise-sensitive receptors.
- Limit, to the extent feasible, the simultaneous operation of multiple construction equipment within 50 feet of residences.
- Prohibit unnecessary idling of internal combustion engines.
- Install temporary construction noise barriers such as paneled noise shields, blankets, and/or enclosures adjacent to all equipment.
- Notify adjacent residents about the type, duration, and frequency of construction activities before the start of construction. Distribute the name and phone number of a designated Yolo County representative to be contacted for noise-related concerns due to construction. Noise-related concerns during construction would be evaluated by the County on a case-by-case basis.
- Post the days and hours of construction at the perimeter of the construction site.

Impact NOI-2: Generation of excessive groundborne vibration or groundborne noise levels?

Construction of the Proposed Project would involve the use of construction equipment such as excavators, dozers, sheepsfoot rollers, and trucks, which would generate groundborne vibration. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Typical vibration levels associated with Proposed Project construction equipment at a reference distance of 25 feet are shown in Table 3.13-4. Construction of the seepage berm to address seepage in the Sacramento River Right Bank Levee, as well as associated utility relocations, would result in slightly less vibration exposure to sensitive receptors than construction of the cutoff wall.

Table 3.13-4. Construction Equipment Vibration Levels

Construction Equipment	PPV at 25 feet (in/sec)	LV at 25 feet (VdB)
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58

Source: FTA 2018

Notes: PPV = peak particle velocity; in/sec = inch per second; L_V = vibration velocity level; VdB = vibration decibel

Several residences occur in the vicinity of the Proposed Project area. The nearest sensitive receptors to the proposed construction are residences located within 25 feet of the Proposed Project area along Front Street in the community of Knights Landing (Google Earth 2022). Due to the proximity of these residences and the type of construction equipment anticipated to be used, the Proposed Project has the potential to result in construction vibration impacts. Impacts of construction vibration are typically assessed in terms of building damage, such as cracks in foundations or pools, and human annoyance.

As mentioned above, construction of the Proposed Project will use a variety of equipment, including a sheepsfoot roller/compactor. According to Table 3.13-4, the highest PPV at 25 feet from the anticipated construction sources for the vibratory roller, which is similar to a sheepsfoot roller, would be 0.21 in/sec. Therefore, at 25 feet from sheepsfoot roller/compactor activities, the nearest residences would be exposed to vibration levels of up to 0.21 in/sec PPV, which slightly exceeds the 0.2 in/sec PPV threshold for vibration-related structural damage.

As shown in Table 3.13-4, the highest L_V at 25 feet from vibratory roller activities would be 94 VdB. Therefore, at 25 feet, the nearest residences would be exposed to vibration levels of up to 94 VdB from construction equipment, which exceeds the 78 VdB daytime annoyance threshold for residential uses.

Therefore, construction of the Proposed Project would generate groundborne vibration levels in excess of the thresholds for structural damage and human annoyance, resulting in a potentially significant impact. To minimize groundborne vibration impacts during construction of the Proposed Project, the mitigation measures described above under **MM-NOI-1** as well as additional measures under **MM-NOI-2** (described below) would be implemented.

Operation and maintenance activities would result in the occasional, minor increase in groundborne vibration levels in the Proposed Project area from the use of limited heavy-duty equipment. Given the limited and infrequent nature of operation and maintenance activities, groundborne vibration levels from operation and maintenance would be substantially less than those generated during construction.

With the implementation of mitigation measures MM-NOI-1 and MM-NOI-2, construction of the Proposed Project would not generate excessive groundborne vibration or groundborne noise levels in the vicinity of the Proposed Project in excess of standards. Therefore, after mitigation, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact**.

Mitigation Measures
See **MM-NOI-1**

MM-NOI-2: Surveys to Assess Architectural Damage. A voluntary pre- and post-construction survey will be conducted by Yolo County to assess potential architectural damage from construction vibration at each residence within 50 feet of construction activities. Should damage from construction vibration be detected, Yolo County and affected landowners would engage in mediation to remedy this situation.

Impact NOI-3: 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?

The Proposed Project is not located within 2 miles of any public or public use airport. The nearest public airport to the Proposed Project is the Sacramento International Airport, which is located approximately 6 miles southeast of the Proposed Project area (Google Earth 2022). Additionally, the Proposed Project area is not located within the noise impact area for the Sacramento International Airport as depicted on Map 2, Compatibility Policy Map: Noise, of the *Sacramento International Airport Land Use Compatibility Plan* (Sacramento Area Council of Governments 2013). Therefore, the Proposed Project would not expose people residing or working in the area to excessive noise levels from airport operations. Therefore, construction, operations, and maintenance of the Proposed Project would **have less than significant impacts** related to airport noise. As such, no additional mitigation is required.

3.14 Population and Housing

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

3.14.1 Environmental Setting

The Proposed Project area is located in Yolo County, within Knights Landing and the surrounding areas in the Knights Landing basin. Yolo County has a total population of 218,774 and Knights Landing has a total population of 918 (US Census ACS 2020). The Proposed Project area falls within Yolo County's Census Tract 114 Block Group 2 (CT 114 BG 2) and Census Tract 114 Block Group 3 (CT 114 BG 3). CT 114 BG 2 has a total population of 1,629 and CT 114 BG 3 has a total population of 1,015 (US Census ACS 2020). Table 3.14-1 provides a comparison of the population of Yolo County, Knights Landing, CT 114 BG 2, and CT 114 BG 3.

Table 3.14-1. Total Population

Geography	Total Population
Yolo County	218,774
Knights Landing	981
CT 114 BG 2	1,629
CT 114 BG 3	1,015

Source: US Census Data American Community Survey B01001 2020 ACS 5-Year Estimates Detailed Table.

Yolo County has a total of 78,565 housing units, in which 74,614 are occupied (US Census ACS 2020). Knights Landing has a total of 291 housing units, all of which are occupied. CT 114 BG 2 has a total of 703 housing units, in which 662 are occupied. CT 114 BG 3 has a total of 413 housing units, in which 387 are occupied. Table 3.14-2 provides a comparison of the total housing units and occupied units in Yolo County, Knights Landing, CT 114 BG 2, and CT 114 BG 3.

Table 3.14-2. Total Housing Units and Occupied Units

Geography	Total Housing Units	Total Occupied Units	Percentage Occupied Units (%)
Yolo County	78,565	74,614	94.9%
Knights Landing	291	291	100%
CT 114 BG 2	703	662	94.2%
CT 114 BG 3	413	387	93.7%

Source: US Census Data American Community Survey B25002 2020 ACS 5-Year Estimates Detailed Table.

When environmental justice populations were evaluated against California state averages and thresholds in the 2019 feasibility study, the Proposed Project area is considered disadvantaged. The community of Knights Landing has an estimated population of 1,000. In 2016, the median annual household income in the community was $32,310. As this median annual household income is less than 60% of the state average of California, Knights Landing is designated as a severely disadvantaged community (Yolo County 2019).

The State of California sought to identify communities that are most socially vulnerable and at the highest risk for future hazard events in the State's Office of Emergency Services (OES) Hazard Exposure and Social Vulnerability Heat Map. In the heat map, the 2010 Census tracts in California are ranked according to their estimated hazard exposures and social vulnerability. Each tract for which data is available is assigned a percentile ranking between zero and one on both measures. The hazard exposure is based on the analysis of several datasets related to wildfire, flood, earthquake, drought and heat wave frequencies. Social vulnerability is based on the 2018 CDC Social Vulnerability Index. According to the OES Hazard Exposure and Social Vulnerability Heat Map, the community of Knights Landing is designated as having hazard exposure and social vulnerability. The flood hazard for Knights Landing ranks in the 89th percentile; the overall hazard exposure ranks in the 70th percentile; and the social vulnerability ranks in the 79th percentile. These percentile rankings are relative to all census tracts in California (Esri 2022).

The methodology and criteria utilized by the Climate and Economic Justice screening tool developed by the Council on Environmental Quality compares the Knights Landing community nationally. According to the Climate and Economic Justice screening tool, the Proposed Project area is not located in an area with environmental justice concerns (Council on Environmental Quality 2022). The screening tool uses current US census data and establishes methodology and applies criteria nationwide to determine if an area is above or below thresholds in specific categories. In the climate change category, the Proposed Project area is listed as above the threshold for expected agriculture loss, below the threshold for expected building loss rate, below the threshold for expected population loss rate, below the threshold for low income, and above the threshold for higher education non-enrollment (Council on Environmental Quality 2022). Since the Proposed Project area does not meet enough of these criteria thresholds, specifically the low-income criteria threshold, it is not considered disadvantaged for climate change. In the clean water and wastewater infrastructure category, the Proposed Project area is listed as below the threshold for wastewater discharge, below the threshold for low income, and above the threshold for higher education non-enrollment. Since the Proposed Project area does

not meet enough of these criteria thresholds, specifically the wastewater discharge and low-income criteria threshold, it is not considered disadvantaged for the clean water and wastewater infrastructure category (Council on Environmental Quality 2022). However, other methods of analysis that use California described above do show that the community of Knights Landing is disadvantaged.

The KLLS contains the severely disadvantaged community of Knights Landing with a 2020 population of 1,117 and median annual household income of $37,545 and a poverty rate of 24.6% (US Census 2022). The community of Knights Landing includes prime agriculture (the majority of which is held by the Yocha Dehe Winton Nation) and critical infrastructure such as a school, fire station, US Post Office, State Routes 113 and 45, a wastewater treatment facility, pump stations, major power lines, an electrical substation, and major gas lines as well as residential, business, and farm structures. The Proposed Project would produce beneficial effects for the population in this area through improved flood protection.

3.14.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of population and housing in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of population and housing.

STATE

California Relocation Assistance Act (California Gov. Code 7260 et. seq)

The California Government Code requires that relocation assistance be provided to any person, business, or farm operation displaced because of the acquisition of real property by a public entity for public use (25 California Code of Regulations [Cal. Code Regs.] 6000 et seq.). In addition, comparable replacement properties must be available for each displaced person within a reasonable period of time prior to displacement. These guidelines establish uniform and equitable procedures for land acquisition, as well as uniform and equitable treatment of persons displaced from their homes or businesses, or farms by state and state-assisted programs.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The Yolo County *Housing Element* was adopted by the Yolo County Board of Supervisors on August 31, 2021. The Housing Element identifies the County's housing goals and establishes a framework to address each goal. In the plan, Knights Landing is an unincorporated community under the jurisdiction of Yolo County. The following information is found in the Plan and are pertinent to the Proposed Project –

- Address the unique housing needs and constrains of rural areas with limited public infrastructure and environmental constraints, such as flood hazard areas and wildfires.

- Portions of eastern Yolo County are designated as special flood hazard areas, indication that they lack 100-year flood protection. This includes the entire unincorporated community of Knights Landing.

3.14.3 Method of Analysis

This section describes the methods used to analyze population and housing characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of population and housing. This includes compliance with the California Relocation Assistance Act, and applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to population and housing.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Proposed Project would significantly impact population and housing were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed:

Would the project:

- 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)?
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

APPROACH TO ANALYSIS

Information on Yolo County, Knights Landing, and the respective census tract block groups were collected using US Census Data American Community Survey data.

Both quantitative and qualitative analyses were performed to evaluate the Proposed Project's direct and indirect impacts on population and housing. Demographic data was located via the American Community Survey (ACS) table. The following tables were utilized (US Census ACS 2020):

- Table B01001 ‘Sex by Age’: American Community Survey 2020 5-Year Estimates Detailed Table.
- Table B25002 ‘Occupancy Status’: American Community Survey 2020 5-Year Estimates Detailed Table.

The following methods were utilized to evaluate the potential impacts from construction and operation on the Proposed Project on population and housing:

- The GIS data, aerial imagery, static and interactive maps were utilized in order to pinpoint populated areas (residential and commercial designated areas) within the Proposed Project area.
- Construction impact analysis included review of project design mapping, including temporary rights-of-way (ROW), identified staging areas, and operation of the Proposed Project, and their potential to induce population or impact existing housing.

The analysis considers each of the Proposed Project elements, as appropriate, in the context of construction and post-construction operations. The analysis of population and housing characteristics considers the potential for the Proposed Project to affect population and housing by inducing substantial unplanned population growth in the area or by a displacing substantial number of existing people or housing.

3.14.4 Impact Analysis

Impact POP-1: Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

Construction of the Proposed Project and all proposed improvements would occur on the existing levees and existing roadways would be used for access. No buildings or structures would be removed, and no new homes or businesses would be created as a result of the project. Construction activities would be short-term and temporary and would not induce growth due to a need for worker housing. In addition, operations and maintenance of the Proposed Project would not result in substantial unplanned population growth in the area, either directly or indirectly. The Proposed Project would provide increased flood protection for the community of Knights Landing and the Knights Landing Basin.

As a result, flood insurance rates may change if FEMA re-maps the basin and creates new flood insurance rate maps. Therefore, there is the possibility for delayed, indirect, secondary growth in the area due to increased flood protection and reduced flood insurance rates, thereby making flood insurance more affordable and attainable for residents and businesses. There is no commitment from FEMA or timeline for re-mapping the basin. Furthermore, population growth within the basin would be managed by the County and would have to comply with the county general plan. It is speculative at this time to state that the Proposed Project would contribute to indirect, secondary growth in the area. Therefore, construction, operations, and maintenance of the Proposed Project would have **less than significant impacts** on inducing substantial unplanned population growth in an area, either directly or indirectly, and no mitigation is required or recommended.

Impact POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Construction of the Proposed Project would occur on the existing Sacramento River Right Bank Levee adjacent to the community of Knights Landing and along the landside of the Knights Landing Ridge Cut Levee. A flood easement exists in the Boat Yard RV Park located at 42100 4th Street currently and would be extended to support the increased area required for the levee improvements. The proposed levee improvements and extension of the flood easement would require the relocation of several unpermitted trailers at the Boat Yard RV Park outside the levee footprint and flood easement.

Potential staging areas are identified in agricultural fields and would not displace any residents during construction. Proposed haul routes would be on existing local roads and agricultural roads and no road closures would be required for site access. Operation and maintenance of the Proposed Project would be similar to existing operation and maintenance activities and would be confined to the levees such that no residents would be displaced during operation and maintenance activities. Therefore, construction, operations, and maintenance of the Proposed Project would have **less than significant impacts** on population and housing; mitigation is not required.

3.15 Public Services

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

3.15.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Public services in the Proposed Project area are described below.

FIRE PROTECTION SERVICES

A number of fire districts and the Yocha Dehe provide fire protection, rescue, emergency medical services, and hazardous material response within the unincorporated areas of Yolo County. Specifically in Knights Landing, the Knights Landing Fire Protection District (FPD) has one fire station that includes 14 volunteer firefighters and five non-firefighting employees. The Fire Department is located at 42115 6th Street in Knights Landing, approximately 500 feet from the Proposed Project area. The Yolo County fire districts are listed below:

- Capay FPD
- Clarksburg FPD
- Dunnigan FPD
- East Davis FPD
- Elkhorn FPD
- Esparto FPD
- Knights Landing FPD
- Madison FPD
- No Man's Land FPD
- Springlake FPD
- West Plainfield FPD
- Willow Oak FPD
- Winters FPD
- Yolo FPD
- Zamora FPD

POLICE PROTECTION SERVICES

Yolo County law enforcement services are provided by the Yolo County Sheriff-Coroner, and this department patrols the County, administers the County Jail and work program, provides animal control services, and serves as the County Coroner. The California Highway Patrol also provides law enforcement on public roads in the area.

PARKS AND RECREATION

As discussed further in Section 3.16, the closest public park to the Proposed Project area is the Knights Landing Boat Launch located on 9350 Highway 45. The boat launch is located directly adjacent to the north of the Proposed Project area. The Boat Launch is four acres at the junction of the Sacramento River and the Sycamore Slough. The Park provides recreational opportunities for boating, water skiing, and fishing. It is owned by the State Department of Fish and Wildlife – Wildlife Conservation Board and is operated and maintained by Yolo County.

SCHOOLS

The closest school within the Proposed Project area is the Science and Technology Academy, located on 9544 Mill Street. According to the Academy's website, the Academy's mission is to inspire learning, curiosity, and problem-solving with the focus on science and technology.

OTHER PUBLIC FACILITIES

The Yolo County Library – Knights Landing Branch is located on 42351 Third Street in Knights Landing and provides books, public space, public computers with Wi-Fi, printing, and faxing.

3.15.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of public services in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of public services.

STATE

California Fire Code

The California Fire Code, located in Part 9 of Title 24 of the California Code of Regulations, incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official Fire Code for the State and all political subdivisions. The California Fire Code is revised and published every three years by the California Building Standards Commission.

California Health and Safety

The California Health and Safety Code establishes regulations pertaining to the abatement of fire-related hazards. This Code also requires that local jurisdictions enforce the State Building Standards Code, which provides standards for fire-resistant building and roofing materials and other fire-related construction methods.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The *Public Facilities and Services Element* of the *2030 Countywide General Plan* provides information and policy guidance to ensure that infrastructure and services would be sufficient to support existing and new development in Yolo County. The general plan element includes the following pertinent goals and policies as it relates to public services:

- **Goal PF-3**: Provide access to community and neighborhood parks in all unincorporated communities.
- **Goal PF-4**: Enhance public safety to prevent crime and improve neighborhood relations.
- **Policy PF-4.1**: Ensure the provision of appropriate law enforcement service and facilities to serve existing and planned land uses.
- **Goal PF-5**: Support fire and emergency service providers to enhance the protection of life and property.
- **Policy PF-5.1**: Improve the performance and efficiency of fire protection and emergency medical services.
- **Goal PF-6**: Collaborate with educational groups to develop school facilities and programs that serve the evolving needs of current and future residents.
- **Goal PF-7**: Provide library services to meet the changing informational and social needs of each community.
- **Policy PF-7.1**: Develop and maintain library facilities and/or services in every city and community where services are not otherwise provided.

3.15.3 Method of Analysis

This section describes the methods used to analyze public service facilities within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of public services. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to public services.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact public services were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed:

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services?

- Fire protection
- Police protection
- Schools
- Other public facilities

APPROACH TO ANALYSIS

Fire protection services, police protection services, parks, recreational facilities, schools, and other public service facilities within the Proposed Project area were analyzed. Potential impacts from construction and operation of the Proposed Project on public service facilities were evaluated through the following methods:

- Aerial imagery from Google Earth, collection of GIS data from Yolo County GIS Viewer, and other applicable GIS open databases were utilized to identify public service facilities within the Proposed Project area. Imagery was also utilized to measure distance of public facilities from Proposed Project construction limits.
- Analysis of construction methods, rights-of-way, and staging areas and their potential to impact public service facilities.

3.15.4 Impact Analysis

Impact PUB-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i) Fire Protection?
ii) Police Protection?
iii) Schools?
iv) Parks?
v) Other public facilities?

Construction of the Proposed Project would occur along the existing levees or within the existing native habitat. While project construction would require staging areas and temporary site access for construction vehicles and equipment, no closures would be required. Existing roadways would be used for access. No buildings or structures would be removed, and no new homes or businesses would be created as a result of the Proposed Project. Construction would be

temporary and short-term. It is anticipated that construction workers would commute to and from the Proposed Project area. Because of this, there is no anticipated need for increased fire or police protection, or capacity at schools, parks and other public facilities. Additionally, because there no road closures, no detour routes are needed to manage traffic in emergencies.

All construction staging and material stockpiling would occur along the levee or within the construction work area and would not impede emergency access routes for public services. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to public services.

Operation and maintenance of the Proposed Project would occur on existing levees and riparian areas, and as analyzed in Section 3.14, Population and Housing, the Proposed Project would not induce population growth, either directly or indirectly, that would require additional services or place a demand on existing services. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on fire and police protection services because it would occur at existing levees and would not create the need for any new services or impede existing services; no mitigation is required or recommended.

There are no schools or other public facilities located within the Proposed Project area and the project would not create a demand for schools or other public facilities. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on schools and other public facilities; no mitigation is required or recommended.

As discussed in Section 3.16, the Proposed Project does not include parks and recreational facilities and would not expose parks and recreational facilities to more users that would cause substantial or accelerated physical deterioration. There would be no impacts to the Knights Landing Boat Launch. Therefore, construction, operation and maintenance of the Proposed Project would have **no impact** on parks or other facilities; no mitigation is required or recommended.

3.16 Recreation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

There are limited recreational opportunities in the Proposed Project area. The closest public park to the Proposed Project area is the Knights Landing Boat Launch located on 9350 Highway 45. The Boat Launch is four acres at the junction of the Sacramento River and the Sycamore Slough, north and directly adjacent to the Proposed Project area. The Park provides recreational opportunities for boating, water skiing, and fishing. It is owned by the State Department of Fish and Wildlife – Wildlife Conservation Board and is operated and maintained by Yolo County.

The Fremont Weir Wildlife Area is also located approximately 6 miles southeast of Knights Landing. The Wildlife Area provides recreational opportunities such as fishing, and wildlife viewing and does not contain any physical facilities. The California Department of Fish and Wildlife also owns this area.

3.16.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of recreation in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of recreation.

STATE

There are no identified state plans, policies, and regulations that are relevant to the analysis of recreation.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The *Public Facilities and Services Element* of the *2030 Countywide General Plan* provides information and policy guidance to ensure that infrastructure and services would be sufficient to support existing and new development in Yolo County. The general plan element includes the following pertinent goal as it relates to recreation –

c) **Goal PF-3**: Provide access to community and neighborhood parks in all unincorporated communities.

3.16.3 Method of Analysis

This section describes the methods used to analyze parks and recreational facilities within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of recreation. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to recreation.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact recreational facilities were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed:

Would the project:

- Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

APPROACH TO ANALYSIS

Parks within the Proposed Project area were analyzed. Potential impacts from construction and operation of the Proposed Project on recreational facilities were evaluated through the following methods:

- Aerial imagery from Google Earth and collection of GIS data from Yolo County GIS Viewer and any applicable GIS open database was utilized to identify parks and recreational facilities within the Proposed Project area; imagery was also utilized to measure distance of parks and recreational facilities to Proposed Project construction limits.
- Analysis of construction methods, rights-of-way, and staging areas and their potential to impact recreation facilities.

3.16.4 Impact Analysis

Impact REC-1: Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The Proposed Project's objective is to provide flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin. The Proposed Project would not create new recreational facilities or attract more recreational users to the area. The Knights Landing Boat Launch, which is the closest park within the vicinity of the Proposed Project area, would be avoided during construction and access would remain open. As discussed in Section 3.14, the Proposed Project would also not generate an increase in population, either directly or indirectly, that would affect the Knights Landing Boat Launch. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility relocation, would result in similar impacts to recreational facilities. Therefore, the Proposed Project would not expose nearby existing neighborhood and regional parks and other recreational facilities to more users that would cause substantial or accelerated physical deterioration. Construction, operations, and maintenance of the Proposed Project would have **no impact** on recreation; therefore, mitigation is not required or recommended.

Impact REC-2: Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

As discussed above, none of the Proposed Project's elements would include recreational facilities or require the construction or expansion of recreational facilities. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on recreation; mitigation is not required or recommended.

3.17 Transportation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 due 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?	☐	☐	☐	☒

3.17.1 Environmental Setting

ROADWAY SYSTEM AND EMERGENCY EVACUATION ROUTES

The transportation system within the unincorporated areas of Yolo County consists of a system of state freeways, highways, and rural county roads that serve small communities and primarily agricultural uses. Interstate 80, Interstate 5, and Interstate 505 are the primary transportation corridors extending through Yolo County and serve the County's major population centers, including the incorporated cities of Davis, West Sacramento, Winters, and Woodland (Yolo County 2009b). Two other state highways in Yolo County (State Routes 45 and 113) serve mainly local and agricultural traffic within the County. Major county roads are also part of the regional roadway system and typically provide the connections to the highway and freeway system. CR 98 and CR 102 are key county roadways carrying more than 500 afternoon peak hour trips (Yolo County 2009b). Roads in the Proposed Project area are primarily conventional two-lane highways and minor two-lane county roads.

Proposed Project haul routes include Locust Street, County Road 16, County Road 116, County Road 116B, Front Street, Reed Street, 9th Street, 6th Street, 3rd Street, 2nd Street, and Railroad Street and existing agricultural farm roads. These access routes would be used by two-way traffic. The proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in some areas in order to support construction vehicles. Construction staging and material stockpiling would occur along the levee as construction progresses down the levee, as well as at proposed potential staging areas shown in Figure 2.1-1 through Figure 2.1-5.

According to the Yolo County OES, jurisdictions throughout Yolo County have participated in a joint planning project to identify evacuation zones that can be used during large scale evacuation and shelter in place events. The Proposed Project area is located in Evacuation Zones 14 and 23. Primary evacuation routes for Zone 14 include SR 45, SR 113, or CR 116. Evacuation routes for Zone 23 include CR 116, CR 102, SR 113, CR 16 West, and CR 17 West (Yolo County OES 2022).

BICYCLE FACILITIES AND PEDESTRIAN SYSTEM

The bicycle and pedestrian transportation system in Yolo County is made up of local and regional bikeways and trails. The City of Davis and UC Davis have an extensive network of bike facilities that connect to the Yolo County bicycle network. Bikeways are classified into the following three types:

- Class I – Off-street bike paths;
- Class II – On-street bike lanes marked by pavement stripping; and
- Class III- On-street bike routes that share the road with motorized vehicles.

According to the *Yolo County Bicycle Transportation Plan* (Yolo County Transportation Advisory Committee 2006), five major bikeways exist within the unincorporated area of Yolo County: a Class I path is located along I-80 and Russell Boulevard, and Class II bike lanes are located along Road 32A, County Road 102, County Road 99, County Road 31, and Russell Boulevard (Yolo County 2009b). County Road 102 is a Bike II bike path nearest to the Proposed Project area.

PUBLIC TRANSPORTATION

Public Transportation in Yolo County consists of public bus service, commercial bus service, taxi service, vanpools and carpools, and park-and-ride facilities. Yolo County Transportation District (YCTD) operates YOLOBUS. YOLOBUS serves residents of Yolo County and provides regional, intercity, and local fixed-route services through the County. YCTD also provides paratransit through YOLOBUS Special, a service that provides local city, intercity, and rural County service. Commercial bus service is also provided through Greyhound in the area. The Yolo Transportation Management Association (TMA) sponsors carpools and vanpools that operate within Yolo County and to/from surrounding areas (Yolo County 2009b).

PASSENGER RAIL

Amtrak provides commercial bus service and passenger train service in the County. Additionally, the Capitol Corridor is an intercity passenger train service that provides service between San Jose and Oakland/San Francisco and Sacramento/Placer County among the six local transit agencies in the eight-County service area that shares the administration and management of the Capitol Corridor. The San Francisco Bay Area Rapid Transit District (BART) provides day-to-day management support to the Capitol Corridor Joint Powers Authority along with partners who help deliver the Capitol Corridor service, including Amtrak, Union Pacific Railroad, and Caltrans. Near the Proposed Project area, the Knights Landing Transit Route is located in between Knights Landing and Woodland along CR 102.

RAIL/HIGHWAY FREIGHT

Freight railroads in Yolo County include Union Pacific Railroad, Sierra Northern Railroad, and California Northern. No railroads are present within the Proposed Project area. All state highways within Yolo County have been designated as truck routes by Caltrans (Yolo County 2009b). The truck route closest to the Proposed Project area is located along CA 113.

3.17.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of transportation in the IS/MND.

FEDERAL

There are no federal regulations that pertain to transportation and are relevant to the Proposed Project.

STATE

Senate Bill 743

SB 743 was signed into law in September 2013. SB 743, which added PRC Section 21099 to CEQA, proposed a change in how transportation impacts are analyzed in transit priority areas to better align local environmental review with statewide objectives. These alignment considerations include reductions to GHG emissions, encouragement of infill mixed-use development in designated priority development areas, reductions of regional sprawl land development, and reductions in mobile source Vehicle Miles Traveled (VMT).

In November 2017, the Governor's Office of Planning and Research released the final proposed update to CEQA Guidelines consistent with SB 743, recommending VMT, both within and outside of transit priority areas, as the most appropriate metric of transportation impact. This metric will align with local environmental review under CEQA and with California's long-term GHG emissions reduction goals.

REGIONAL/LOCAL

Sacramento Area Council of Governments (SACOG)

The federal government has designated SACOG the Metropolitan Planning Organization (MPO) for the Sacramento region, including Sutter and Yuba counties. SACOG works with its 28-member cities and counties to conduct transportation infrastructure planning and to provide funding assistance for cities, counties, transit operators, and other entities responsible for providing for the travel needs of the region's residents (SACOG 2019). SACOG generated a regional transportation plan, the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) (SACOG 2019), a "20-year multimodal transportation plan that is financially feasible, achieves health standards for clean air, and addresses statewide climate goals" (SACOG 2019). The four priority areas of the MTP/SCS include:

- Build vibrant places for today's and tomorrow's residents;
- Foster the next generation of mobility solutions;
- Modernize the way we pay for transportation infrastructure; and

- Build and maintain a safe, reliable, and multimodal transportation system.

Yolo County 2030 Countywide General Plan
The following goals and policies of the Yolo County *2030 Countywide General Plan* (Yolo County 2009a) are applicable to the Proposed Project:

- **Policy CI-3.1:** Maintain LOS C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions or require additional improvements to maintain the required LOS, except as specified below. The intent of this policy is to consider LOS as a limit on the capacity of the County's roadways.
    - SR 113 (Sutter County Line to CR 102) – LOS F is acceptable.
    - SR 113 (CR 102 to Woodland City Limits) – LOS D is acceptable.
    - CR 102 (CR 13 to CR 17) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed. The County will secure a fair share towards these improvements from planned development.

The following roadways were identified in the Circulation Element as needing spot improvements for portions of the identified segments, including but not limited to, intersection control and lane configuration improvements, passing lanes and/or wider travel lanes and shoulders:

- CR102 between CR 13 and Woodland City Limit.

3.17.3 Method of Analysis
This section describes the methods used to analyze transportation characteristics within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA
The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of transportation. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to transportation.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on transportation if it would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

APPROACH TO ANALYSIS

Construction, Operations and Maintenance

The potential impacts from construction, operation and maintenance of the Proposed Project on transportation were evaluated qualitatively using known traffic and transportation data and quantitatively using regulations that would be applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

The potential impacts from construction, operation and maintenance of the Proposed Project were evaluated based on the Yolo County *2030 Countywide General Plan* (Yolo County 2009a) guidelines which is based on LOS. The construction activity would only be temporary, and an analysis was conducted to evaluate the magnitude of temporary traffic impacts. In order to evaluate impacts using a conservative approach, traffic operations during the year of peak construction were analyzed, which was determined to be 2026. The specific roadways that would be of interest were determined using Figure 2.1-1 through Figure 2.1-5 (see Chapter 2 *Project Description*) and include the following:

- CR 116
- CR 116B
- SR 113
- SR 45
- Front Street
- Locust Street

The Yolo County *2030 Countywide General Plan Transportation and Circulation* section (Yolo County 2009a) provided afternoon peak hour volume for 2007 and a forecasted 2030 for SR 113 and SR 45. A per year compounded growth rate was calculated of 4.8%. The 2007 afternoon peak hour volume was grown using the growth rate of 4.8% to the 2026 future year of peak construction. SR 113 and SR 45 would be the main access for construction vehicles. Volumes for CR 116, CR 116B, Front Street, and Locust Street were unavailable. All three roadways are two-way, two-lane roadways that serve local users. The volume on these roadways is not expected to be high and traffic operations would be expected to be adequate. Table 3.17-1 displays the 2007 and 2026 future volume for the roadways analyzed.

Table 3.17-1. Existing (2007) and Future Year 2026 Afternoon Peak Hour Volume

Roadway	Existing 2007	Future 2026
SR 113	700	1630
SR 45	70	160

Source: Yolo County 2009b

The future volume with construction traffic can be compared to the operational class peak hour traffic volume threshold provided by the Yolo County *2030 Countywide General Plan Transportation and Circulation* section (Yolo County 2009a). SR 113 and SR 45 are both classified as two-lane arterials. Table 3.17-2 shows the operational class peak hour LOS volume thresholds.

Table 3.17-2. Operational Class Peak Hour LOS Thresholds

Roadway	C	D	E
Two-Lane Arterial	970	1760	1870

Source: Yolo County 2009b

3.17.4 Impact Analysis

Impact TRA-1: Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

An afternoon peak hour analysis was conducted to determine the temporary impact construction activities would have on traffic operations. Construction activities associated with the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements were evaluated to determine which activity had the highest expected impact. Those results were used for the basis of this analysis to determine the most conservative level of impacts during construction.

The Sacramento River Right Bank Levee improvements involve two construction activities: construction of the cutoff wall occurring in 2026 and construction of the stability berms occurring the following year. The cutoff wall construction would require 33 vehicles. The Sacramento River Right Bank Levee improvements would not happen at the same time as the Knights Landing Ridge Cut improvements.

It is assumed that all equipment and material would be in the staging areas or moved during the morning peak hour and not during the afternoon peak hour. Therefore, it was conservatively assumed all workers, which would be a total of 43, would leave during the afternoon peak hour. This would cause the highest traffic volume for the analysis. Construction would be expected to occur between 7 AM and 5 PM Monday through Saturday. Table 3.17-3 summarizes the construction impacts for the afternoon peak hour. SR 113 currently operates at a Level of Service (LOS) D and is projected to continue to operate at LOS D with the construction volume. SR 45 currently operates at LOS C and is projected to continue to operate at LOS of C with the construction volume. No transit, bike, or pedestrian facilities are located in the Proposed Project area that would be impacted by construction of the Proposed Project.

Therefore, the Proposed Project construction would result in a less than significant impact on the circulation system, and would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle or pedestrian facilities. Both the cutoff wall and seepage stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility modifications, would result in similar impacts to the circulation system.

The long-term (O&M) impacts are not expected as there would not be a noticeable increase in traffic volume after construction of the Proposed Project.

Table 3.17-3. 2026 Construction Volume

Roadway	Future 2026	Construction Trips	2026 Construction
SR 113	1630	43	1,673
SR 45	160	43	203

Source: Yolo County 2009b

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on the circulation system. No mitigation is required or recommended.

Impact TRA-2: Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

The Proposed Project would not cause a long-term increase in vehicle-miles travelled (VMT). The construction activities would cause a temporary increase due to the labor force and construction trips. The labor force (a maximum of 43 worker truck trips/day) is assumed to have a 30-mile average trip and construction trips (a maximum of 35 highway haul truck trips/day) are assumed to have a 50-mile average trip. The Yolo County *2030 Countywide General Plan Transportation and Circulation* section (Yolo County 2009a) has a VMT for 2005 and projection for the future year of 2030. A calculated 2.8% growth rate was used to grow the VMT to the construction year. Table 3.17-4 presents the VMT projections for the future year 2026 and the increase due to construction trips. The increase in VMT due to construction trips is 0.03% which is a nominal increase and as such is considered less than significant.

Table 3.17-4. Existing (2007) and Future Year 2026 Afternoon Peak Hour Volume

County	Future 2026	2026 Construction	Increase
Yolo	11,260,570	11,263,100	0.03%

Source: Yolo County 2009b

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on VMT; mitigation is not required or recommended.

Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Proposed Project elements would not change geometric design features or require incompatible uses. Neither permanent nor temporary geometric design changes are anticipated because all street legal trucks and labor force vehicles would be used on existing roadways to enter and exit Proposed Project areas and staging areas during construction, operations and maintenance. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on increasing hazards due to a geometric design feature; mitigation is not required or recommended.

Impact TRA-4: Result in inadequate emergency access?

The Proposed Project elements would not result in inadequate emergency access. The labor force and construction vehicles would not cause any roadway closures or detours impacting the existing emergency access during construction, operations and maintenance. Additionally, as discussed in Section 3.9 *Hazards and Hazardous Materials*, evacuation routes in the Proposed Project area, such as CR 116B, would remain open to 2-way traffic during construction. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on emergency access; mitigation is not required or recommended.

3.18 Tribal Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless 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)?	☐	☐	☒	☐
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?	☐	☒	☐	☐

3.18.1 Environmental Setting

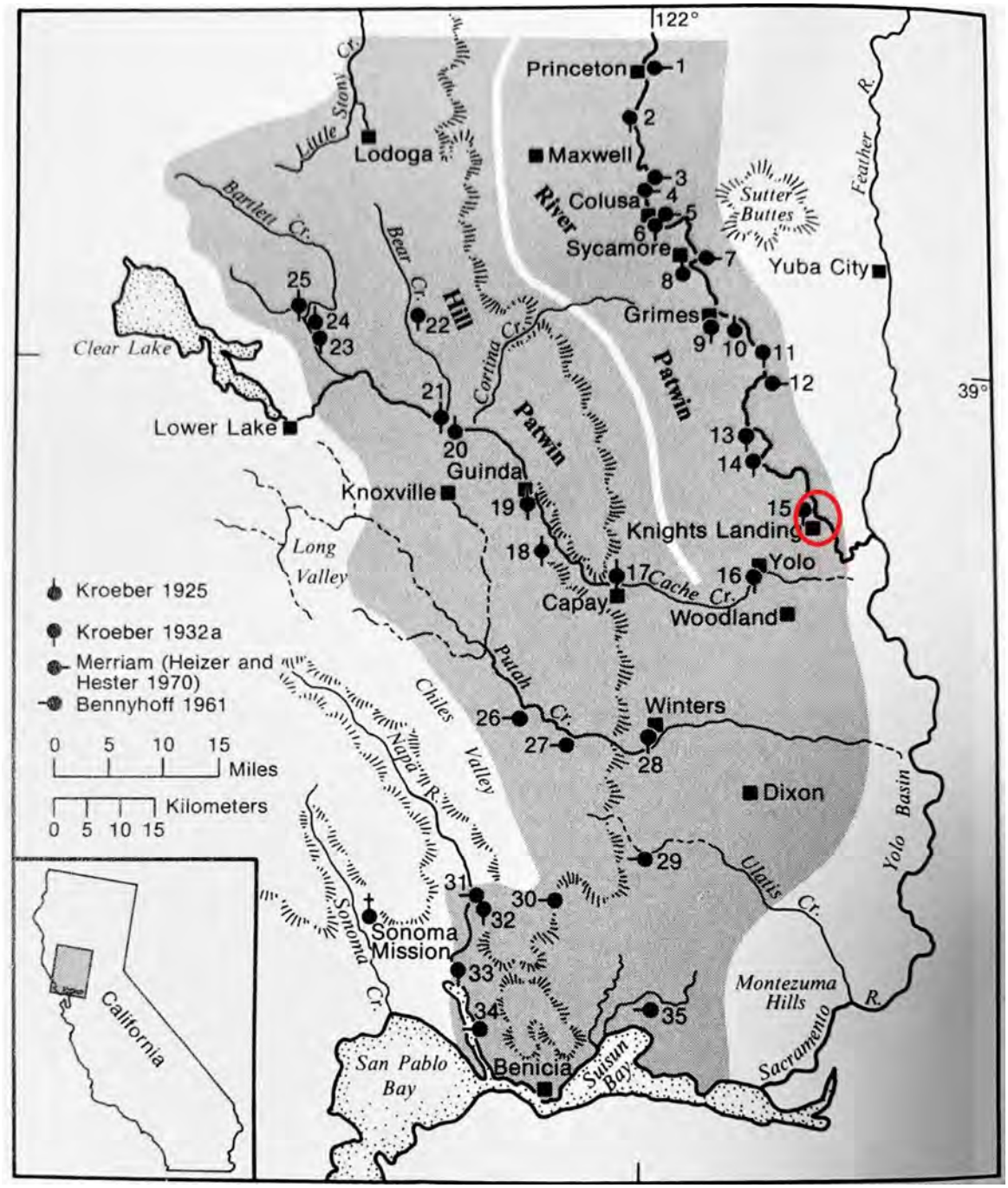
This section presents an overview of information on the local prehistory and history of the Proposed Project area and vicinity. Understanding local cultural history is critical in defining important local, state, and/or regional events, trends, or patterns in prehistory and history by which the significance of tribal cultural resources (TCRs) may be evaluated and their significance may be established.

ETHNOGRAPHIC CONTEXT

The Proposed Project is situated between the ethnographic territory of the Nisenan, also referred to as the Southern Maidu (Beals 1933; Faye 1923; Gifford 1927; Kroeber 1925: Chapters 31 and 31, 1929, 1932; Loeb 1933:178-190; Powers 1877:313-345; Voegelin 1942; Wilson and Towne 1978, 1979) and the Patwin (Figure 3.18-1).

Part of the Penutian language family, the Patwin spoke several different dialects, including Hill Patwin, River Patwin, and South Patwin (Whistler 1980). Patwin territory traditionally consisted of the southern portion of the Sacramento River Valley, west of the Sacramento River (Beals 1933:336, Map 1; Kroeber 1925: Plate 37; Wilson and Towne 1978:388, Figure 1). The village "Yo'doi" was ethnographically recorded near Knights Landing (see Figure 3.18-1 – the red circle marks the relative location of the Proposed Project area, showing Knights Landing and "15" which marks the location of *Yo'doi*). This village name gave rise to the modern name of the County in which Knights Landing resides, Yolo (Gregory 1913).

Figure 3.18-1. Patwin tribal territory (shaded grey) with selected major villages and Proposed Project location is circled in red.



Source: Johnson 1978

Patwin economic life was focused upon collecting plant foods, hunting, and fishing (Johnson 1978:355). As with most other California cultures, the major vegetal food source was the acorn, usually gathered in the fall by extended families or whole villages. Buckeye, pine nuts, juniper berries, manzanita berries, blackberries, wild grapes, Brodiaea bulbs, and tule roots were also gathered. At least two weirs were constructed across the Sacramento River for fishing: one at the village of *Koru* (modern day Colusa) and the other at *Saka* (below Grimes, CA). Several different species of fish were driven into pens behind the constructed weir gates and caught with a net. Fish species include salmon, sturgeon, perch, chub, sucker, hardhead, trout, pike, and steelhead. Some fishing areas were privately owned by individuals or families and thus require permission to use. Several other animals were caught using decoys and/or nets, including deer, tule elk, antelope, brown bear, ducks, geese, quails, turtles, and other small animals.

Animal skins and hides were used as bedding, robes, burial robes, skirts, floor mates, and tobacco sacks. Woven basketry was a staple in the Patwin life, for everything from food collection to food serving, and storage. Certain animal skin or basketry items were sometimes specially decorated with woodpecker or raven feathers. These added decorations were often a sign of materials that were highly prized or used for ceremonial purposes. A variety of stone tools were used, including knives, arrow and spear points, club heads, arrow shaft straighteners, scrapers, pestles, and mortars (Johnson 1978:356-357). Tool stone included primarily obsidian and occasionally chert. Many artifacts were made from wood (e.g., bows, digging sticks, and mortars), tule (e.g., mats, boats), and plant fibers (e.g., cordage, netting, and baskets). Bedrock mortars, and portable ones, were important components of acorn processing technology. Mussel shells were also utilized as knives to cut fish and other meat into strips.

In a Patwin village, there were typically four different types of structures that served as permanent habitation: family houses, ceremonial dance house, sudatory (sweathouse), and the menstrual hut. All of these were semi-subterranean, earth covered structures (Johnson 1978: 357-358).

The tribelet was the primary political group, represented by a chief who directed village communal activities. The position was passed from father to son, if possible, and otherwise would be chosen by village elders based on popularity and ability. The chief was supported by his community, oftentimes enjoying unrivaled decision-making powers. Each community or group of communities controlled its associated territory, including hunting and fishing localities. Families often controlled particular fishing sites, oak and pine groves, quail fences, gathering areas, hunting grounds, and some seed tracts (Voeglin 1942).

The Kuksu religion played an important role in Patwin society. The religion had two separate organizations. One was composed of men only and functioned as a general dancing society where boys and young men were initiated over time into performance of a series of specific dances. The other organization, composed of a limited number of men and women, had its performers wearing elaborate costumes impersonate a variety of spirit beings. Great emphasis was placed upon shamans, who acquired their power from paternal relatives. These were individual specialists in either native medicine and curing or who had direct contact with the supernatural realm. Shamans often were feared because of their potential to manipulate

supernatural power for good or ill (those who used their power for evil were called sorcerer). In addition to dances associated with the Kuksu religion, a number of dances associated with the harvest of particular resources also occurred. In addition, multi-village gathering were held. Dances often were primarily held in the large communal dance house.

Today, there are four tribes that trace their lineage to the Patwin: the Yocha Dehe Wintun Nation, the Redding Rancheria, the Kletsel Dehe Wintun Nation, and the Cachil Dehe Band of Wintun Indians. In addition, the United Auburn Indian Community (UAIC) is a federally recognized Tribe comprised of both Miwok and Maidu (Nisenan) Tribal members who are traditionally and culturally affiliated with the Proposed Project area. The Tribe has a deep spiritual, cultural, and physical tie to their ancestral land and are contemporary stewards of their culture and landscapes. The Tribal community represents a continuity and endurance of their ancestors by maintaining their connection to their history and culture. It is the Tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

3.18.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of tribal cultural resources in the IS/MND.

FEDERAL

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. for Native American tribes or individuals. Examples of potential ITAs are lands, minerals, fishing rights, and water rights. Management of ITAs is based on the following orders, agreements, and regulations:

- Executive Order 13175, Consultation and Coordination with Indian Tribal Governments 65 FR 67249;
- Memorandum on Government-to-Government Relations With Native American Tribal Governments (FR Volume 59, Number 85, signed April 29, 1994);
- Secretarial Order No. 3175 – Departmental Responsibilities for Indian Trust Resources;
- Secretarial Order No. 3206 – American Indian Tribal Rights, Federal -Tribal Trust Responsibilities, and the federal Endangered Species Act (ESA);
- Secretarial Order No. 3215 – Principles for the Discharge of the Secretary's Trust Responsibility;
- Secretarial Order No. 3342 – Identifying Opportunities for Cooperative and Collaborative Partnerships with Federally Recognized Indian Tribes in the Management of Federal Lands and Resources; and
- Secretarial Order No. 3335 – Reaffirmation of the Federal Trust Responsibility to Federally Recognized Tribes and Individual Indian Beneficiaries.

American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 (AIRFA; 42 U.S.C. § 1996) protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Historic Sites Act of 1935

The Historic Sites Act of 1935 (54 U.S.C. 320101–320106, formerly”16 U.S.C. 461–467) declares"...that it is a national policy to preserve for public use historic sites, buildings, and objects of national significance…,” asserting historic preservation as a government duty under jurisdiction of the United States Secretary of the Interior.

National Historic Preservation Act

As discussed and defined in Section 3.5 *Cultural Resources*, Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. For purposes of the discussion regarding tribal cultural resources, it is important to underscore that historic properties include properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the National Register criteria (36 C.F.R. § 800.16[l][1]).

Traditional Cultural Properties and Traditional Cultural Landscapes

Traditional Cultural Properties (TCPs) are properties associated with cultural practices or beliefs of a living community that are: ’1) rooted in that community's history; and (2) important in maintaining the continuing cultural identity of a community. TCPs can refer to properties of importance to any community, including Indigenous communities. The appropriate terminology for sites of importance to Indian tribes is ‘historic property of religious and cultural significance to an Indian tribe [and Native Hawaiian organization’” (ACHP 2008:19; ACHP 2011:14). Traditional cultural landscapes (TCL) encompass the same meaning and utility, as well as inclusivity of Indigenous communities. The Secretary of the Interior’s Guidelines for the treatment of cultural landscapes define a cultural landscape as “a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (Birnbaum and Peters 1996:4). Historic vernacular landscapes “evolved through use by the people whose activities or occupancy shaped them” and ethnographic landscapes “contain a variety of natural and cultural resources that associated people define as heritage resource” (Birnbaum and Peter 1996:4; Ball et al. 2015:7).

National Register Bulletin 38 provides examples of TCPs and TCLs that fit the definition in the guidelines (Parker and King 1998:1). Examples include:

- A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- A rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;

- An urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity.

TCPs and TCLs are eligible for inclusion on the NRHP if they meet the criteria set forth in 36 C.F.R. § 60.4, National Register Criteria for Evaluation. The steps in the identification and evaluation of TCPs are the following (abbreviated from Parker and King 1998:11-14):

1. Potential Traditional Cultural Properties must be identified through consultation with the affected community or Tribe;
2. The investigation must consider the beliefs and practices associated with a potential Traditional Cultural Properties from the perspective of the community or Tribe;
3. The potential Traditional Cultural Properties must be a property, that is, a tangible place on the landscape, rather than an intangible belief or practice;
4. The property must retain integrity of relationship with the beliefs and practices that give it meaning to the community or Tribe;
5. The property must retain integrity of condition, such that the elements of the property associated with the beliefs and practices that give it significance are present; and
6. The property must meet one or more of the four criteria for eligibility on the National Register (see Section 3.5.2 *Cultural Resources – Regulatory Framework – Federal*).

Cultural resources routinely not considered for eligibility for inclusion in the NRHP are religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties achieving significance within the past 50 years. However, these resources, can be evaluated as eligible if they meet one or more of the NRHP eligibility criteria for evaluation, retain integrity, and meet special criteria requirements called criteria considerations. The most notable of the seven considerations (A through G) is Criteria Consideration G, which specifies that a property that has achieved significance within the last 50 years can qualify for the NRHP only if it is of exceptional importance. As noted by Parker and King (1998:17–18), “a significance ascribed to a property only in the past 50 years cannot be considered traditional.” However, they also note: “The fact that a property may have gone unused for a lengthy period of time, with use beginning again only recently, does not make the property ineligible for the [National] Register” (Parker and King 1998:14).

If a property is determined to be a TCP, it becomes the responsibility of the lead agency to assess whether the Proposed Project would have an effect on the property, and should the effect be adverse, would it alter or destroy the elements that make the property significant and eligible. If a project is determined to have an adverse effect, the lead agency is responsible for seeking measures that would mitigate the adverse effects to TCPs.

STATE

Tribal Cultural Resources

As defined at Public Resource Code (PRC) § 21074, a TCR is a site, feature, place, cultural landscape, sacred place or object that is of cultural value to a California Native American tribe and is either: (1) on or eligible for the California Register of Historical Resources (CRHR) or a local historic register; or (2) the lead agency, at its discretion, chooses to treat the resource as a TCR. TCRs are similar to TCPs in terms of their characteristics, identification, and treatment, and may include a cultural landscape to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Additionally, as defined at PRC § 21074(c), a historical resource, a unique archaeological resource, or a non-unique archaeological resource may also be a TCR if it conforms to the criteria of a TCR in PRC § 21074(a). CEQA mandates that lead agencies determine whether a project will have a significant impact on TCRs that are eligible for listing on the CRHR (i.e., a historical resource), or are determined to be significant by the lead agency in order to appropriately mitigate any such impacts.

Under the CEQA Guidelines, even if a resource is not included on any local, state, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource (i.e., TCR) for the purposes of CEQA, if there is substantial evidence supporting such a determination (CEQA Guidelines § 15064.5[a]). A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the CRHR. A resource may be eligible for inclusion in the CRHR if it:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage (Criterion 1);
- Is associated with the lives of persons important in our past (Criterion 2);
- Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values (Criterion 3); or
- Has yielded, or may be likely to yield, information important in prehistory or history (Criterion 4).

In accordance with CEQA guidelines, cultural resources investigations are necessary to identify TCRs that may have significant impacts as a result of a project (14 Code of California Regulations [CCR] §15064.5). The following steps are routinely implemented in a cultural resource investigation for CEQA compliance:

1. Identify cultural resources in the Proposed Project area;
2. Evaluate against the CRHR criteria of significance (listed below);
3. Evaluate the impacts of the Proposed Project on all cultural/tribal resources; and
4. Develop and implement measures to mitigate Proposed Project impacts on historical resources or resources deemed significant by the lead agency.

As TCRs hold cultural value to a California Native American tribe, consultation with local Native American tribes is an integral component of each of the cultural resource investigation steps described above. If a lead agency determines that a project may cause a substantial adverse change to a TCR, the lead agency must consider measures to mitigate that impact. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a TCR, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC § 21080.3.2). Under existing law, environmental documents must not include information about the locations of an archaeological site or sacred lands or any other information that is exempt from public disclosure pursuant to the Public Records act.

Assembly Bill 52 and Consultation

The lead agency for CEQA is responsible for consultation with Native American tribes regarding the potential for a project to impact TCRs, pursuant to Assembly Bill 52 and PRC §§ 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, 21084.3, and 5097.94(m). Assembly Bill 52 recognizes that "…tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated…" and that consultation will occur between a lead agency and Native American tribes for covered projects.

PRC §21080.3.1 (a) and Government Code §65352.4 define consultation as "the meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement. Consultation between government agencies and Native American tribes shall be conducted in a way that is mutually respectful of each party's sovereignty. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance."

As described in Section 3.5 *Cultural Resources*, a project may induce a significant impact to a historical resource, unique archaeological resource, or a TCR if it causes a substantial adverse change (i.e., physical demolition, destruction, relocation, or alteration) to the resource or immediate surroundings (14 CCR 15064.5[b]), thereby demolishing or significantly altering the physical characteristics that qualify it for listing on the CRHR or local registers (PRC §§ 5020.01[k] and 5024.1[g]). A project that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment (PRC § 21084.2). A lead agency shall establish measures to avoid impacts that would alter significant characteristics of a TCR, when feasible (PRC §21084.3).

As such, the County is committed to working together with tribes and consultation efforts with California Native American tribes are described below.

Native American Historical, Cultural, and Sacred Sites

Pursuant to PRC 5097.94 the Native American Heritage Commission has authority and duty to "identify and catalog places of special religious or social significance to Native Americans, and known graves and cemeteries of Native Americans on private lands" and has the power and

duty to make recommendations for acquisition by the state or other public agencies regarding Native American sacred places that are located on private lands, are inaccessible to Native Americans, and have cultural significance to Native Americans.

California Native American Graves Protection and Repatriation Act of 2001

The California Native American Graves Protection and Repatriation Act of 2001 (CALNAGPRA) requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items to provide a process for the identification and repatriation of these items to the appropriate tribes.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The County's *2030 Countywide General Plan* adopted 14 policies regarding cultural resources, including archaeological sites, tribal resources, and historic buildings. Implementation of these policies is through a series of Actions (Actions CO-A55 through CO-A70) designed to ensure compliance with all applicable local, state and federal laws.

- **Policy CO-4.1**: Identify and safeguard important cultural resources.
- **Policy CO-4.2**: Implement the provisions of the State Historical Building Code and Uniform Code for Building Conservation to balance the requirements of the Americans with Disabilities Act with preserving the architectural integrity of historic buildings and structures.
- **Policy CO-4.3**: Encourage owners of historic resources to preserve and rehabilitate their properties.
- **Policy CO-4.4**: Encourage historic resources to remain in their original use whenever possible. The adaptive use of historic resources is preferred when the original use can no longer be sustained. Older residences may be converted to office/retail use in commercial areas and to tourist use in agricultural areas, so long as their historical authenticity is maintained or enhanced.
- **Policy CO-4.5**: Increase knowledge of historic preservation through public education and outreach programs.
- **Policy CO-4.6**: Support historically oriented visitor programs at the local and regional level through the Yolo County Visitor's Bureau and similar efforts.
- **Policy CO-4.7**: Encourage the identification of historic resources through the integrated use of plaques and markers.
- **Policy CO-4.8**: Explore opportunities for promoting heritage tourism, including cooperation with regional and State marketing efforts.
- **Policy CO-4.9**: Promote the use of historic structures as museums, educational facilities, or other visitor-serving uses.
- **Policy CO-4.10**: Encourage voluntary landowner efforts to protect cultural resources consistent with State law.
- **Policy CO-4.11**: Honor and respect local tribal heritage.

- **Policy CO-4.12**: Work with culturally affiliated tribes to identify and appropriately address cultural resources and tribal sacred sites through the development review process.
- **Policy CO-4.13**: Avoid or mitigate to the maximum extent feasible the impacts of development on Native American archaeological and cultural resources.
- **Policy CO-4.14**: Within the Delta Primary Zone, ensure compatibility of permitted land use activities with applicable cultural resources policies of *the Land Use and Resource Management Plan* of the Delta Protection Commission.

3.18.3 Method of Analysis

This section describes the methods used to analyze tribal cultural resources within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of tribal cultural resources. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to tribal cultural resources.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

For the purposes of this IS/MND, the Proposed Project would result in a significant impact on tribal cultural resources materials if it would:

- Cause a substantial adverse change in the significance of a historical resource 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).
- Cause a substantial adverse change in the significance of 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.

APPROACH TO ANALYSIS

The potential impacts from construction, operation and maintenance of the Proposed Project on tribal cultural resources were evaluated qualitatively using known historical cultural resource location data and tribal consultation; and quantitatively using regulations that would be

applicable to the Proposed Project. The analysis considers the Sacramento River Right Bank Levee improvements and the Knights Landing Ridge Cut improvements, as appropriate, in the context of construction, staging areas, post-construction operation, and maintenance.

AB 52 Consultation

Pursuant to PRC § 21080.3.1 and in support of AB 52, consultation efforts with Native American tribal contacts have been incorporated in the cultural resource investigations of the Proposed Project areas under the SCFRRP, as "California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources" (PRC § 21080.3.1[a]). Pursuant to PRC § 21080.3.1(b), lead agencies are required to send notifications of proposed projects to California Native American tribes that have requested in writing to be informed of proposed projects for consultation. Accordingly, Yolo County contacted the NAHC on March 11, 2021, to request a list of California Native American tribes and organizations that may have an interest in the Proposed Project pursuant to PRC 21080.3.1(c), as well as to request a search of the Sacred Lands File (SLF). The NAHC responded on March 24, 2021, providing a list of tribes that have cultural and traditional affiliation to the Proposed Project area. The NAHC also reported that their search of the SLF yielded positive results and to contact the United Auburn Indian Community (UAIC) for further information.

On July 7, 2021, Yolo County mailed invitations to consult on the SCFRRP to the following Native American tribes and representatives:

- Laverne Bill, Director of Cultural Resources, Yocha Dehe Wintun Nation
- Leland Kinter, Tribal Historic Preservation Officer (THPO), Yocha Dehe Wintun Nation
- Anthony Roberts, Chairman, Yocha Dehe Wintun Nation
- Regina Cuellar, Chairperson, Shingle Springs Band of Miwok Indians
- Sara Dutschke Setshwaelo, Chairperson, Ione Band of Miwok Indians
- Daniel Gomez, Chairman, Cachil Dehe Band of Wintun Indians of the Colusa Indian Community
- Jesus Tarango, Chairman, Wilton Rancheria
- Thomas Tortez, Jr., Chairman, Torres Martinez Desert Cahuilla Indians
- Gene Whitehouse, Chairman, United Auburn Indian Community of the Auburn Rancheria
- Charlie Wright, Chairman, Cortina Rancheria – Kletsel Dehe Band of Wintun Indians

On August 4, 2021, the County received a letter from THPO Kinter of the Yocha Dehe Wintun Nation confirming that the Tribe had reviewed the SCFRRP description and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation and that, further, the Tribe would like to initiate formal consultation with the County. The letter also included a copy of the Tribe's burial treatment protocol.

Following confirmation that the Yocha Dehe Wintun Nation would be formally consulting on the Proposed Project, Cultural Regulatory Specialist Anna Starkey of the UAIC responded in an email on August 24, 2021, that the UAIC would defer AB 52 consultation to the Yocha Dehe

Wintun Nation. Additionally, in an email response to the public draft of the SCFRRP Knights Landing Mid-Valley Sites 9, 10, and 11 Levee Improvements Project IS/MND (dated April 12, 2022), Ms. Starkey of the UAIC noted that the UAIC had conducted a records search for the identification of TCRs which included a review of pertinent literature and historic maps, and a records search using UAIC's Tribal Historic Information System (THRIS). UAIC's THRIS database is composed of UAIC's areas of oral history, ethnographic history, and places of cultural and religious significance, including UAIC Sacred Lands that are submitted to the NAHC. The THRIS resources shown in this region also include previously recorded indigenous resources identified through the California Historic Resources Information System Center as well as historic resources and survey data. No known TCRs are currently identified in the Project area. Pending additional consultation with the Native American community and further identification efforts, CA-YOL-007 is likely to meet the requirements of a Tribal Cultural Resource for the purposes of CEQA.

The County responded to the Yocha Dehe Wintun Nation via email on August 5, 2021, acknowledging receipt of the letter and the Tribe's request for formal consultation on the SCFRRP. In addition to an ongoing monthly SCFRRP meeting between the County and the Tribe, three Project-specific AB 52 consultation meetings were held in September 2021. In an email dated September 17, 2021, the Tribe's Director of Cultural Resources Laverne Bill (at that time) noted that communication between the County and the Tribe would be ongoing throughout implementation of all aspects the SCFRRP with regards to implementing the Tribe's requests (described below), any changing parameters of the Proposed Project, necessary contracting mechanisms, and scheduling.

3.18.4 Impact Analysis

Impact TCR-1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, 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)?

Construction, operations, or maintenance of the Proposed Project would not cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code section 5020.1(k) because no TCRs are located in or near the Proposed Project areas that qualify as CEQA historical resources would be affected by the Proposed Project. As of this writing, it is anticipated that the Proposed Project would not have a significant impact on any known TCRs. however, the proposed investigations could result in an effect to unidentified TCRs if they are present in the Proposed Project area.

Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on tribal cultural resources; mitigation is not required or recommended.

Impact TCR-2: Would the project cause a substantial adverse change in the significance of 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?

Mr. Laverne Bill, previous Cultural Resources Director of the Yocha Dehe Wintun Nation noted that the Tribe generally considers all locations in the vicinity of the Sacramento River to have an elevated level of sensitivity for both archaeological and tribal resources based on the patterns of pre-contact land use by the indigenous inhabitants. Further, Mr. Bill noted that late 19th century levee construction methods often utilized source material that disregarded verifying if that material contains pre-contact artifacts and/or remains. Accordingly, the Tribe considers the Sacramento River levees to be highly sensitive for tribal resources. This sensitivity has been demonstrated via inadvertent discoveries along other levee systems in the Sacramento River valley.

Although no specific tribal cultural resources were identified during consultation, the Tribe has requested tribal resource sensitivity training (included in **MM-CUL-1**) for all construction personnel prior to ground disturbance and an onsite Tribal Monitor during Project implementation. Further, as described in Section 3.5 (Cultural Resources), any previously unrecorded archaeological resource discovered during construction, or any other phase of the Proposed Project, would be addressed following the protocols details under the inadvertent discovery mitigation measure (**MM-CUL-2**). Therefore, impacts to tribal cultural resources from the Proposed Project would be reduced to a less than significant level with mitigation incorporated. Both the cutoff wall and seepage berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing in the vicinity of P-57-00010, as well as associated utility modifications, would result in similar impacts to unidentified TCRs.

Mitigation Measure:
MM-TCR-1: Discovery of Tribal Cultural Resources. If any suspected tribal cultural resources are discovered during ground disturbing activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the Proposed Project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and cultural affiliated with the geographic area shall be immediately notified and shall determine if the find is a tribal cultural resource. The Tribal Representative will make recommendations for further evaluation and treatment as necessary.

When avoidance is infeasible, preservation in place is the preferred option for mitigation of tribal cultural resources under CEQA protocols and every effort shall be made to preserve the resource in place, including through Project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the Proposed Project area where they will not be subject to further impacts. Permanent curation of tribal cultural resources will not take place unless approved in writing by the California Native American Tribe that is traditionally and culturally affiliated with the Proposed Project area.

The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource,

including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a tribal cultural resource may include Tribal monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of CEQA, including AB 52, have been satisfied.

With the implementation of mitigation measures **MM-CUL-1**, **MM-CUL-2**, and **MM-TCR-1**, impacts on tribal cultural resources would be reduced to a less than significant level. Therefore, with implementation of **MM-CUL-1**, **MM-CUL-2**, and **MM-TCR-1**, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on tribal cultural resources.

As a result, this impact would be reduced to a **less than significant** level with mitigation proposed.

3.19 Utilities and Service Systems

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.19.1 Environmental Setting

The following utility services would be discussed in the section:

- Electric power and natural gas (including substations, electrical power lines, and gas lines)
- Solid Waste and Recycling
- Sewer and Septic Systems
- Stormwater and Drainage
- Communication Technology
- Water Supply

ELECTRIC POWER AND NATURAL GAS

PG&E provides both electric and gas services to Yolo County, where the Proposed Project area is located. It is also the electric and gas service provider for Knights Landing. As stated in the

Project Description, several PG&E power poles would need to be relocated as a result of the Proposed Project.

As discussed in Section 3.6, *Energy*, VCE is a local public electricity provider formed by Yolo County and the Cities of Woodland and Davis. VCE began providing its services in 2018 and services to customers located within the Cities of Woodland and Davis as well as the unincorporated areas of Yolo County. Additionally, in 2016, Yolo County and the City of Davis formed the Community Choice Energy Program. This program allows local governments to purchase electricity on behalf of their respective communities. The program is currently under review; however, if the program is approved, residents would be able to choose between to continue to receive PG&E service for their homes and businesses or enroll in the program, which would allow residents to choose a different approved energy service provider.

SOLID WASTE AND RECYCLING

There are two public facilities for solid waste and recycling in Yolo County. The Yolo County Central Landfill is a 722-acre facility that provides solid waste and recycling services such as municipal solid waste, recycling, salvaging, household hazardous waste, and business hazardous waste. The Esparto Convenience Center is an 11-acre facility that provides residential municipal solid waste and recycling services. The Grover Landscape Service, Zamora, Composting Facility is a 56-acre facility that provides green waste processing and composting for the San Francisco Bay Area and Sacramento Area.

Yolo County does not provide curbside waste collection services. However, the County has contracted with the Waste Management of Woodland to provides these services to the unincorporated communities and areas in the County.

SEWER AND SEPTIC SYSTEMS

According to the Yolo County *2030 Countywide General Plan*, there are a variety of municipal wastewater systems that serve the cities and towns of the County. Knights Landing has a primary and secondary treatment system (Yolo County 2009a). The wastewater treatment system for Knights Landing is a community wastewater system, managed by a Community Service District (CSD). This system is currently at capacity. However, nine additional acres of treatment and disposal ponds are being planned and land is available for future expansion when needed.

STORMWATER AND DRAINAGE

Drainage facilities in the unincorporated county are limited and most of Yolo County's existing drainage infrastructure and system is in poor condition with localized flooding happening frequently. According to the Yolo County *2030 Countywide General Plan*, the stormwater drainage service provider for Knights Landing is the Knights Landing County Service Area (Yolo County 2009a). A detention basin and roadside drainage ditches flowing to the Knights Landing Ridge Cut Slough are located near the Proposed Project area.

COMMUNICATION TECHNOLOGY

According to the Yolo County *2030 Countywide General Plan*, the primary provider of land line telephone service is AT&T. This network provides and covers a large area of Yolo County;

however, gaps and poor reception is frequent in more unincorporated communities and remote rural areas. Comcast is the primary cable TV provider for Knights Landing.

WATER SUPPLY

The major watersheds and surface water features in Yolo County include Cache Creek, Putah Creek, the Sacramento River, the Knights Landing Ridge Cut, and the Yolo Bypass. Most of Yolo County's domestic water supplies originate from groundwater. The Yolo Bypass is a 41-mile-long levied floodplain that carries flood flows from the Sacramento River to the Sacramento Delta.

According to the Yolo County *2030 Countywide General Plan*, the water system for Knights Landing is a community water system based on groundwater, which is managed by the Community Services District.

3.19.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of utilities in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of utilities.

STATE

California Integrated Waste Management Plan of 1989

The *California Integrated Waste Management Plan of 1989* requires each county to prepare a *County Integrated Waste Management Plan* (CIWMP). Yolo County's CIWMP provides goals and objectives for the County and cities to meet the requirements set by the State Plan to reduce the amount of solid waste disposed in landfills and transformed through acts of source reduction, recycling, and composting activities.

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The *Conservation and Open Space Element* of the *2030 Countywide General Plan* provides information and policy guidance in regard to the water supply in Yolo County. The general plan element includes the following pertinent goals and policies as it relates to water supply:

- **Goal CO-5**: Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.
- **Policy CO-5.6**: Improve and protect water quality for municipal, agricultural, and environmental uses.
- **Policy CO-5.16**: Require all development to have an adequate water supply. Require significant discretionary projects to demonstrate adequate long-term and sustainable water supplies by preparing a verified water supply assessment. The assessment shall demonstrate a long-term, reliable water supply satisfactory under normal and above normal

rainfall conditions, as well as drought conditions. Satisfy the requirements of CEQA Guidelines Section 15155 to consult with water agencies regarding water supply assessments.

The *Public Facilities and Services Element* of the *2030 Countywide General Plan* provides information and policy guidance to ensure that infrastructure and utility services would be sufficient to support existing and planned development in Yolo County. The general plan element includes the following pertinent goals and policies as it relates to utilities:

- **Goal PF-1**: Provide efficient and sustainable solutions for wastewater collection, treatment, and disposal.
- **Goal PF-1.1**: Require discretionary projects to demonstrate adequate long-term wastewater collection, treatment, and disposal capacity, including full funding for land acquisition, facility design and construction, and long-term operations and maintenance for needed wastewater treatment and disposal facilities. Where such funding is dependent upon a community vote, approval of the project by the County shall be contingent upon a successful voting outcome.
- **Goal PF-2**: Provide efficient and sustainable stormwater management to reduce local flooding in existing and planned land uses.
- **Policy PF-2.1**: Improve stormwater runoff quality and reduce impacts to groundwater and surface water resources.
- **Goal PF-9**: Provide safe, cost-efficient, and environmentally responsible solid waste management.
- **Policy PF-9**: Meet or exceed State waste diversion requirements.
- **Policy PF-9.8**: Require salvage, reuse or recycling of construction and demolition materials and debris at all construction sites.
- **Policy PF-9.9**: Encourage use of salvaged and recycled materials in construction.
- **Goal CO-7**: Promote energy efficiency and conservation.
- **Policy CO-7.3**: Require all projects to incorporate energy-conserving design, construction, and operation techniques and features into all aspects of the project including buildings, roofs, pavement, and landscaping.
- **Goal PF-11**: Support a flexible network of utility services to sustain state-of-the-art community livability and economic growth.

3.19.3 Method of Analysis

This section describes the methods used to analyze utility service characteristics and the potential impacts of these services within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of utilities and service systems. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans,

specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to utilities and service systems.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact utilities and service systems were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed:

Would the project:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- 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?
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

APPROACH TO ANALYSIS

The evaluation of potential impacts the Proposed Project could have on utilities and service systems was assessed by reviewing existing utility services and power lines within the Proposed Project area. The following methods were utilized to determine potential impacts on utilities and service systems and to evaluate how construction and operation of the Proposed Project would conflict with utility services as well as with state and local plans and regulations –

- Analysis of available utility data and utilities observed on site .
- Analysis of construction methods, rights-of-way, and staging areas and their potential impact on utility consumption.
- Analysis of the Proposed Project's consistency with the requirements of plans, policies, and regulations listed in the regulatory setting of the resource section.

3.19.4 Impact Analysis

Impact UT-1: 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?

Construction of the proposed Sacramento River Right Bank Levee improvements would result in the installation of an 80-foot-deep clay cutoff wall at the center of the existing Sacramento River Right Bank Levee. In order to allow for the construction of the cutoff wall, existing utility modifications are likely needed. However, all utility modifications would be coordinated with all respective utility providers and would be conducted so as to avoid direct impacts to the proposed cutoff wall while still being consistent with existing land uses. Potential utility modifications would be minimized and limited to those needed for project completion.

Additionally, as mentioned in Section 3.14, *Population and Housing*, the Proposed Project would not directly induce growth by constructing new residences or businesses that would require the construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities. Further, as discussed in Section 3.10 *Hydrology and Water Quality*, water supply and groundwater would not be impacted by the construction of the cutoff wall in a way that would have negative effects on regional groundwater supplies. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento River Right Bank Levee in Knights Landing, as well as associated utility modifications, would result in similar impacts to utilities and service systems. Therefore, construction, operations, and maintenance of the Proposed Project would have a less than significant impact on utilities and service systems as it relates to 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; mitigation is not required or recommended.

Construction of the proposed Knights Landing Ridge Cut improvements would require the remediation of existing levee encroachments, which would require the removal of levee pipe penetrations, relocation of PG&E power poles, and replacement of levee gates. All PG&E utility pole relocations would be coordinated directly with PG&E and would be within the project footprint. It is anticipated that that any temporary service interruptions would be coordinated with the utility providers and the surrounding community would be notified in advance of any temporary and short-term service interruptions. All potential utility modifications would be limited to those needed for project completion.

Additionally, as mentioned in Section 3.14, Population and Housing, the Proposed Project would not directly induce growth by constructing new residences or businesses that would require the construction of new expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities. Further, as discussed in the Section 3.10, water supply and groundwater would not be impacted by the construction of the cutoff wall in a way that would have negative effects on regional groundwater supplies. Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on utilities and service systems as it relates to 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; mitigation is not required.

Impact UT-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

As discussed in Section 3.10 *Hydrology and Water Quality*, groundwater and water supply for the community would not be affected or altered by the Proposed Project. Water needs during construction of the Proposed Project would be supplied by water trucks and would not use or deplete the water supply for the community of Knights Landing. Operation and maintenance would involve minor water use for vegetation growth, which are activities similar to existing operation and maintenance activities and would require similar amounts of water use. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on utilities and service systems as it relates to having sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years; no mitigation is required or recommended.

Impact UT-3: Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The Proposed Project would not generate wastewater during construction activities. Water discharged during construction would comply with regulations for stormwater and non-stormwater discharges and would be disposed of offsite at an approved facility with adequate capacity as required (see Section 3.10 *Hydrology and Water Quality*). Future operations and maintenance would not generate wastewater or induce population growth that would generate the need for additional wastewater treatment services in the area (see Section 3.14 *Population and Housing*) Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on utilities and service systems as it relates to adequate wastewater capacity to serve the project's projected demand and the provider's existing commitments; mitigation is not required or recommended.

Impact UT-4: 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?

Construction of the Proposed Project would generate solid waste from vegetation removal needed for the cutoff wall work, clearing, grubbing, and other construction debris. However, solid waste generated during construction would be limited and would only occur during the construction phase. Upon project completion, solid waste would no longer be generated by operation and maintenance activities and would be similar to existing conditions. As a result, construction of the Proposed Project would not impair solid waste reduction goals and the Proposed Project would comply with both state and local solid waste standards during construction and operation. Therefore, construction, operations, and maintenance of the Proposed Project would have a **less than significant impact** on utilities and service systems

as it relates to the generation of solid waste in excess of state or local standards or infrastructure capacity; mitigation is not required or recommended.

Impact UT-5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The proposed project is consistent with relevant state and local management plans and regulations. Table 3.19-1 provides a consistency analysis of these respective laws, regulations, and goals adopted for the purpose of avoiding or mitigating environmental effects. Therefore, construction, operations, and maintenance of the proposed project would have **no impact** on utilities as it relates to compliance with solid waste management and reduction statutes and regulations; mitigation is not required or recommended.

Table 3.19-1. Compliance with State and Local Plans, Policies, and Regulations

Goals and Policies	Project Compliance
California Integrated Waste Management Plan of 1989	Compliant. The Proposed Project would comply with Yolo County's CIWMP to reduce the amount of solid waste disposed in landfills and transformed through acts of source reduction, recycling, and composting activities. Construction-generated solid waste would be limited and would be transported to an approved landfill facility with adequate capacity.
Yolo County 2030 Countywide General Plan	
Goal PF-9: Provide safe, cost-efficient, and environmentally responsible solid waste management.	Compliant. Construction-generated solid waste would be limited and would be transported to an approved landfill facility with adequate capacity.
Policy PF-9: Meet or exceed State waste diversion requirements.	Compliant. Solid waste generated during construction would be limited and only occur during construction work. It would not impair solid waste reduction goals and the Proposed Project would comply with both state and local solid waste standards during construction and operation.
Policy PF-9.8: Require salvage, reuse or recycling of construction and demolition materials and debris at all construction sites.	Compliant. Construction-generated solid waste would be transported to an approved landfill facility with adequate capacity.
Policy PF-9.9: Encourage use of salvaged and recycled materials in construction.	Compliant. The Proposed Project would comply with Yolo County's CIWMP to reduce the amount of solid waste disposed in landfills and transformed through acts of source reduction, recycling, and composting activities.

3.20 Wildfire

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
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?	☐	☐	☐	☒

3.20.1 Environmental Setting

The California Department of Forestry and Fire Protection (CAL FIRE) has developed a scale called the Fire Hazard Severity Scale that uses criteria to evaluate and designate potential fire hazards in wildland areas in California and predict the damage a fire is likely to cause. CAL FIRE's fire hazard model has two key elements: probability of an area burning and expected fire behavior. The hazard score is based on the factors that influence fire likelihood and fire behavior such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area.

There are three zones based on increasing fire hazard, which are medium, high, and very high. CAL FIRE has the primary financial responsibility of preventing and suppressing fires in State Responsibility Areas (SRAs). These areas include "lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not; lands that protect the soil from erosion and retard runoff or percolation; lands used principally for range or forage purposes; lands not owned by the federal government; and lands that are not incorporated" (Section 4126). Areas that are not within an SRA are considered to be within a Local Responsibility Area (LRA).

CAL FIRE defines an LRA as incorporated cities, urban regions, agriculture lands, and portions of the desert where the local government has responsibility for wildlife protection (CAL FIRE 2022). This is usually the city fire department, fire protection districts, counties, and by CAL FIRE under contract. All SRAs and LRAs are ranked on the Fire Hazard Severity Scale as Moderate, High, or Very High Fire Hazard Severity Zones (CAL FIRECAL FIRE 2022). According to the CAL FIRE Fire Hazard Severity Zones Map Viewer, the Proposed Project area is not within an SRA and is within an LRA. Specifically, the Proposed Project is located in an unzoned area and a Moderate Fire Hazard Severity Zone within the LRA (CAL FIRE 2007). Additionally, CAL FIRE determined that Yolo County as a whole has no Very High Fire Hazard Severity Zones (VHFHSZs) in the LRA.

3.20.2 Regulatory Framework

This section identifies the applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of wildfires in the IS/MND.

FEDERAL

There are no identified federal plans, policies, and regulations that are relevant to the analysis of wildfires.

STATE

California Government Code Section 65302

The California Government Code Section 65302 requires cities and counties to includes a statement of development policies in their general plan setting forth objectives, principles, standards, and plan proposals for seven policy areas, including safety. The safety element provides guidance for protection of the community from any unreasonable risks associated with wildland and urban fires.

California PRC Titles 14 Natural Resources and 19 Public Safety

CAL FIRE implements fire safety regulations in the state. The California PRC (Title 14 and Title 19) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify the fire suppression equipment that must be provided on site for various types of work in fire-prone areas. CAL FIRE also has developed a ranking system for fire hazard zones within State and Local responsibility areas as described above.

The *2018 Strategic Fire Plan* for California provides the state's road map for reducing the risk of wildfire by providing broad, strategic direction to CAL FIRE. The 2018 Plan includes eight goals and supporting objectives to enhance the protection of lives, property, and natural resources from wildland fire, as well as improve environmental resilience to wildland fire (CAL FIRE 2018).

REGIONAL/LOCAL

Yolo County 2030 Countywide General Plan

The *Health and Safety Element* of the Yolo County *2030 Countywide General Plan* ensures that appropriate consideration of both natural and human-made hazards and risks are factored into

land use decisions. It specifically addresses the protection of the community from any unreasonable risks associated with these hazards and also contains information and policies regarding general emergency preparedness. The general plan element includes the following goal and policies related to wildfires:

- **Goal HS-3:** Protect the public and reduce damage to property from wildfire hazard.
- **Policy HS-3.1**: Manage the development review process to protect people, structures, and personal property from unreasonable risk from wildland fires.
- **Policy HS-3.2**: Encourage well-organized and efficient coordination between fire agencies and the County.
- **Policy HS-3.3**: Clearly communicate the risks, requirements, and options available to those who own land and live in wildfire hazard areas.

3.20.3 Method of Analysis

This section describes the methods used to analyze the impacts on wildfire hazards within the Proposed Project area.

CEQA SIGNIFICANCE CRITERIA

The Proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of wildfires. This includes compliance with all applicable goals and policies set forth by Yolo County.

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis and were reviewed to assess whether the Proposed Project would be consistent with the plans of relevant jurisdictions. The Proposed Project would be generally consistent with the applicable goals, policies, and objectives related to wildfires.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

The methods for determining whether the Project would significantly impact wildfires were developed consistent with the CEQA Guidelines, Appendix G. Accordingly, the following criteria were assessed.

If located in or near state responsibility areas or lands classified as VHFHSZs, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plan?
- 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?

- 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?
- 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?

APPROACH TO ANALYSIS

The evaluation of potential impacts the Proposed Project could have on wildfire hazards was assessed by reviewing existing wildfire conditions in the Proposed Project area and the Proposed Project's potential to exacerbate those conditions during construction and operations. The following methods were utilized to determine potential fire hazards and to evaluate how construction and operation of the Proposed Project would cause new or exacerbate existing wildfire hazards:

- Analysis of CAL FIRE Fire Hazard Severity Zone GIS Map Viewer and Local Responsibility Area (LRA) static map of Yolo County.
- Analysis of construction methods, rights-of-way, and staging areas and their potential to result in wildfire impacts.
- Analysis of operation and maintenance and their potential to result in wildfire impacts.

3.20.4 Impact Analysis

Impact WILD-1: Substantially impair an adopted emergency response plan or emergency evacuation plan?

The Proposed Project is not located in or near an SRA or lands classified as VHFHSZ. According to CAL FIRE, the project area is within an LRA, and CAL FIRE has determined that Yolo County has no VHFHSZs within the LRA. As discussed in Section 3.17, *Transportation*, the labor force and construction vehicles would not cause any roadway closures or detours impacting the existing emergency access during construction, operations and maintenance. Additionally, as discussed in Section 3.9 *Hazards and Hazardous Materials*, evacuation routes in the Proposed Project area, such as CR 116B, would remain open to 2-way traffic during construction. Further, shall an emergency occur that requires evacuation, there would not be any disruption to both fire and police protection services as stated in Section 3.15. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on wildfire as it relates to impairing an adopted emergency response plan or emergency evacuation plan; therefore, mitigation is not required or recommended.

Impact WILD-2: 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?

As stated above, the Proposed Project is located in an LRA outside of a VHFHSZ. The Proposed Project area is generally flat and workers occupying the Proposed Project area would be on-site on a short-term and temporary basis during construction and maintenance. Both the cutoff wall and seepage-stability berm improvements to address seepage in the Sacramento

River Right Bank Levee in Knights Landing, as well as associated utility modifications, would result in similar impacts to wildfire risks. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on wildfire as it relates to the exacerbation of wildfire risks or the exposure of occupants to increased pollutant concentrations of uncontrolled wildfire; no mitigation is required.

Impact WILD-3: Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The Proposed Project is located outside of a VHFHSZ and would not require roads, fuel breaks, or emergency water sources. However, the Proposed Project would require utility modifications, which would be prepared in accordance with the California Public Utility Commissions' General Order 95 Rules (CPUC General Order 95) for Overhead Electric Line Construction and all applicable California Building Codes, which include standards for fire prevention. Furthermore, utility modifications would be done in kind and would not exacerbate fire conditions. Operations and maintenance on the levees would be intermittent and would not include activities that would create fire hazards. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on wildfire as it relates to the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; no mitigation is required.

Impact WILD-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The Proposed Project is not located in or near state responsibility areas or lands classified as a VHFHSZ. While the Proposed Project would result in drainage changes, the Proposed Project would improve flood conditions for the community and structures in Knights Landing. The existing levee slope is not steep, and the levee would be designed and constructed with materials to promote stability and reduce erosion. Therefore, construction, operations, and maintenance of the Proposed Project would have **no impact** on wildfire as it relates to exposing 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. No mitigation is required or recommended.

3.21 Mandatory Findings of Significance

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

3.21.1 Impact Analysis

Impact MFOS-1: 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?

The Proposed Project's levee improvements are intended to benefit the Knights Landing Basin by reducing potential flood impacts. Construction work of the Proposed Project may impact several environmental resources, including Biological Resources, Cultural Resources, Noise, and Tribal Cultural Resources (see Section 3.4 *Biological Resources;* Section 3.5 *Cultural Resources;* Section 3.7 *Geology and Soils,* Section 3.13 *Noise; and* Section 3.18 *Tribal Cultural Resources).* Mitigation has been proposed as part of the Proposed Project to reduce these impacts to less than significant levels. Overall, as detailed in this analysis, although potentially significant impacts to protected wildlife, plant, and aquatic species and habitat would be expected as a result of the Proposed Project, these impacts would not substantially degrade the

quality of the environment, substantially reduce the habitat for wildlife species, cause 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. Operation and maintenance of the Proposed Project would not greatly differ from existing operations and maintenance. Therefore, the Proposed Project would have potentially significant impacts to species and habitat, but with mitigation incorporated, impacts would be reduced to a **less than significant** level and there would be no substantial degradation to the natural conditions or cultural environment.

Mitigation Measures:

See Section 3.4 *Biological Resources*, Section 3.5 *Cultural Resources*, Section 3.7 *Geology and Soils*, Section 3.13 *Noise*, and Section 3.18 *Tribal Cultural Resources*.

Impact MFOS-2: 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)?

Construction work for the Proposed Project would be short term and temporary and would not cause significant impacts to resources that could not be mitigated, including Biological Resources, Cultural Resources, Geology and Soils, Noise, and Tribal Cultural Resources (see Section 3.4 *Biological Resources,* Section 3.5 *Cultural Resources,* Section 3.7 *Geology and Soils,* Section 3.13 *Noise,* and Section 3.18 *Tribal Cultural Resources)*. The Knights Landing Flood Management Project and its various construction projects would provide benefits to the Knights Landing Basin as a while in the form of flood protection to residents and structures in the Knights Landing Basin. Because impacts of the Proposed Project are all construction based, when viewed in combination with past, current, and probable future levee improvements in the Knights Landing Basin, including utility modifications, construction activities could take place in a similar location. However, the Proposed Project's construction timeline would not coincide with construction timelines for other known current or future projects in the area and thus would not have impacts that are individually limited but cumulatively considerable. As a result, impacts would be **less than significant** and no mitigation is required.

Impact MFOS-3: Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

The Proposed Project would not result in any significant, unmitigable impacts to environmental resources, and was developed to be beneficial for the Knights Landing Basin. Construction work would be short term and temporary and would not directly or indirectly cause a substantial adverse impact on human beings. When construction is complete, the levee improvements would have a beneficial effect on people who reside in the Knights Landing Basin. Ongoing maintenance would not differ substantially from current operations. Therefore, the Proposed Project would have **no impact** and no mitigation is required.

4 List of Preparers

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Ch. 1 and 2 Introduction and Project Description

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Appendix A. Scoping Meeting Report

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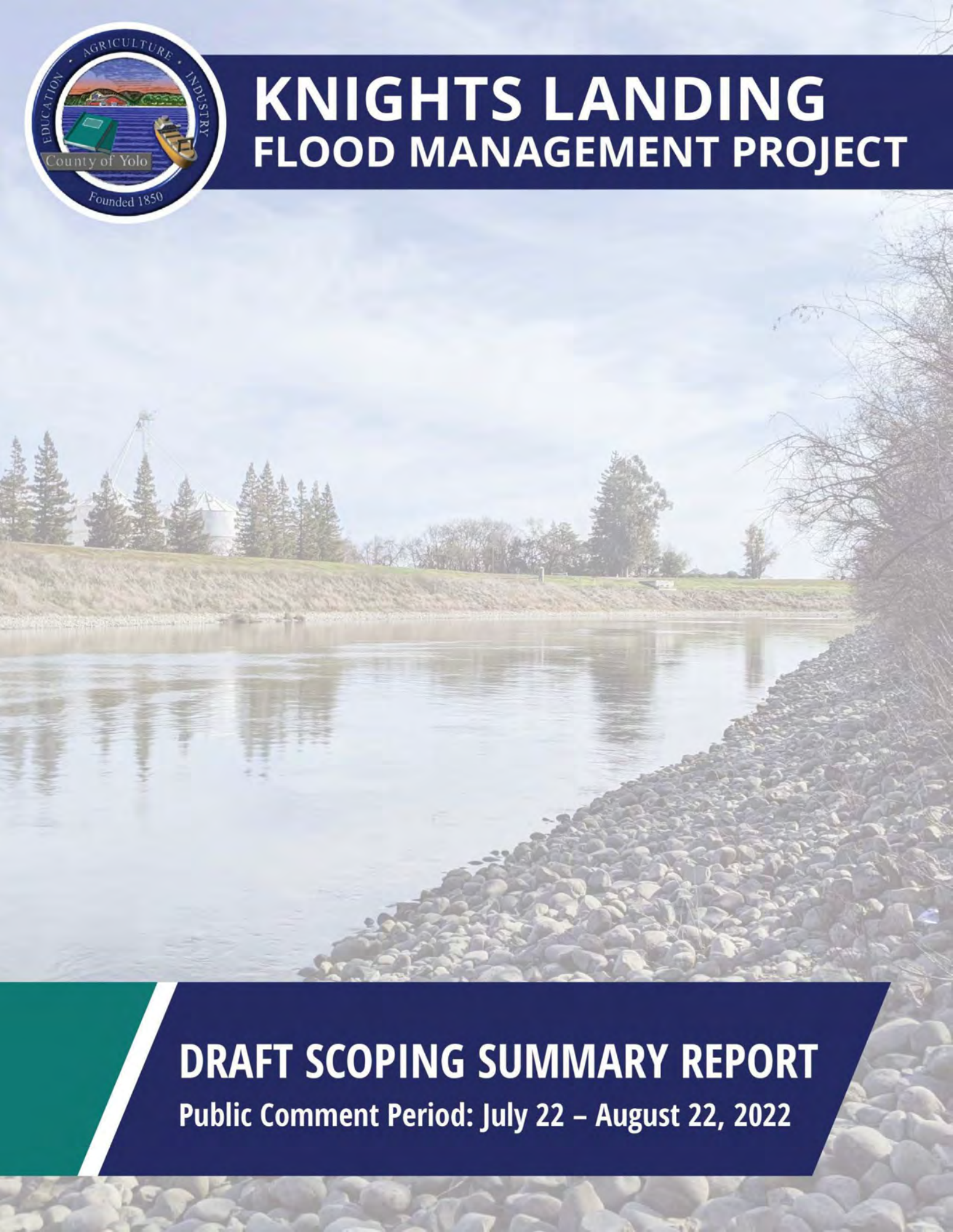
KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT



DRAFT SCOPING SUMMARY REPORT

Public Comment Period: July 22 – August 22, 2022

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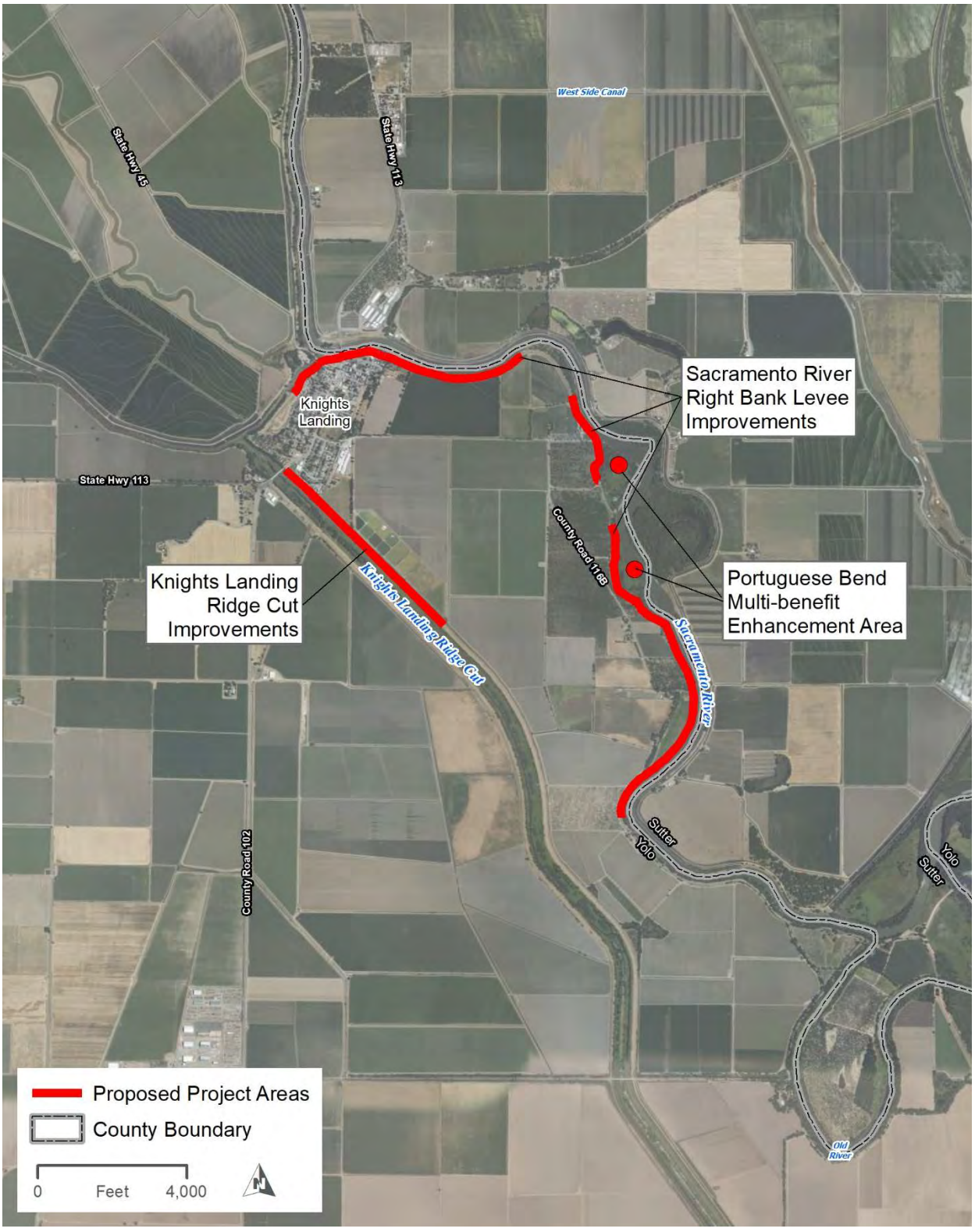
D. Comments Matrix

Introduction / Overview

Yolo County is preparing a CEQA document for the Knights Landing Flood Management Project (Proposed Project) as part of the Department of Water Resources (DWR) Small Communities Flood Risk Reduction Program (SCFRRP). Yolo County is the lead agency under the California Environmental Quality Act (CEQA) and the Knights Landing Ridge Drainage District (KLRDD), DWR, and the California Governor's Office of Emergency Services (Cal OES), are responsible agencies under CEQA. Yolo County is proposing to implement the Proposed Project to provide flood protection for the community of Knights Landing. The purpose of the Proposed Project under the SCFRRP is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability. Multi-benefit enhancement opportunities have been integrated with flood protection improvements into the Proposed Project to enhance the function of the region's flood system, consistent with the objectives of the Central Valley Flood Protection Plan (CVFPP) 2017 Update. The CVFPP strongly supports and encourages the planning and implementation of projects that provide multiple benefits, including increasing flood system resilience by protecting and restoring important ecosystems, and improving water supply, water quality, recreation, and public education related to integrated water management. According to the CVFPP, a multi-benefit approach more efficiently and effectively leverages flood infrastructure to achieve a broader array of public benefits and may potentially increase access to more funding sources.

PROPOSED PROJECT LOCATION

The Proposed Project is in Knights Landing, California, and surrounding areas. Knights Landing is a rural agricultural community located along the Sacramento River 20 miles northwest of Sacramento, California. The Proposed Project improvement and enhancement areas are shown on page 2.


West Side Canal
State Hwy 45
State Hwy 113
Knights Landing
State Hwy 113
Sacramento River Right Bank Levee Improvements
Knights Landing Ridge Cut Improvements
Knights Landing Ridge Cut
County Road 116B
Portuguese Bend Multi-benefit Enhancement Area
Sacramento River
Sutter
Yolo
Yolo
Sutter
County Road 102
Old River
Proposed Project Areas
County Boundary
0
Feet
4,000

PROPOSED PROJECT ELEMENTS

Knights Landing Ridge Cut Improvements:

- Reconstruct landside levee and create a consistent elevation

Sacramento River Right Bank Levee Improvements:

- Address seepage, stability, and freeboard deficiencies through construction of cutoff walls and seepage stability berms

Portuguese Bend Multi-benefit Enhancement Area:

- Restore habitat by controlling invasive species
- Plant native species
- Implement an ongoing management and monitoring program

Notice of Preparation

On July 22, 2022, Yolo County officially launched the environmental process for the Proposed Project with a Notice of Preparation (NOP) for a future CEQA document. The NOP was posted at the State Clearinghouse (SCH# 2022070423) and circulated to public agencies and other interested parties in compliance with Section 15082(a) of the CEQA Guidelines. The NOP notified the public of the future CEQA document being prepared along with public scoping meeting information and how to provide comments on the proposed project during the formal 30-day public scoping period from July 22 to August 22, 2022.

The NOP can be found in **Attachment A**, including the Notice of Completion & Environmental Document Transmittal.

Public Notification / Outreach

To build awareness about the Proposed Project, NOP, and scoping meeting, the project team posted key information online (yolonaturalresources.org) to drive viewers to the project webpage and mailed a bilingual (English and Spanish) postcard to local property owners.

POSTCARD

The bilingual postcard invitation announcing the NOP and public scoping meeting was distributed on July 28, 2022, to all residents with a post office box in Knights Landing. Copies of the postcards are included in **Attachment B**.

WEBSITE

A project-specific page link was developed within Yolo County's Natural Resources website (yolonaturalresources.org) to act as the main hub of information for the public to learn about the project.

Public Engagement

PUBLIC SCOPING MEETING

An in-person public scoping meeting was held on August 3, 2022, at the Knights Landing Community Center (42114 7th Street, Knights Landing). Members of the public were encouraged to attend to learn more about the project, interact with team members, ask questions, and submit formal comments via comment cards. A Spanish interpreter was present and available for translation as needed. Attendees were given a meeting handout that provided information on the open house layout, scoping comment period, and how to submit comments. Scoping meeting materials including display boards, meeting handout, comment card, and sign in sheets are included in **Attachment C**.

Comments Submittal

To provide convenience to interested participants, comments could be submitted through a number of different mediums during the 30-day scoping period. Comments submittal was established via comment card at the public scoping meeting, electronically via email to naturalresources@yolocounty.org, or postal mail to Elisa Sabatini, Yolo County Natural Resources Manager, 625 Court Street, Woodland, CA 95695. Overall, **10 comments** were submitted during the scoping period. A comments matrix including comment cards and letters received during scoping can be found in **Attachment D**.

COMMENT ORIGIN

- 3 letters
    - 2 from state agencies:
        - California Native Heritage Commission
        - California Department of Fish and Wildlife
        - Central Valley Regional Water Quality Control Board
    - 1 from local agencies and organizations:
        - Yocha Dehe Wintun Nation
- Seven comment cards
    - Seven from Public Scoping Meeting on August 3, 2022

COMMENTS DOCUMENTATION / REVIEW

A final step during the formal solicitation of comments during the public scoping comment period is the collection, categorization, and review of all input. Comments/input submitted during the 30-day scoping period were documented and organized by category to allow for easy review by the project team and respective technical disciplines.

Comment Themes

Of the 10 comments submitted during the 30-day scoping period from **July 22 to August 22, 2022,** the following comment themes were identified.

- **Aesthetics and Revegetation**
- **Community Benefits**
- **Cross Levee**
- **Traffic/Transportation Circulation**

Next Steps

Yolo County is currently reviewing input received during the public scoping period to prepare the CEQA document that will evaluate potentially significant environmental impacts of the Proposed Project. The next key project milestone will be the release of the CEQA document for public review in fall 2023.

Notice of Preparation

County of Yolo
DEPARTMENT OF COMMUNITY SERVICES

Taro Echiburú,
DIRECTOR

Natural Resources Division
292 West Beamer Street
Woodland, CA 95695
P: (530) 666-8775 | F: (530) 666-8156
www.yolonaturalresources.org

NOTICE OF PREPARATION

ENVIRONMENTAL IMPACT REPORT FOR THE

KNIGHTS LANDING FLOOD MANAGEMENT PROJECT

SMALL COMMUNITY FLOOD RISK REDUCTION PROGRAM

JULY 2022

Introduction

Yolo County is preparing a Draft Environmental Impact Report (EIR) for the Knights Landing Flood Management Project (Proposed Project) as part of the Department of Water Resources (DWR) Small Communities Flood Risk Reduction Program (SCFRRP). Yolo County is the lead agency under the California Environmental Quality Act (CEQA) and the Knights Landing Ridge Drainage District (KLRDD), DWR, and the California Governor's Office of Emergency Services (Cal OES), are responsible agencies under CEQA. Yolo County is proposing to implement the Proposed Project to provide flood protection for the community of Knights Landing. The purpose of the Proposed Project under the SCFRRP is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability. Multi-benefit enhancement opportunities have been integrated with flood protection improvements into the Proposed Project to enhance the function of the region's flood system, consistent with the objectives of the Central Valley Flood Protection Plan (CVFPP) 2017 Update. The CVFPP strongly supports and encourages the planning and implementation of projects that provide multiple benefits, including increasing flood system resilience by protecting and restoring important ecosystems, and improving water supply, water quality, recreation, and public education related to integrated water management. According to the CVFPP, a multi-benefit approach more efficiently and effectively leverages flood infrastructure to achieve a broader array of public benefits and may potentially increase access to more funding sources.

Background

In 2017, Yolo County received a grant from the DWR SCFRRP to complete a Feasibility Study to evaluate structural and non-structural actions that could reduce flood risk to Knights Landing. Yolo

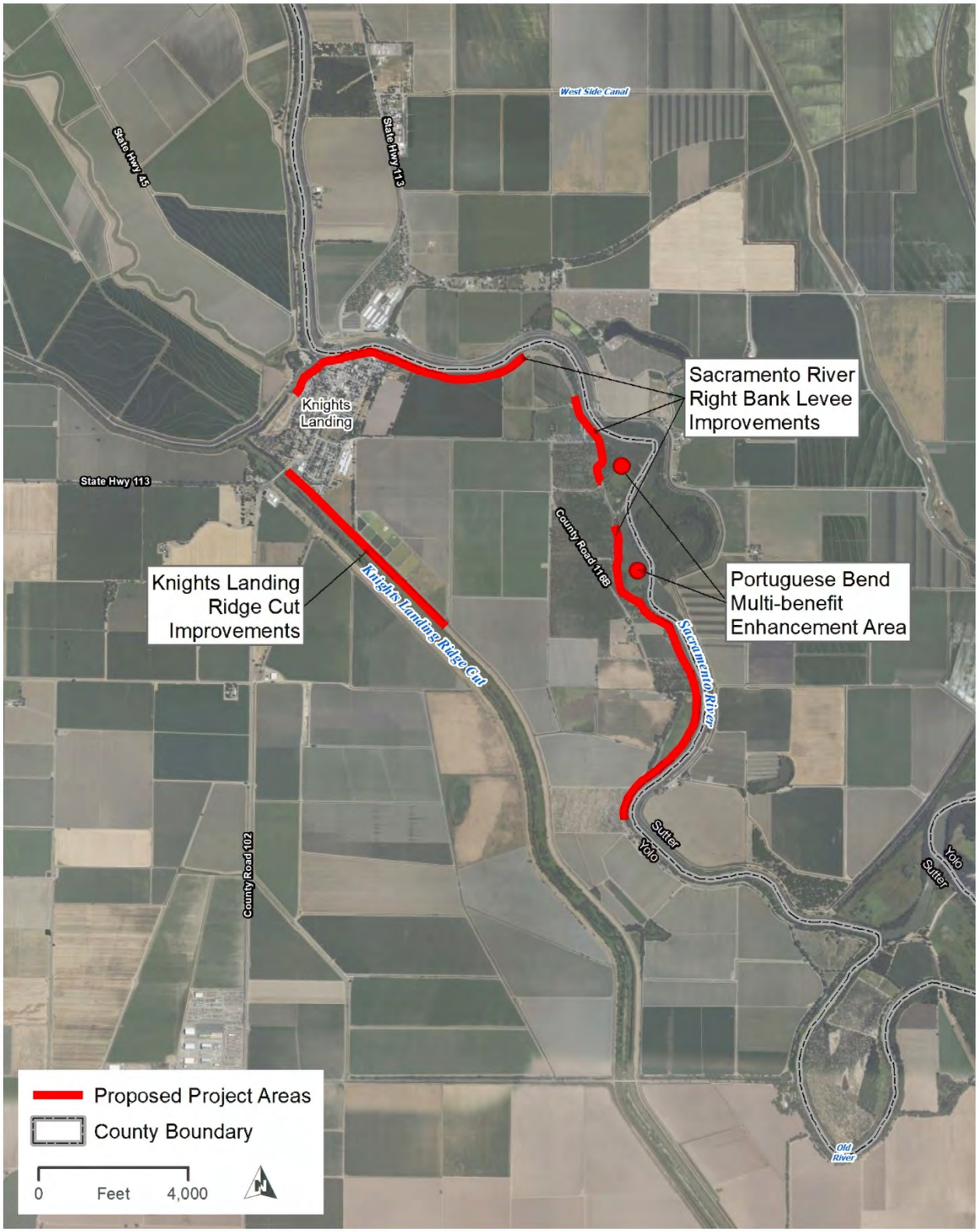
County prepared the 2019 Knights Landing Small Community Flood Risk Reduction Feasibility Study, which analyzed several alternatives and ultimately identified a preferred alternative, for levee remediation in the Knights Landing Basin. DWR reviewed the Feasibility Study for further implementation and funding and awarded additional grant funding to Yolo County in 2020 as part of the SCFRRP Phase 2. The Knights Landing Flood Management Project under the SCFRRP Phase 2 agreement includes the following components: the design and permitting of levee improvements along the Sacramento River Right Bank; the design and permitting of levee improvements along the Knights Landing Ridge Cut; the design, permitting, and construction of levee improvements at the Sacramento River Right Bank, Mid-Valley Sites 9, 10, and 11; completion of Phase 1 concepts for the Portuguese Bend and Grays Bend Habitat enhancement projects; the design and permitting of the drainage infrastructure improvements in the community of Knights Landing; and the preliminary design of a New Cross Levee. The Mid-Valley Sites 9, 10, and 11 (SCH # 2021120063) and drainage infrastructure improvements (SCH # 2022030394) in the community of Knights Landing have been analyzed in separate, previous CEQA documents.

Therefore, the Proposed Project includes three elements: the Sacramento River Right Bank Levee improvements, the Knights Landing Ridge Cut improvements, and the Portuguese Bend multi-benefit enhancement area. Yolo County is in the process of developing the engineering design for these three elements as described below.

Project Location

The Proposed Project is located in Knights Landing, California and surrounding areas. Knights Landing is a rural agricultural community located along the Sacramento River 20 miles northwest of Sacramento, California. The Proposed Project work areas are shown in Figure 1.

Figure 1: Location of Proposed Project Sites.



Sacramento River Right Bank Levee Improvements

The proposed Sacramento River Right Bank Levee improvements would address under-seepage, through-seepage, stability, and freeboard deficiencies. To address under- and through-seepage, from levee mile 0.0. to 0.75 adjacent to the community of Knights Landing, an 80-foot-deep clay cutoff wall would be installed through the center of the existing Sacramento River Right Bank Levee. The construction area would extend approximately 0.75 miles along the Sacramento River Right Bank Levee (see Figure 1). Additional improvements along the Sacramento River Right Bank Levee are proposed downstream of Knights Landing to address seepage. Seepage areas would be addressed by either constructing seepage stability berms or cutoff walls. For the construction of cutoff walls, the existing levee would need to be degraded by half its height for the installation of the cutoff wall, and then rebuilt. Large earthmoving construction equipment would be used to complete the improvements. The levee will be reconstructed to meet current levee standards and attain a 100-year design surface water elevation. The construction work area would include an access corridor on the landside toe of the existing levee. All construction staging and material stockpiling would occur along the levee as construction progresses down the levee and would take place within the construction work areas. Access to the construction work areas would be from the levee or County Road 116B. The construction work area would include an access ramp up onto the existing levee. No residents would be displaced as a result of the proposed seepage improvements. While some private parcels may be affected, no buildings or structures would be removed.

Knights Landing Ridge Cut Improvements

The proposed Knights Landing Ridge Cut improvements would occur southwest of Knights Landing (see Figure 1) and would include clearing and grubbing of trees and vegetation, excavating the face of the existing landside levee slope, and reconstructing the levee with imported fill to widen the levee crown and create a consistent elevation along the levee. The proposed improvements on the landside of the Knights Landing Ridge Cut Levee would also include remediation of existing levee encroachments, including but not limited to removal of levee pipe penetrations, relocation of PG&E power poles, and replacement of levee gates. The finished levee crown elevation would be reconstructed a minimum elevation of 43 feet.

Large earthmoving construction equipment would be used during construction. The proposed improvements can be accessed via existing levee ramps and temporary earthen ramps. Proposed haul routes include Locust Street and existing agricultural/farm roads. These access routes would be used by two-way traffic. The proposed haul routes are currently used as agricultural roads and may require grading or crushed rock surface to be placed in order to support construction vehicles. Construction staging areas would be located, to the extent practicable, away from sensitive resource areas and known cultural resources. Construction staging and material stockpiling would occur along the levee as construction progresses down the levee. A wider area within the northwest portion of the proposed construction area would likely be used for parking construction trailers and vehicles. No residents would be displaced as a result of the proposed improvements to the Knights Landing Ridge Cut Levee. While some private parcels may be affected, no buildings or structures would be removed.

Portuguese Bend Multi-Benefit Enhancement Area

The Portuguese Bend multi-benefit enhancement area would protect and restore habitat in line with the objectives of the CVFPP 2017 Update within an approximately 136-acre area located between the levees of the Sacramento River known as Portuguese Bend (see Figure 1). Situated southeast of Knights Landing and along the eastern perimeter of the Knights Landing Basin, the habitat improvements within Portuguese Bend include controlling invasive plant species, planting native species, and implementing an ongoing management and monitoring program. The native species to be planted would replicate and enhance the existing native habitat within the area including the existing mixed riparian forest, riparian willow forest, emergent marsh, and tule marsh plant communities. The planting would be implemented appropriate to the site's topography and hydrology to ensure the long-term viability of the enhanced plant communities. The use of heavy equipment is not anticipated; passenger vehicles and light trucks would be used to facilitate planting. Access to the work areas would be from County Road 116B. Staging would occur either on top of the levee or on the exposed areas and dirt roads that are located on the site. No residents would be displaced as a result of the proposed freeboard and seepage improvements. While some private parcels may be affected, no buildings or structures would be removed.

Construction Schedule

The Proposed Project would be constructed over a three-to-four-year period. The anticipated construction sequence of proposed levee improvements would consist of constructing the Knights Landing Ridge Cut improvements first and then constructing the Sacramento River Right Bank Levee improvements. Construction of each of the aforementioned proposed levee improvement elements would occur in one construction season. Construction is anticipated to begin in 2024 and last through 2027, depending on permit approvals and conditions. The Portuguese Bend multi-benefit enhancement area would be constructed within the next five years.

Operations and Maintenance

Upon completion of construction, Yolo County Service Area No. 6 (CSA 6) would continue to perform routine maintenance in the area of the Sacramento River Right Bank Levee improvements. The KLRDD would continue to perform routine operation and maintenance activities in the area of the Knights Landing Ridge Cut improvements. It is anticipated that the Yolo Habitat Conservancy would perform routine maintenance in the Portuguese Bend multi-benefit enhancement area. Routine operation and maintenance activities may include vegetation control, rodent control, and maintenance of levee patrol roads.

Permits and Approvals

Anticipated permits and approvals for the Proposed Project are listed in Table 1.

Table 1. Permits and Approvals

Agency	Type of Approval
U.S. Army Corps of Engineers	Section 408 Authorization
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement
California Native American Heritage Commission	Consultation for effects on Native American burials or artifacts
Central Valley Flood Protection Board	Encroachment Permit
Regional Water Quality Control Board	CWA Section 402 National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activities CWA Section 401 Water Quality Certification
Yolo Habitat Conservancy	Yolo Habitat Conservation Plan and Natural Community Conservation Plan Compliance
Yolo-Solano Air Quality Management District	Consultation for Authority to Construct/Permit to Operate

Environmental Review

Yolo County has preliminarily determined that the Proposed Project could have potentially significant environmental impacts. The Draft EIR will discuss the potential environmental impacts of the Proposed Project and will identify mitigation measures to avoid or substantially reduce any potentially significant impacts, to the extent feasible. Yolo County will also identify and consider feasible alternatives to the Proposed Project in the Draft EIR analysis. Based on preliminary analysis, the anticipated level of environmental impacts as a result of the Proposed Project for a range of resource areas have been identified in Table 2.

Table 2. Estimated Environmental Impacts

Environmental Resource Area	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Aesthetics	☐	☒	☐	☐
Agriculture and Forestry Resources	☒	☐	☐	☐
Air Quality	☐	☒	☐	☐
Biological Resources	☐	☒	☐	☐
Cultural Resources	☒	☐	☐	☐
Energy	☐	☐	☐	☒
Geology and Soils	☐	☒	☐	☐
Greenhouse Gas Emissions	☐	☒	☐	☐
Hazards and Hazardous Materials	☐	☐	☒	☐
Hydrology and Water Quality	☐	☒	☐	☐
Land Use and Planning	☐	☐	☒	☐
Mineral Resources	☐	☐	☐	☒
Noise	☐	☒	☐	☐
Population and Housing	☐	☐	☒	☐
Public Services	☐	☐	☒	☐
Recreation	☐	☐	☒	☐
Transportation	☐	☒	☐	☐
Tribal Cultural Resources	☐	☒	☐	☐
Utilities and Service Systems	☐	☐	☒	☐
Wildfire	☐	☒	☐	☐

This list in Table 2 is not intended to be all-inclusive or to imply a predetermination of impacts. Yolo County invites interested stakeholders to suggest specific issues, including possible mitigation measures, within these general categories or other categories not included above, to be considered in the Draft EIR. Alternatives to the Proposed Project are still being evaluated and will be analyzed further in the Draft EIR.

Scoping and Public Involvement Process

Written comments and suggestions concerning the Proposed Project must be received by August 22, 2022, and sent to Elisa Sabatini, Yolo County Natural Resources Manager at 292 W. Beamer Street, Woodland, CA 95695, or by e-mail to naturalresources@yolocounty.org. Questions about the Proposed Project and Draft EIR should also be addressed to Elisa Sabatini.

A public scoping meeting will be held on August 3, 2022, to present information about the Proposed Project and Yolo County's decision-making processes, and to listen to the views of the public on the range of issues relevant to the scope and content of the Draft EIR. The details of the scoping meeting are as follows:

Knights Landing Flood Management Public Scoping Meeting

Wednesday, August 3, 2022
5:30 – 7:30 p.m.
Knights Landing Community Center
42114 7th St, Knights Landing, CA 95645

The Draft EIR is scheduled to be available for public review and comment in the fall/winter of 2022. A 45-day public review period will be provided for individuals, interested parties, and agencies to review and comment on the Draft EIR. All interested parties are encouraged to respond to this notice and provide a current email address and contact information if they wish to be notified of the Draft EIR circulation.

Project information will also be posted periodically at www.yolonaturalresources.org.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Knights Landing Flood Management Project, Small Community Flood Risk Reduction Program

Lead Agency: Yolo County | Contact Person: Elisa Sabatini

Mailing Address: 292 W. Beamer Street | Phone: (530) 406-5773

City: Woodland | Zip: 95695 | County: Yolo

Project Location: County: Yolo | City/Nearest Community: Knights Landing

Cross Streets: Locust Street (State Highway 113) and County Road 116 | Zip Code: 95776

Longitude/Latitude (degrees, minutes and seconds): 38 ° 47 ′ 45.45 ″ N / -121 ° 43 ′ 20.49 ″ W Total Acres: To be determined

Assessor's Parcel No.: Multiple | Section: Multiple | Twp.: Multiple | Range: Multiple | Base: NA

Within 2 Miles: State Hwy #: 113 | Waterways: Sacramento River

Airports: None | Railways: None | Schools: Science and Technology Academy, Grafton School

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: Levee Reconstruction

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type
☒ Other: Levee

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Agricultural Land ☐ Air Quality ☐ Archeological/Historical ☐ Biological Resources ☐ Coastal Zone ☐ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☐ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☐ Geologic/Seismic ☐ Minerals ☐ Noise ☐ Population/Housing Balance ☐ Public Services/Facilities
☐ Recreation/Parks ☐ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☐ Soil Erosion/Compaction/Grading ☐ Solid Waste ☐ Toxic/Hazardous ☐ Traffic/Circulation
☐ Vegetation ☐ Water Quality ☐ Water Supply/Groundwater ☐ Wetland/Riparian ☐ Growth Inducement ☐ Land Use ☐ Cumulative Effects ☒ Other: Project Issues to be discussed in EIR

Present Land Use/Zoning/General Plan Designation:

Agriculture, Parks and Recreation, Commercial, Public, Residential, Open Space

Project Description: *(please use a separate page if necessary)*

Yolo County is proposing to implement the Proposed Project to provide flood protection for the community of Knights Landing. The purpose of the Proposed Project under the Small Community Flood Risk Reduction Program is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability. The Proposed Project includes three elements: the Sacramento River Right Bank Levee improvements to address seepage and freeboard deficiencies using cutoff walls and seepage stability berms; the Knights Landing Ridge Cut improvements to widen and raise the levee; and the Portuguese Bend multi-benefit enhancement area to restore habitat by controlling invasive species, planting native species, and implementing an ongoing management and monitoring program. Yolo County as the lead agency, with the California Governor's Office of Emergency Services, the Department of Water Resources and the Knights Landing Ridge Drainage District as responsible agencies, is in the process of developing the engineering design for these three elements.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

____	Air Resources Board	x	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	____	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
____	Caltrans District # ____	x	Public Utilities Commission
____	Caltrans Division of Aeronautics	x	Regional WQCB # 5
____	Caltrans Planning	____	Resources Agency
x	Central Valley Flood Protection Board	____	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
____	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
x	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	____	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
x	Fish & Game Region # 2	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	____	Toxic Substances Control, Department of
____	Forestry and Fire Protection, Department of	x	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	x	Other: California Governor's Office of Emergency Services
____	Housing & Community Development	x	Other: Knights Landing Ridge Drainage District
x	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date July 22, 2022 Ending Date August 22, 2022

Lead Agency (Complete if applicable):

Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: _____

Applicant: Elisa Sabatini
Address: 292 W. Beamer Street
City/State/Zip: Woodland, CA 95695
Phone: (530) 406-5773

Signature of Lead Agency Representative: Elisa Sabatini Digitally signed by Elisa Sabatini Date: 2022.07.21 11:32:54 -07'00' **Date:** 07/20/2022

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Bilingual Postcard Mailer

PUBLIC NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT AND PUBLIC SCOPING MEETING

for the

KNIGHTS LANDING FLOOD MANAGEMENT PROJECT

WEDNESDAY, AUGUST 3 @ 5:30 PM

KNIGHTS LANDING COMMUNITY CENTER

42114 7th St, Knights Landing, CA 95645

For more information on the meeting and the project, please visit www.yolonaturalresources.org.

AVISO PÚBLICO DE PREPARACIÓN DE INFORME DE IMPACTO AMBIENTAL Y REUNIÓN PÚBLICA DE ALCANCE

para el

PROYECTO DE MANEJO DE INUNDACIONES DE KNIGHTS LANDING

MIÉRCOLES 3 DE AGOSTO A LAS 5:30 PM

CENTRO COMINITARIO DE KNIGHTS LANDING

42114 7th St, Knights Landing, CA 95645

Para obtener más información sobre la reunión y el projecto, por favor visite www.yolonaturalresources.org.

Scoping Meeting Materials

PROJECT OVERVIEW

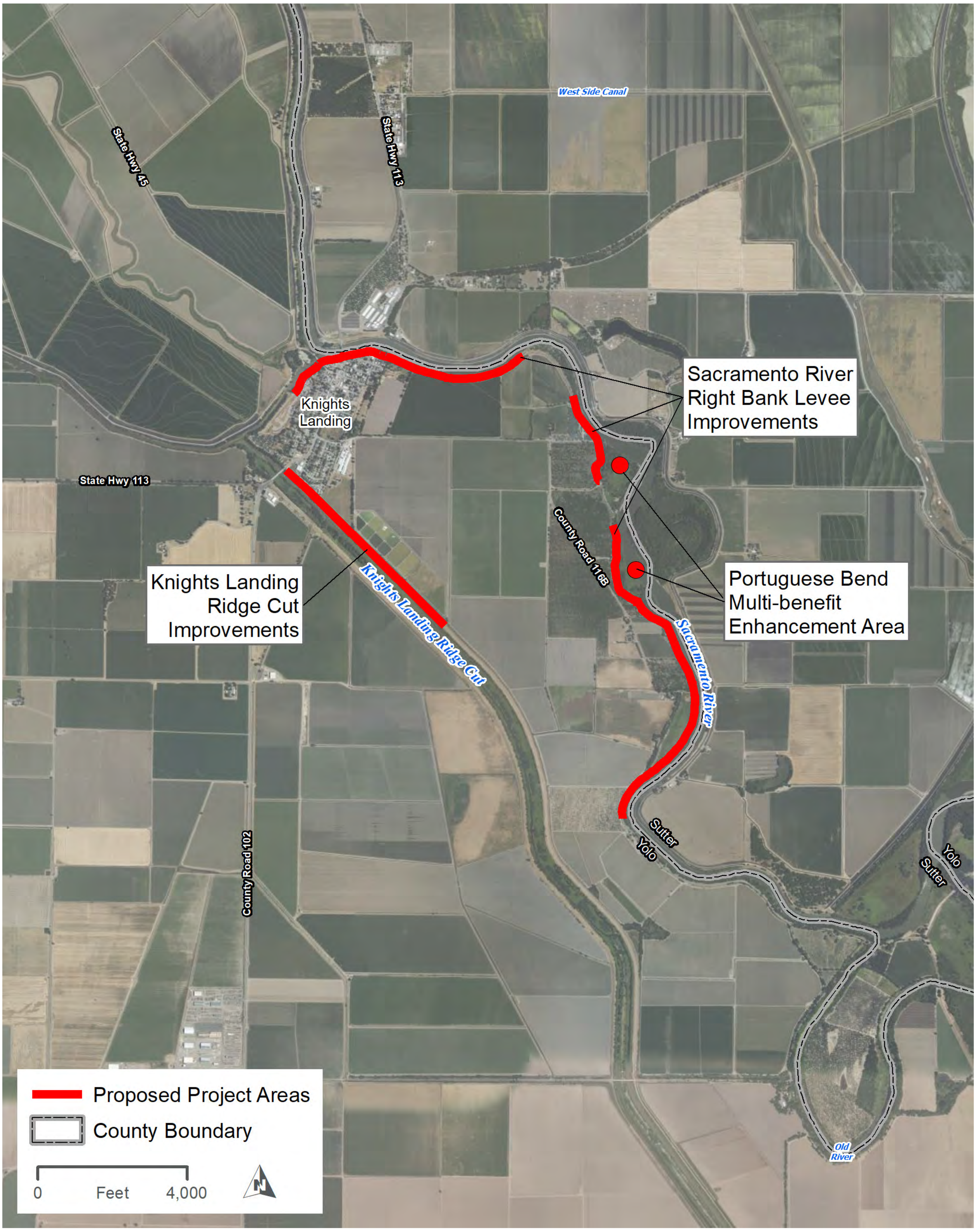
Yolo County is preparing an Environmental Impact Report (EIR) for the Knights Landing Flood Management Project.

The purpose of the Project is to attain a 100-year level of flood protection for the community of Knights Landing and reduce the flood risk to the Knights Landing Basin while sustaining agriculture and the regional economy, providing safe access to the river, and improving the riverine habitat viability.

Multi-benefit enhancement opportunities have been integrated with flood protection improvements into the Project to enhance the function of the region's flood system, consistent with the objectives of the Central Valley Flood Protection Plan 2017 Update.

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

PROPOSED PROJECT AREAS



KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

PROPOSED PROJECT ELEMENTS

Knights Landing Ridge Cut Improvements:

- reconstruct landside levee and create a consistent elevation

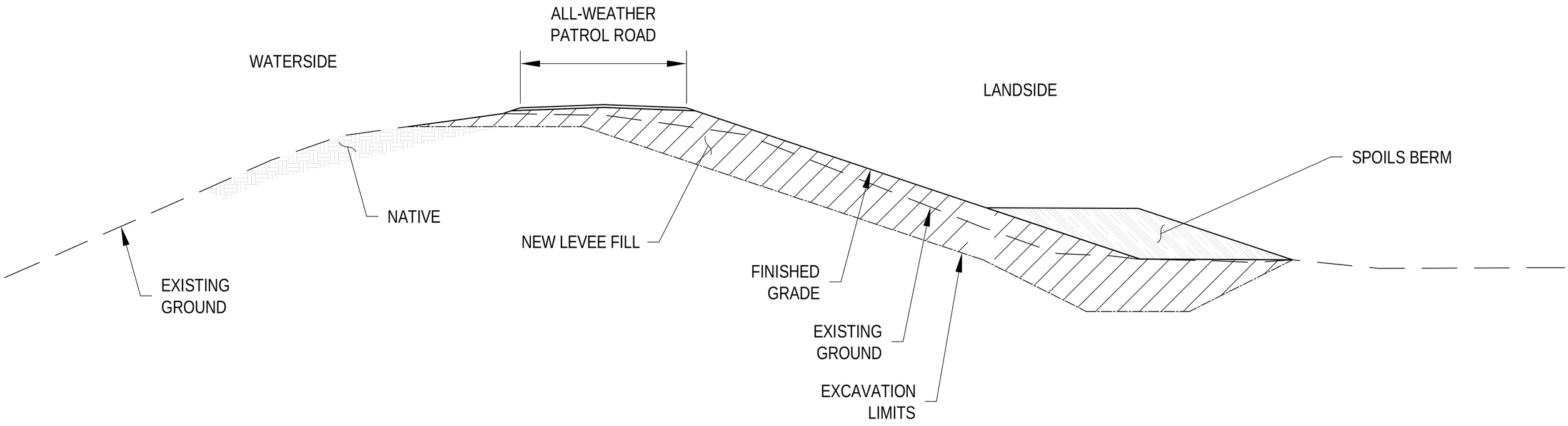
Sacramento River Right Bank Levee Improvements:

- address seepage, stability, and freeboard deficiencies through construction of cutoff walls and seepage stability berms

Portuguese Bend Multi-benefit Enhancement Area:

- restore habitat by controlling invasive species
- plant native species
- implement an ongoing management and monitoring program

PROPOSED KNIGHTS LANDING RIDGE CUT IMPROVEMENTS



1 PROPOSED TYPICAL DESIGN CROSS SECTION

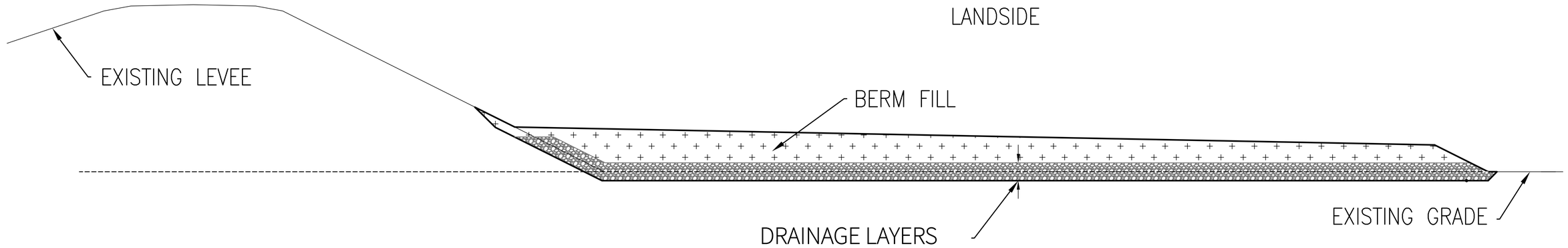
Not to Scale

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

PROPOSED SACRAMENTO RIVER RIGHT BANK IMPROVEMENTS

Seepage Berm

- Addresses underseepage

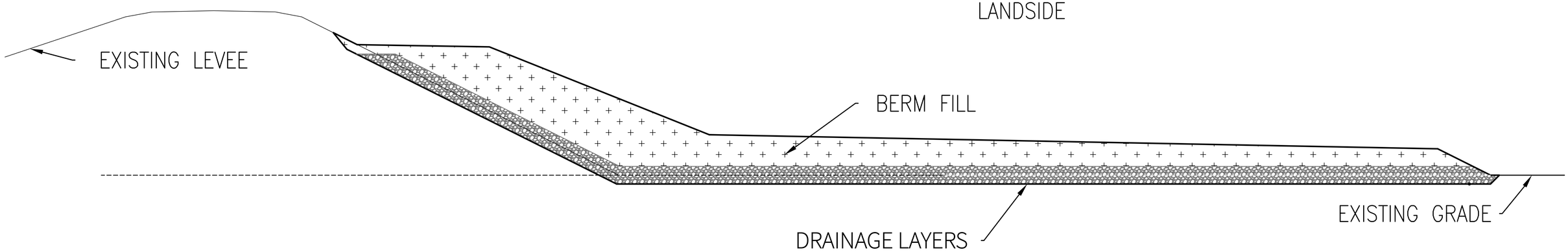


Conceptual cross section - not for design or construction

PROPOSED SACRAMENTO RIVER RIGHT BANK IMPROVEMENTS

Combination Seepage-Stability Berm

- Addresses underseepage, through seepage, and stability
- Sacramento River right bank



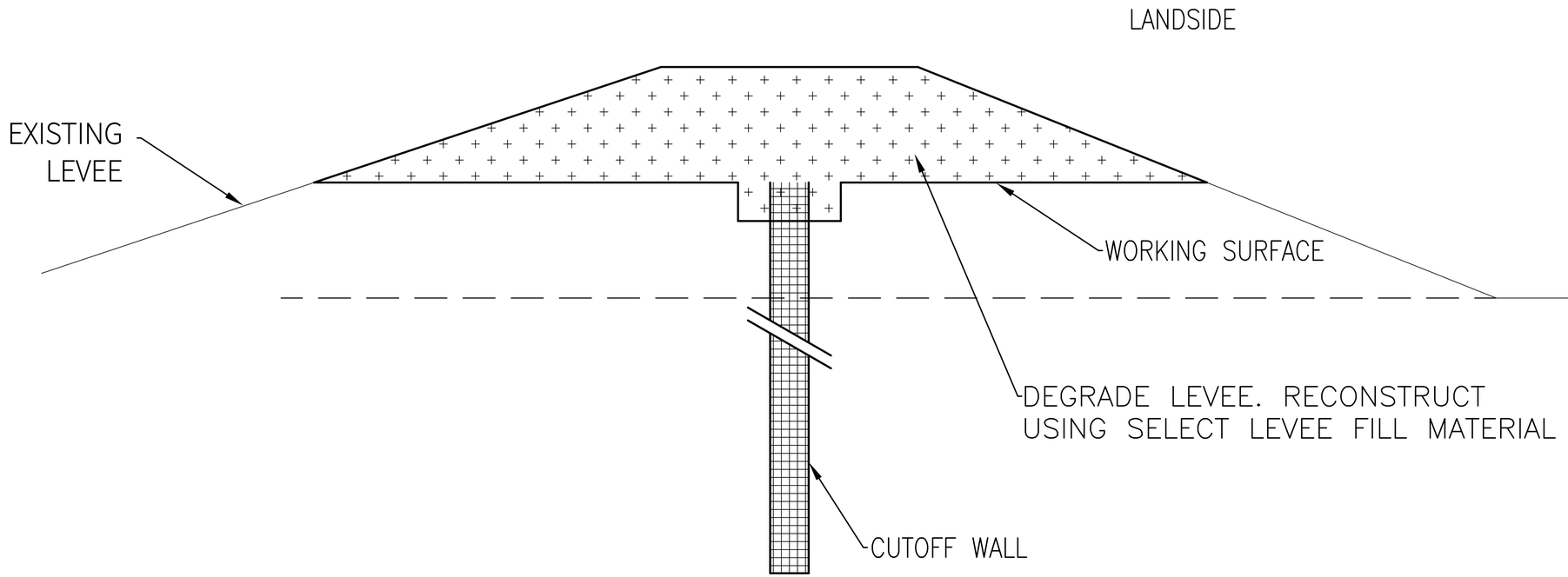
Conceptual cross section - not for design or construction

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

PROPOSED SACRAMENTO RIVER RIGHT BANK IMPROVEMENTS

Cutoff Wall

- Addresses through seepage and underseepage (depending on depth)
- Sacramento River right bank



Conceptual cross section - not for design or construction

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Informs decision-makers and public of potential environmental effects

Increases public understanding and participation in environmental review process

Discloses potential impacts to environment

Identifies measures to avoid impacts and mitigation measures to reduce impacts

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

CEQA PROCESS

- Yolo County is the CEQA lead agency preparing the EIR
- There are additional opportunities for public participation during the EIR development
- The Draft EIR will evaluate potentially significant environmental impacts of the Project and invite the public and agencies to review and comment

1 **Notice of Preparation**
(July 22 - August 22, 2022)

Public Scoping Meeting
(August 3, 2022)

SUMMER **2022**

WE ARE HERE

2 **Prepare Draft EIR**

SUMMER/FALL **2022**

3 **Prepare Public Notice of Draft EIR Availability**

FALL **2022**

4 **Public & Agency Review of Draft EIR**
(45-day Review Period)

FALL **2022**

5 **Review Comments from Public & Agencies**

FALL **2022**

6 **Prepare Final EIR including Response to Comments**

WINTER **2022/2023**

7 **Yolo County Board of Supervisors Approval**

WINTER **2023**

8 **Final Notice of Determination**

WINTER **2023**

Opportunities for Public Input

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

GET INVOLVED

We want to hear from you!

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

naturalresources@yolocounty.org

Fill out a comment card today!

yolonaturalresources.org

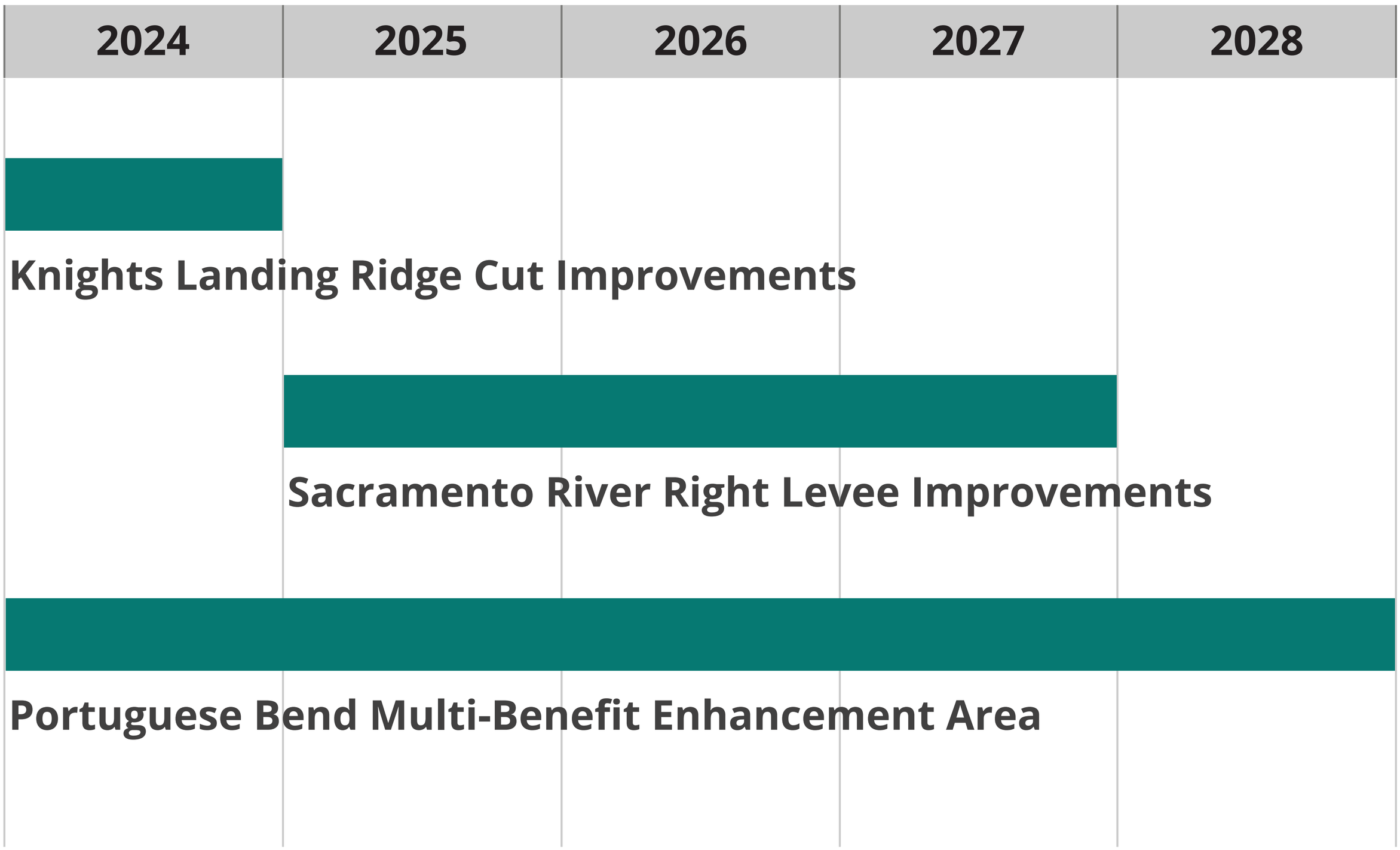
Comments must be received by August 22, 2022 @ 5 p.m.

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

PROPOSED PROJECT SCHEDULE

- Construction for levee improvements is anticipated to begin in 2024 and last through 2027, depending on permit approvals, conditions, and securing funding

- The Portuguese Bend multi-benefit enhancement area would be constructed within the next 5 years



KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

KNIGHTS LANDING FLOOD MANAGEMENT PROJECT

Public Scoping Meeting
Wednesday, August 3, 2022 | 5:30 – 7:30 p.m.
Knights Landing Community Center
42114 7th Street, Knights Landing, CA 95645

Welcome Guide | Thank you for attending the Public Scoping Meeting

Yolo County welcomes you to the Knights Landing Flood Management Project Public Scoping Meeting for preparation of a Draft Environmental Impact Report (Draft EIR).

Tonight, you can:

- Speak with project team members
- Review displays and Project information
- Submit comments via comment card regarding the Project and preparation of the Draft EIR

Open House Layout | Visit with team members to learn more about the Project and ask questions

This is your opportunity to ask questions and provide comments to help inform the Draft EIR. We want to hear from you! Display boards have been prepared with the following information:

- Project Overview
- Proposed Project Areas
- Proposed Project Elements
- Proposed Knights Landing Ridge Cut Improvements
- Proposed Sacramento River Right Bank Improvements
  - Seepage Berm
  - Combination Seepage-Stability Berm
  - Cutoff Wall
- CEQA
- CEQA Process
- Get Involved
- Proposed Project Schedule

Scoping Comment Period | July 22 to August 22, 2022

The California Environmental Quality Act (CEQA) requires Yolo County as the CEQA lead agency to invite the public to review and participate in the environmental process. Yolo County issued a Notice of Preparation of the Draft EIR on July 22, 2022 for a 30 day public review and comment period that will end on August 22, 2022. Written comments about the Project and preparation of the Draft EIR can be submitted via the following options:

- Fill out a comment card and leave it with us tonight
- Email comments to: **naturalresources@yolocounty.org**
- Mail comments to:

  Elisa Sabatini
  Yolo County Natural Resources Manager
  625 Court Street
  Woodland, CA 95695

For more Project information, please visit yolonaturalresources.org.
Thank you for joining us this evening, we appreciate your time and participation.

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: _____

Address: _____

_____

Phone Number: _____

E-mail: _____

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

Please
Place
Stamp
Here

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Public Scoping Meeting

Wednesday, August 3, 2022 | 5:30 to 7:30 p.m.
Knights Landing Community Center
42114 7th Street, Knights Landing, CA 95645

NAME	COMPANY/ORGANIZATION	ADDRESS, CITY & ZIP	EMAIL	PHOTO PERMISSION*
1. Barry O'Regan	KSN INC.	1580 Melody Blvd, Woodland	boregan@ksninc.com	☑
2. Wilson Zhu	KSN, INC.	" "	wzhu@ksninc.com	☑
3. Bill Driver	Self	P.O Box 577 K.L 95645	NA	☐
4. [redacted]	Self	N/A KNIGHTSLANDING CA.	N/A	NO ☐ N/A
5. Glen Barton	Self	36 Grand Ave Woodland	N/A	☑
6. JEREMY BRYSON	"	9263 Rd 98 Road	JeremyBryson@msn.com	☑
7. Jose Gutierrez		42032 Dixon St	joseGtz9211@gmail.com	☐
8. Jerry Rose	Self	PO Box 878 95645	NA	NO ☐
9. BRIAN BARTON	SELF	1728 COX PL WOODLAND CA 95776	BBR258@yahoo.com	☑
10. [redacted]	Me	9755 county Rd 116B woodland CA 95776		☐
11. Maria Martinez	Self	9738 Hardy St K.L.	maria.martinez@wjusd.org	☐
12. Catalina Ruiz	Self	4040 Sycamore St K.L.	Catamsruiz@gmail.com	☐
13. [redacted]	Self			☐
14. Nalidelh M	DWR			☐
15.				☐
16.				☐

I grant my permission to use my likeness in a photograph, video, or other digital media.

NAME	COMPANY/ORGANIZATION	ADDRESS, CITY & ZIP	EMAIL	PHOTO PERMISSION*
1. Pedro Ibarra				☒
2. Daniel Dalton		PO BOX 503 K.L.		☐
3. Herb + Lynnel Pollock		PO Box 468 Yolo 95695	Yoloranche yolo.net	☒
4. MICHAEL MIERZWA	CA DEPT. WATER RESOURCES		MICHAEL.MIERZWA@WATER.CA.GOV	☑
5. Kelley Falk		PO Box 906 KL 95645	kelleyfalk@me.com	☑
6. Rafael Maestu		PO Box 906 KL 95645	rmaestu@hotmail.com	☑
7. Anita CAStro		POBOX 83 95645		☐
8.				☐
9.				☐
10.				☐
11.				☐
12.				☐
13.				☐
14.				☐
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21.				☐

I grant my permission to use my likeness in a photograph, video, or other digital media.

Comments Matrix

Comment Date	Comment Origin	Comment
July 22, 2022	Letter	Elisa Sabatini Yolo County 292 W. Beamer Street Woodland, CA 95695 **Re: 2022070423, Knights Landing Flood Management, Small Community Flood Risk Reduction Program Project, Yolo County** Dear Ms. Sabatini: The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE). CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, “tribal cultural resources” (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18**

Comment Date	Comment Origin	Comment
		and AB 52 have tribal consultation requirements. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply. The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**. <u>AB 52</u> AB 52 has added to CEQA the additional requirements listed below, along with many other requirements: 1. <u>Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:</u> Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes: a. A brief description of the project. b. The lead agency contact information. c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)). d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073). 2. <u>Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report:</u> A lead agency shall begin the consultation process within 30 days of receiving a request

Comment Date	Comment Origin	Comment
		for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)). a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)). 3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation: a. Alternatives to the project. b. Recommended mitigation measures. c. Significant effects. (Pub. Resources Code §21080.3.2 (a)). 4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation: a. Type of environmental review necessary. b. Significance of the tribal cultural resources. c. Significance of the project's impacts on tribal cultural resources. d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)). 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

Comment Date	Comment Origin	Comment
		6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following: a. **Whether the proposed project has a significant impact on an identified tribal cultural resource.** b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)). 7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs: a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)). 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)). 9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

Comment Date	Comment Origin	Comment
		10. <u>Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:</u> a. Avoidance and preservation of the resources in place, including, but not limited to: i. Planning and construction to avoid the resources and protect the cultural and natural context. ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria. b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: i. Protecting the cultural character and integrity of the resource. ii. Protecting the traditional use of the resource. iii. Protecting the confidentiality of the resource. c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places. d. Protecting the resource. (Pub. Resource Code §21084.3 (b)). e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)). f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991). 11. <u>Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:</u> An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

Comment Date	Comment Origin	Comment
		a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2. b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process. c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)). The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf <u>SB 18</u> SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf. Some of SB 18's provisions include: 1. <u>Tribal Consultation:</u> If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)). 2. <u>No Statutory Time Limit on SB 18 Tribal Consultation.</u> There is no statutory time limit on SB 18 tribal consultation. 3. <u>Confidentiality:</u> Consistent with the guidelines developed and adopted by the Office of Planning and Research

Comment Date	Comment Origin	Comment
		pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)). 4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which: a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18). Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/. NAHC Recommendations for Cultural Resources Assessments To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions: 1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine: a. If part or all of the APE has been previously surveyed for cultural resources. b. If any known cultural resources have already been recorded on or adjacent to the APE. c. If the probability is low, moderate, or high that cultural resources are located in the APE. d. If a survey is required to determine whether previously unrecorded cultural resources are present.

Comment Date	Comment Origin	Comment
		2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure. b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center. 3. Contact the NAHC for: a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE. b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures. 4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence. a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities. b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not

Comment Date	Comment Origin	Comment
		burial associated in consultation with culturally affiliated Native Americans. c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery. If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov. Sincerely, Pricilla Torres-Fuentes *Cultural Resources Analyst* cc: State Clearinghouse
Aug. 3, 2022	Comment Card (via scoping meeting)	If our tax money going to be used for this project, let's take advantage to plant fruit trees all over and in general more trees. Also parks along the river/recreation areas for families and future generations. More access to our river and pathways. Let's all win…think of future generations. ✓ Park along the river ✓ Fruit trees – not for agri. Just for nature. Make it happen!!!
Aug. 3, 2022	Comment Card (via scoping meeting)	The cross levee is problematic and we do not want to see public access on it.
Aug. 3, 2022	Comment Card (via scoping meeting)	Please do not build the cross levee. Thank you.
Aug. 3, 2022	Comment Card (via scoping meeting)	Don't want the cross levee.
Aug. 3, 2022	Comment Card (via scoping meeting)	I fully support the project and welcome the much needed work on our levees to support and control flood prevention. Our community has been affect by the inability to expand due to lack of protection.

Comment Date	Comment Origin	Comment
		This work will allow much need expansion at our elementary school. Our school does not have a cafeteria or multipurpose room due to the restriction of building in KL due to flooding. Thank you for looking out for the community of Knights Landing.
Aug. 3, 2022	Comment Card (via scoping meeting)	This project would benefit our community. It would help with new construction, flood insurance, and allow homeowners to build. In terms of the school property, the school can be able to construct a multipurpose and add additional classrooms. The school is the hub of the community, and in an emergency, it is not able to house people in a large room. *My only concern would be the traffic – a system will need to be in place.
Aug. 3, 2022	Comment Card (via scoping meeting)	Yo tengo 2 años viviendo en este pueblo y he mirado un problema muy grave: de que todos los días casi hay accidentes y ahora, con ese Proyecto, [se] va a afectar el tráfico más. Me gustaría que nos ayudaran a construir doble carril para evitar tantos accidentes. Yo estoy de acuerdo a sus proyectos y estamos con ustedes para apoyarlos. Muchas gracias. **Translation from Interpreter:** I've lived in this town for 2 years now, and I have observed a very serious problem: there are [automobile] accidents almost every day and now —with this Project— traffic is going to be affected [even] more. I would like you to help us build a double lane to avoid so many accidents. I agree with your projects and we are with you in support them. Thank you very much.

NATIVE AMERICAN HERITAGE COMMISSION

Governor's Office of Planning & Research

JUL 22 2022

STATE CLEARINGHOUSE

July 22, 2022

Elisa Sabatini
Yolo County
292 W. Beamer Street
Woodland, CA 95695

Re: 2022070423, Knights Landing Flood Management, Small Community Flood Risk Reduction Program Project, Yolo County

Dear Ms. Sabatini:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015. If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). Both SB 18 and AB 52 have tribal consultation requirements. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
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AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe. (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

cc: State Clearinghouse

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State of California – Natural Resources Agency
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

August 16, 2022

Elisa Sabatini
Yolo County Natural Resources Manager
Yolo County
292 W. Beamer Street
Woodland, CA 95695
naturalresources@yolocounty.org

Subject: Knights Landing Flood Management Project, Small Community Flood Risk Reduction Program- DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) SCH# 2022070423

Dear Ms. Sabatini:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of an Environmental Impact Report (EIR) from Yolo County for the Knights Landing Flood Management Project, Small Community Flood Risk Reduction Program (Project) in Yolo County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project sites are located in Knights Landing, Yolo County and surrounding areas. Knights Landing is located along the Sacramento River 20 miles northwest of Sacramento, California. The Sacramento River Right Bank Levee Project site begins along the levee adjacent to the community of Knights Landing and extends approximately 0.75 miles northeast and then southward along the Sacramento River. The Knights Landing Ridge Cut Project site is located southwest of Knights Landing. The Portuguese Bend Project site is situated southeast of Knights Landing and along the eastern perimeter of the Knights Landing Basin.

The Project consists of levee improvements along the Sacramento River Right Bank Levee and Knights Landing Ridge Cut and habitat improvements on the Portuguese Bend multi-benefit enhancement area. The proposed Sacramento River Right Bank Levee improvements consist of construction of cutoff walls and seepage stability berms, grading, and reconstruction of the levees to address under-seepage, through-seepage, stability, and freeboard deficiencies. The proposed Knights Landing Ridge Cut levee improvements include clearing and grubbing of vegetation and trees, excavating the face of the existing landside levee slope, reconstruction and widening of the levee crown, and remediation of existing levee encroachments, including but not limited to removal of levee pipe penetrations, relocation of PG&E power poles, and replacement of levee gates. Habitat improvements in the Portuguese Bend multi-benefit enhancement area include controlling invasive plant species, planting native species, and implementing an ongoing management and monitoring program.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations presented below to assist Yolo County in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming EIR address the following:

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Project Description

The Project description in the EIR should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.

As required by § 15126.6 of the CEQA Guidelines, the EIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends the EIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following, *The Manual of California Vegetation*, second edition (Sawyer 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A United States Geologic Survey 7.5-minute 9-quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* on the Department webpage www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data). Please review the webpage for information on how to access the database to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the

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vicinity of the Project. CDFW recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the *potential presence* of species within the general area of the Project site. Other sources for identification of species and habitats near or adjacent to the Project area should include, but may not be limited to, State and federal resource agency lists, California Wildlife Habitat Relationship System, California Native Plant Society Inventory, agency contacts, environmental documents for other projects in the vicinity, academics, and professional or scientific organizations.

3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code § § 3511, 4700, 5050, and 5515). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. The EIR should include the results of focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be directly, indirectly, on or within a reasonable distance of the Project activities. CDFW recommends Yolo County rely on survey and monitoring protocols and guidelines available at: www.wildlife.ca.gov/Conservation/Survey-Protocols. Alternative survey protocols may be warranted; justification should be provided to substantiate why an alternative protocol is necessary. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought or deluge.

4. A thorough, recent (within the last two years), floristic-based assessment of special-status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see www.wildlife.ca.gov/Conservation/Plants).

5. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or

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unique to the region (CEQA Guidelines § 15125[c]).

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the EIR:

1. The EIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The EIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed, and it must permit the significant effects of the Project to be considered in the full environmental context.

2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to natural areas, exotic and/or invasive species occurrences, and drainages. The EIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g., National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The EIR should discuss the Project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The EIR should include a list of present, past, and probable future projects producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

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Mitigation Measures for Project Impacts to Biological Resources

The EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. CDFW also recommends the environmental documentation provide scientifically supported discussion regarding adequate avoidance, minimization, and/or mitigation measures to address the Project's significant impacts upon fish and wildlife and their habitat. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (Guidelines § § 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Species of Special Concern*: Several Species of Special Concern (SSC) have the potential to occur within or adjacent to the Project area, including, but not limited to: burrowing owl (*Athene cunicularia*), mountain plover (*Charadrius montanus*), song sparrow ("Modesto population") (*Melospiza melodia* pop. 1), Sacramento splittail (*Pogonichthys macrolepidotus*), pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), and western pond turtle (*Emys marmorata*). Project activities described in the EIR should be designed to avoid any SSC that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the EIR fully analyze potential adverse impacts to SSC due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends Yolo County include in the analysis how appropriate avoidance, minimization and mitigation measures will reduce impacts to SSC.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer 2009). The EIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts.

3. *Native Wildlife Nursey Sites:* CDFW recommends the EIR fully analyze potential adverse impacts to native wildlife nursey sites, including but not limited to bat maternity roosts. Based on review of Project materials, aerial photography, and observation of the site from public roadways, the Project site contains potential nursery site habitat for structure and tree roosting bats and is near potential foraging habitat. Bats are considered non-game mammals and are afforded protection by state law from take and/or harassment, (Fish & G. Code, § 4150;

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Cal. Code of Regs, § 251.1). CDFW recommends that the EIR fully identify the Project's potential impacts to native wildlife nursery sites, and include appropriate avoidance, minimization and mitigation measures to reduce impacts or mitigate any potential significant impacts to bat nursery sites.

4. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the EIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   The EIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

5. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes.

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Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-.

6. *Nesting Birds:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and 3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

   Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the EIR.

   CDFW recommends the EIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The EIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g., Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than

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three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

7. *Moving Out of Harm's Way:* The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, Yolo County should state in the EIR a requirement for a qualified biologist with the proper handling permits, will be retained to be onsite prior to and during all ground- and habitat-disturbing activities. Furthermore, the EIR should describe that the qualified biologist with the proper permits may move out of harm's way special-status species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities, as needed. The EIR should also describe qualified biologist qualifications and authorities to stop work to prevent direct mortality of special-status species. CDFW recommends fish and wildlife species be allowed to move out of harm's way on their own volition, if possible, and to assist their relocation as a last resort. It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.

8. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are generally experimental in nature and largely unsuccessful. Therefore, the EIR should describe additional mitigation measures utilizing habitat restoration, conservation, and/or preservation, in addition to avoidance and minimization measures, if it is determined that there may be impacts to rare, threatened, or endangered species.

The EIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the EIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To avoid deferring mitigation in this way, the EIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

California Endangered Species Act

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in "take" (Fish & G. Code § 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of State-listed CESA species, either through construction or over the life of the Project.

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State-listed species with the potential to occur in the area include, but are not limited to: bank swallow (*Riparia riparia*), Swainson's hawk (*Buteo swainsoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), tricolored blackbird (*Agelaisus tricolor*), palmate-bracted bird's-beak (*Chloropyron palmatum*), Central Valley spring-run Chinook Salmon (*Oncorhynchus tshawytscha* pop. 11), longfin smelt (*Spirinchus thaleichthys*), and giant garter snake (*Thamnophis gigas*).

The EIR should disclose the potential of the Project to take State-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To facilitate the issuance of an ITP, if applicable, CDFW recommends the EIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both State and federally listed species may be present within the Project vicinity.

Native Plant Protection Act

The Native Plant Protection Act (Fish & G. Code §1900 *et seq*.) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

Lake and Streambed Alteration Program

The EIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access and staging areas). The environmental document should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined the Project will result in significant impacts to these resources the EIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

1. Substantially divert or obstruct the natural flow of any river, stream or lake;

2. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or

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3. Deposit debris, waste, or other materials where it may pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If upon review of an entity's notification, CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the EIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources. Notifications for projects involving (1) sand, gravel or rock extraction, (2) timber harvesting operations, or (3) routine maintenance operations must be submitted using paper notification forms. All other LSA Notification types must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS. More information about LSA Notifications, paper forms and fees may be found at https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA.

Please note that other agencies may use specific methods and definitions to determine impacts to areas subject to their authorities. These methods and definitions often do not include all needed information for CDFW to determine the extent of fish and wildlife resources affected by activities subject to Notification under Fish and Game Code section 1602. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as United States Army Corps of Engineers) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of an LSA.

CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. CDFW recommends lead agencies coordinate with us as early as possible, since potential modification of the proposed Project may avoid or reduce impacts to fish and wildlife resources and expedite the Project approval process.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

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1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.

2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Based on review of Project materials, aerial photography and observation of the site from public roadways, the Project site supports the Sacramento River, Knights Landing Ridge Cut, and Colusa Basin Drainage Canal and its associated riparian habitat. CDFW recommends the EIR fully identify the Project's potential impacts to the streams and/or the associated vegetation and wetlands.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by Yolo County and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the Notice of Preparation of the EIR for the Knights Landing Flood Management Project, Small Community Flood Risk Reduction Program and recommends that Yolo County address CDFW's

22 August 2022

Elisa Sabatini
Yolo County
292 West Beamer Street
Woodland, CA 95695
naturalresources@yolocounty.org

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, KNIGHTS LANDING FLOOD MANAGEMENT PROJECT SMALL COMMUNITY FLOOD RISK REDUCTION PROGRAM, SCH#2022070423, YOLO COUNTY

Pursuant to the State Clearinghouse's 22 July 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Knights Landing Flood Management Project Small Community Flood Risk Reduction Program, located in Yolo County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has

adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention

Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water

Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information

regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

YOCHA DEHE
CULTURAL RESOURCES

July 22, 2022

Yolo County Natural Resources
Attn: Elisa Sabatini, Natural Resources Manager
625 Court Street,
Woodland, CA 95695

RE: Knights Landing Flood Risk Reduction Project YD-04122021-02

Dear Ms. Sabatini:

Thank you for your project notification, regarding cultural information on or near the proposed Knights Landing Flood Risk Reduction Project. We appreciate your effort to contact us.

At this time the Cultural Resources department has no comments or changes to the Cultural Resource Study. We would like to continue discussions, and receiving updates.

Should you have any questions, please feel free to contact:

CRD Administrative Staff
Yocha Dehe Wintun Nation
Office: (530) 796-3400
Email: THPO@yochadehe-nsn.gov

Please refer to identification number YD – 04122021-02 in any correspondence concerning this project.

Thank you for providing us with this notice and the opportunity to comment.

Sincerely,

Laverne Bill
Director of Cultural Resources

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

- ~~NOT~~ IF OUR TAX MONEY GOING TO BE USED FOR THIS PROJECT, LETS TAKE ADVANTAGE TO PLANT FRUIT TREES ALL OVER & IN GENERAL MORE TREES. ALSO PARKS ALONG THE RIVER / RECREATION AREAS FOR FAMILIES & FUTURE GENERATIONS. MORE ACCESS TO OUR RIVER & PATH WAYS. LETS ALL WIN ~~NOT JUST...~~ THINK OF FUTURE GENERATIONS
- PARK ALONG THE RIVER ☑
- FRUIT TREES ☑ & ~~NOT~~ NOT FOR AGRI. JUST FOR NATURE.

MAKE IT HAPPEN!!!

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: RESIDENT OF KNIGHTS LANDING

Address: N/A

Phone Number: N/A

E-mail: N/A

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

The cross levee is problematic and we do not want to see public access on it.

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: Herb + Lynnel Pollock

Address: PO Box 468
Yolo, CA 95697

Phone Number:

E-mail: yoloranch@yolo.net

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

Please do not build the cross levee.

Thank you

Bill Driver

Bill Driver

(530) 517-1477

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: Bill Driver

Address: P O Box 577

Knights Landing Ca 95645

Phone Number: (530) 517-1477

E-mail:

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

Don't Want the Cross Leave

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: Greg Driver

Address: 9755 County Rd 116B
Woodland CA 95776

Phone Number: 530 9088820

E-mail:

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

I fully support the project and welcome the much needed work on our levees to support and contol flood prevention. Our community has been affect by the inability to expand due to lack of protection.

~~Thes~~ This work will allow much need expansion at our elementary school. Our school does not have a cafeteria or multipurpose room due to the restriction of building in KL due to flooding.

Thank you for looking out for the community of Knights Landing

~ Catalina Ruiz

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: Catalina Ruiz

Address: 42040 Sycamore St. Knights Landing 95645

Phone Number: (530) 908-1646

E-mail: catamruiz@gmail.com

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

This project would benefit our community. It would help with new construction, flood insurance and allow homeowners to build.

In terms of the school property, the school can be able to construct a multipurpose and add additional classrooms. The school is the hub of the community, and in an emergency, it is not able to house people in a large room.

My only concern would be the traffic - a system will need to be in place.

Comments will be taken into consideration during the preparation of the Draft EIR

Maria Martinez
9738 Hershey St.

Number: (530) 312-4025

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

KNIGHTS LANDING
FLOOD MANAGEMENT PROJECT

Comment Card: **To submit comments on the Draft EIR, please fill out this comment card then affix stamp and place in the mailbox.**

Pedro Ramos 08-03-2022
Yo Tengo 2 años bibiendo en este pueblo Y e mirado un problema muy Grabe de que Todos los dias casi ay acidentes Y ahora con ese proyecto ba a afectar el trafico mas me gustaria que nos ayudaran a costruir doble carril para ebitar tantos acidentes Yo estoy de acuerdo a sus proyectos Y estamos con ustedes para apoyar los Muchas gracias

Your comments will be taken into consideration during the preparation of the Draft EIR

Name: Pedro Ramos

Address: _____

_____

Phone Number: _____

E-mail: _____

Submit comments by 5 p.m. August 22, 2022:

Elisa Sabatini
Yolo County Natural Resources Manager
625 Court Street
Woodland, CA 95695

Scan and send to:
naturalresources@yolocounty.org

Appendix B. Air Quality and Greenhouse Gas Emissions Modeling

CalEEMod Input Template

Project Name: Knights Landing Ridge Cut Improvements
Project Location: Yolo/Solano AQMD
CEC Climate Zone: 3
Land Use Setting: Rural
Operational Year: 2025

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	19.72	Acre	19.72	859,003.20

Note: Total area of disturbance including staging (18.72 acres + 1 acre staging/stockpiling)

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2024	1/30/2024	6	26	36	0	0	15	9	30
Construction	Building Construction	4/15/2024	11/1/2024	6	173	36	0	12106	15	9	30
Cleanup	Site Preparation	11/2/2024	12/31/2024	6	51	36	2	0	15	9	30

Notes:
Worker and Vendor trip lengths are default. Haul trip length to borrow sources is 30 miles one-way per project description.
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Hydroseeding truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (18) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Motor Grader	Graders	1	9	187	0.41	default
Dozer	Rubber Tired Dozers	3	9	247	0.4	default
Construction						
Excavator	Excavators	1	9	158	0.38	default
Water truck	Off-Highway Trucks	2	2	350	0.38	Adjusted default hp to 350 hp and hours to 2 hours per day
Maintenance truck	Off-Highway Trucks	3	9	410	0.38	Adjusted default hp to 410 hp
Sheepsfoot Roller/Compactor	Rollers	3	9	150	0.38	Adjusted default hp to 150 hp
Cleanup						
Side by Side or ATV	Off-Highway Trucks	4	9	90	0.38	Adjusted default hp to 90 hp

Notes:
Horsepower was adjusted for some equipment based on the typical horsepower for that specific equipment

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	72009	CY	(berm fill)
Export	4115	CY	(topsoil)
Total material movement (assumed not balanced on site)	76124	CY	
Size of truck	16	CY/truck	
Number of trucks	4758	trucks	
Number of one-way truck trips	9516	one-way trips	
Highway haul truck	35	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	37	days	
Total roundtrips for highway haul trucks	1295	roundtrips	
Total one-way highway haul truck trips	2590	one-way trips	
Total one-way truck trips	12106	trips	

Source: Project Description

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Knights Landing Ridge Cut Improvements

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	19.72	Acre	19.72	859,003.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 19.72 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	173.00
tblConstructionPhase	NumDays	10.00	26.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	10.00	51.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	58.50	5.20
tblGrading	AcresOfGrading	0.00	5.20
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	12,106.00
tblTripsAndVMT	VendorTripNumber	141.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	10.00	36.00
tblTripsAndVMT	WorkerTripNumber	361.00	36.00
tblTripsAndVMT	WorkerTripNumber	10.00	36.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.2923	3.1098	2.7442	0.0125	0.4740	0.0915	0.5656	0.2016	0.0846	0.2861	0.0000	1,144.0899	1,144.0899	0.1960	0.0803	1,172.9218
Maximum	**0.2923**	**3.1098**	**2.7442**	**0.0125**	**0.4740**	**0.0915**	**0.5656**	**0.2016**	**0.0846**	**0.2861**	**0.0000**	**1,144.0899**	**1,144.0899**	**0.1960**	**0.0803**	**1,172.9218**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.2923	3.1098	2.7442	0.0125	0.4740	0.0915	0.5656	0.2016	0.0846	0.2861	0.0000	1,144.0892	1,144.0892	0.1960	0.0803	1,172.9211
Maximum	**0.2923**	**3.1098**	**2.7442**	**0.0125**	**0.4740**	**0.0915**	**0.5656**	**0.2016**	**0.0846**	**0.2861**	**0.0000**	**1,144.0892**	**1,144.0892**	**0.1960**	**0.0803**	**1,172.9211**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2024**	**3-31-2024**	0.4071	0.4071
2	**4-1-2024**	**6-30-2024**	1.1156	1.1156
3	**7-1-2024**	**9-30-2024**	1.3329	1.3329
		Highest	1.3329	1.3329

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0675	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0675**	**0.0000**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0675	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0675**	**0.0000**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/30/2024	6	26	
2	Construction	Building Construction	4/15/2024	11/1/2024	6	173	
3	Cleanup	Site Preparation	11/2/2024	12/31/2024	6	51	

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 5.2

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.72

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	1	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	2	2.00	350	0.38
Construction	Off-Highway Trucks	3	9.00	410	0.38
Construction	Rollers	3	9.00	150	0.38
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	1	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	36.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction	9	36.00	0.00	12,106.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	36.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2670	0.0000	0.2670	0.1455	0.0000	0.1455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3733	0.1615	4.7000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	41.3871	41.3871	0.0134	0.0000	41.7218
Total	**0.0357**	**0.3733**	**0.1615**	**4.7000e-004**	**0.2670**	**0.0161**	**0.2830**	**0.1455**	**0.0148**	**0.1603**	**0.0000**	**41.3871**	**41.3871**	**0.0134**	**0.0000**	**41.7218**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	1.4700e-003	9.6000e-004	0.0125	4.0000e-005	5.1600e-003	2.0000e-005	5.1900e-003	1.3700e-003	2.0000e-005	1.4000e-003	0.0000	3.9680	3.9680	9.0000e-005	1.0000e-004	3.9988
Total	**1.4700e-003**	**9.6000e-004**	**0.0125**	**4.0000e-005**	**5.1600e-003**	**2.0000e-005**	**5.1900e-003**	**1.3700e-003**	**2.0000e-005**	**1.4000e-003**	**0.0000**	**3.9680**	**3.9680**	**9.0000e-005**	**1.0000e-004**	**3.9988**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2670	0.0000	0.2670	0.1455	0.0000	0.1455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3733	0.1615	4.7000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	41.3871	41.3871	0.0134	0.0000	41.7217
Total	**0.0357**	**0.3733**	**0.1615**	**4.7000e-004**	**0.2670**	**0.0161**	**0.2830**	**0.1455**	**0.0148**	**0.1603**	**0.0000**	**41.3871**	**41.3871**	**0.0134**	**0.0000**	**41.7217**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	1.4700e-003	9.6000e-004	0.0125	4.0000e-005	5.1600e-003	2.0000e-005	5.1900e-003	1.3700e-003	2.0000e-005	1.4000e-003	0.0000	3.9680	3.9680	9.0000e-005	1.0000e-004	3.9988
Total	**1.4700e-003**	**9.6000e-004**	**0.0125**	**4.0000e-005**	**5.1600e-003**	**2.0000e-005**	**5.1900e-003**	**1.3700e-003**	**2.0000e-005**	**1.4000e-003**	**0.0000**	**3.9680**	**3.9680**	**9.0000e-005**	**1.0000e-004**	**3.9988**

3.3 Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2257	1.6414	2.2632	6.3700e-003		0.0647	0.0647		0.0595	0.0595	0.0000	559.4104	559.4104	0.1809	0.0000	563.9335
Total	**0.2257**	**1.6414**	**2.2632**	**6.3700e-003**		**0.0647**	**0.0647**		**0.0595**	**0.0595**	**0.0000**	**559.4104**	**559.4104**	**0.1809**	**0.0000**	**563.9335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0168	1.0833	0.1989	5.2500e-003	0.1543	0.0105	0.1648	0.0424	0.0101	0.0525	0.0000	503.9814	503.9814	8.4000e-004	0.0792	527.6064
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7700e-003	6.3900e-003	0.0830	2.9000e-004	0.0344	1.6000e-004	0.0345	9.1300e-003	1.5000e-004	9.2800e-003	0.0000	26.4023	26.4023	5.9000e-004	6.4000e-004	26.6075

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0265**	**1.0897**	**0.2819**	**5.5400e-003**	**0.1886**	**0.0107**	**0.1993**	**0.0515**	**0.0102**	**0.0618**	**0.0000**	**530.3836**	**530.3836**	**1.4300e-003**	**0.0799**	**554.2138**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2257	1.6413	2.2632	6.3700e-003		0.0647	0.0647		0.0595	0.0595	0.0000	559.4098	559.4098	0.1809	0.0000	563.9329
Total	**0.2257**	**1.6413**	**2.2632**	**6.3700e-003**		**0.0647**	**0.0647**		**0.0595**	**0.0595**	**0.0000**	**559.4098**	**559.4098**	**0.1809**	**0.0000**	**563.9329**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0168	1.0833	0.1989	5.2500e-003	0.1543	0.0105	0.1648	0.0424	0.0101	0.0525	0.0000	503.9814	503.9814	8.4000e-004	0.0792	527.6064
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7700e-003	6.3900e-003	0.0830	2.9000e-004	0.0344	1.6000e-004	0.0345	9.1300e-003	1.5000e-004	9.2800e-003	0.0000	26.4023	26.4023	5.9000e-004	6.4000e-004	26.6075
Total	**0.0265**	**1.0897**	**0.2819**	**5.5400e-003**	**0.1886**	**0.0107**	**0.1993**	**0.0515**	**0.0102**	**0.0618**	**0.0000**	**530.3836**	**530.3836**	**1.4300e-003**	**0.0799**	**554.2138**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7600e-003	0.0000	2.7600e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.5900e-003	7.1000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1575	1.1575	0.0000	1.8000e-004	1.2100
Worker	2.8800e-003	1.8800e-003	0.0245	8.0000e-005	0.0101	5.0000e-005	0.0102	2.6900e-003	4.0000e-005	2.7400e-003	0.0000	7.7833	7.7833	1.7000e-004	1.9000e-004	7.8438
Total	**2.9400e-003**	**4.4700e-003**	**0.0252**	**9.0000e-005**	**0.0105**	**7.0000e-005**	**0.0106**	**2.8100e-003**	**6.0000e-005**	**2.8800e-003**	**0.0000**	**8.9408**	**8.9408**	**1.7000e-004**	**3.7000e-004**	**9.0538**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7600e-003	0.0000	2.7600e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.7600e-003**	**0.0000**	**2.7600e-003**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.5900e-003	7.1000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1575	1.1575	0.0000	1.8000e-004	1.2100
Worker	2.8800e-003	1.8800e-003	0.0245	8.0000e-005	0.0101	5.0000e-005	0.0102	2.6900e-003	4.0000e-005	2.7400e-003	0.0000	7.7833	7.7833	1.7000e-004	1.9000e-004	7.8438
Total	**2.9400e-003**	**4.4700e-003**	**0.0252**	**9.0000e-005**	**0.0105**	**7.0000e-005**	**0.0106**	**2.8100e-003**	**6.0000e-005**	**2.8800e-003**	**0.0000**	**8.9408**	**8.9408**	**1.7000e-004**	**3.7000e-004**	**9.0538**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.003849

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0675	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004
Unmitigated	0.0675	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0555					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0675**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0555					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.5000e-004	3.5000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0675**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.5000e-004**	**3.5000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Knights Landing Ridge Cut Improvements

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	19.72	Acre	19.72	859,003.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 19.72 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	173.00
tblConstructionPhase	NumDays	10.00	26.00
tblConstructionPhase	NumDays	10.00	51.00

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	58.50	5.20
tblGrading	AcresOfGrading	0.00	5.20
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	12,106.00
tblTripsAndVMT	VendorTripNumber	141.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	10.00	36.00
tblTripsAndVMT	WorkerTripNumber	361.00	36.00
tblTripsAndVMT	WorkerTripNumber	10.00	36.00

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9346	30.8704	29.5641	0.1379	20.9472	1.2370	22.1842	11.3038	1.1380	12.4418	0.0000	13,915.1175	13,915.1175	2.3239	1.0166	14,276.1539
Maximum	**2.9346**	**30.8704**	**29.5641**	**0.1379**	**20.9472**	**1.2370**	**22.1842**	**11.3038**	**1.1380**	**12.4418**	**0.0000**	**13,915.1175**	**13,915.1175**	**2.3239**	**1.0166**	**14,276.1539**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9346	30.8704	29.5641	0.1379	20.9472	1.2370	22.1842	11.3038	1.1380	12.4418	0.0000	13,915.1175	13,915.1175	2.3239	1.0166	14,276.1539
Maximum	**2.9346**	**30.8704**	**29.5641**	**0.1379**	**20.9472**	**1.2370**	**22.1842**	**11.3038**	**1.1380**	**12.4418**	**0.0000**	**13,915.1175**	**13,915.1175**	**2.3239**	**1.0166**	**14,276.1539**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**	**0.0000**	**4.6000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**	**0.0000**	**4.6000e-003**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/30/2024	6	26	
2	Construction	Building Construction	4/15/2024	11/1/2024	6	173	
3	Cleanup	Site Preparation	11/2/2024	12/31/2024	6	51	

Acres of Grading (Site Preparation Phase): 5.2

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.72

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	1	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	2	2.00	350	0.38
Construction	Off-Highway Trucks	3	9.00	410	0.38
Construction	Rollers	3	9.00	150	0.38

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	1	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	36.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	9	36.00	0.00	12,106.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	36.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.5366	0.0000	20.5366	11.1949	0.0000	11.1949			0.0000			0.0000
Off-Road	2.7435	28.7162	12.4250	0.0362		1.2351	1.2351		1.1363	1.1363		3,509.3470	3,509.3470	1.1350		3,537.7219
Total	**2.7435**	**28.7162**	**12.4250**	**0.0362**	**20.5366**	**1.2351**	**21.7717**	**11.1949**	**1.1363**	**12.3312**		**3,509.3470**	**3,509.3470**	**1.1350**		**3,537.7219**

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.1262**	**0.0665**	**1.1165**	**3.6200e-003**	**0.4106**	**1.8900e-003**	**0.4125**	**0.1089**	**1.7400e-003**	**0.1106**		**366.3161**	**366.3161**	**7.3300e-003**	**7.6000e-003**	**368.7645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.5366	0.0000	20.5366	11.1949	0.0000	11.1949			0.0000			0.0000
Off-Road	2.7435	28.7162	12.4250	0.0362		1.2351	1.2351		1.1363	1.1363	0.0000	3,509.3470	3,509.3470	1.1350		3,537.7219
Total	**2.7435**	**28.7162**	**12.4250**	**0.0362**	**20.5366**	**1.2351**	**21.7717**	**11.1949**	**1.1363**	**12.3312**	**0.0000**	**3,509.3470**	**3,509.3470**	**1.1350**		**3,537.7219**

Mitigated Construction Off-Site

Date: 12/30/2022 3:49 PM

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.1262**	**0.0665**	**1.1165**	**3.6200e-003**	**0.4106**	**1.8900e-003**	**0.4125**	**0.1089**	**1.7400e-003**	**0.1106**		**366.3161**	**366.3161**	**7.3300e-003**	**7.6000e-003**	**368.7645**

3.3 Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6096	18.9751	26.1637	0.0737		0.7476	0.7476		0.6878	0.6878		7,128.8375	7,128.8375	2.3056		7,186.4777
Total	**2.6096**	**18.9751**	**26.1637**	**0.0737**		**0.7476**	**0.7476**		**0.6878**	**0.6878**		**7,128.8375**	**7,128.8375**	**2.3056**		**7,186.4777**

Unmitigated Construction Off-Site

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1988	11.8288	2.2839	0.0607	1.8355	0.1217	1.9572	0.5031	0.1165	0.6196		6,419.9640	6,419.9640	0.0109	1.0090	6,720.9117
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.3250**	**11.8953**	**3.4004**	**0.0643**	**2.2461**	**0.1236**	**2.3697**	**0.6120**	**0.1182**	**0.7302**		**6,786.2800**	**6,786.2800**	**0.0182**	**1.0166**	**7,089.6762**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6096	18.9751	26.1637	0.0737		0.7476	0.7476		0.6878	0.6878	0.0000	7,128.8375	7,128.8375	2.3056		7,186.4777
Total	**2.6096**	**18.9751**	**26.1637**	**0.0737**		**0.7476**	**0.7476**		**0.6878**	**0.6878**	**0.0000**	**7,128.8375**	**7,128.8375**	**2.3056**		**7,186.4777**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.1988	11.8288	2.2839	0.0607	1.8355	0.1217	1.9572	0.5031	0.1165	0.6196		6,419.9640	6,419.9640	0.0109	1.0090	6,720.9117
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.3250**	**11.8953**	**3.4004**	**0.0643**	**2.2461**	**0.1236**	**2.3697**	**0.6120**	**0.1182**	**0.7302**		**6,786.2800**	**6,786.2800**	**0.0182**	**1.0166**	**7,089.6762**

3.4 Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1081	0.0000	0.1081	0.0117	0.0000	0.0117			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1081**	**0.0000**	**0.1081**	**0.0117**	**0.0000**	**0.0117**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	2.2900e-003	0.0961	0.0274	4.7000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.9982	49.9982	1.2000e-004	7.6000e-003	52.2669
Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.1285**	**0.1626**	**1.1439**	**4.0900e-003**	**0.4273**	**2.5500e-003**	**0.4298**	**0.1137**	**2.3700e-003**	**0.1161**		**416.3142**	**416.3142**	**7.4500e-003**	**0.0152**	**421.0314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1081	0.0000	0.1081	0.0117	0.0000	0.0117			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1081**	**0.0000**	**0.1081**	**0.0117**	**0.0000**	**0.0117**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2900e-003	0.0961	0.0274	4.7000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.9982	49.9982	1.2000e-004	7.6000e-003	52.2669

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.1262	0.0665	1.1165	3.6200e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		366.3161	366.3161	7.3300e-003	7.6000e-003	368.7645
Total	**0.1285**	**0.1626**	**1.1439**	**4.0900e-003**	**0.4273**	**2.5500e-003**	**0.4298**	**0.1137**	**2.3700e-003**	**0.1161**		**416.3142**	**416.3142**	**7.4500e-003**	**0.0152**	**421.0314**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.003849

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Unmitigated	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3043					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**		**4.6000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3043					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**		**4.6000e-003**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Knights Landing Ridge Cut Improvements

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	19.72	Acre	19.72	859,003.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 19.72 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	173.00
tblConstructionPhase	NumDays	10.00	26.00
tblConstructionPhase	NumDays	10.00	51.00

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	58.50	5.20
tblGrading	AcresOfGrading	0.00	5.20
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	12,106.00
tblTripsAndVMT	VendorTripNumber	141.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	10.00	36.00
tblTripsAndVMT	WorkerTripNumber	361.00	36.00
tblTripsAndVMT	WorkerTripNumber	10.00	36.00

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9175	31.8685	29.4586	0.1376	20.9472	1.2370	22.1842	11.3038	1.1380	12.4418	0.0000	13,883.6381	13,883.6381	2.3241	1.0188	14,245.3342
Maximum	**2.9175**	**31.8685**	**29.4586**	**0.1376**	**20.9472**	**1.2370**	**22.1842**	**11.3038**	**1.1380**	**12.4418**	**0.0000**	**13,883.6381**	**13,883.6381**	**2.3241**	**1.0188**	**14,245.3342**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9175	31.8685	29.4586	0.1376	20.9472	1.2370	22.1842	11.3038	1.1380	12.4418	0.0000	13,883.6381	13,883.6381	2.3241	1.0188	14,245.3342
Maximum	**2.9175**	**31.8685**	**29.4586**	**0.1376**	**20.9472**	**1.2370**	**22.1842**	**11.3038**	**1.1380**	**12.4418**	**0.0000**	**13,883.6381**	**13,883.6381**	**2.3241**	**1.0188**	**14,245.3342**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**	**0.0000**	**4.6000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**	**0.0000**	**4.6000e-003**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	1/30/2024	6	26	
2	Construction	Building Construction	4/15/2024	11/1/2024	6	173	
3	Cleanup	Site Preparation	11/2/2024	12/31/2024	6	51	

Acres of Grading (Site Preparation Phase): 5.2

Acres of Grading (Grading Phase): 0

Acres of Paving: 19.72

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	1	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	2	2.00	350	0.38
Construction	Off-Highway Trucks	3	9.00	410	0.38
Construction	Rollers	3	9.00	150	0.38

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	1	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	36.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	9	36.00	0.00	12,106.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	36.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.5366	0.0000	20.5366	11.1949	0.0000	11.1949			0.0000			0.0000
Off-Road	2.7435	28.7162	12.4250	0.0362		1.2351	1.2351		1.1363	1.1363		3,509.3470	3,509.3470	1.1350		3,537.7219
Total	**2.7435**	**28.7162**	**12.4250**	**0.0362**	**20.5366**	**1.2351**	**21.7717**	**11.1949**	**1.1363**	**12.3312**		**3,509.3470**	**3,509.3470**	**1.1350**		**3,537.7219**

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Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.1212**	**0.0833**	**0.9739**	**3.2500e-003**	**0.4106**	**1.8900e-003**	**0.4125**	**0.1089**	**1.7400e-003**	**0.1106**		**328.8497**	**328.8497**	**8.1600e-003**	**8.8200e-003**	**331.6832**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.5366	0.0000	20.5366	11.1949	0.0000	11.1949			0.0000			0.0000
Off-Road	2.7435	28.7162	12.4250	0.0362		1.2351	1.2351		1.1363	1.1363	0.0000	3,509.3470	3,509.3470	1.1350		3,537.7219
Total	**2.7435**	**28.7162**	**12.4250**	**0.0362**	**20.5366**	**1.2351**	**21.7717**	**11.1949**	**1.1363**	**12.3312**	**0.0000**	**3,509.3470**	**3,509.3470**	**1.1350**		**3,537.7219**

Mitigated Construction Off-Site

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.1212**	**0.0833**	**0.9739**	**3.2500e-003**	**0.4106**	**1.8900e-003**	**0.4125**	**0.1089**	**1.7400e-003**	**0.1106**		**328.8497**	**328.8497**	**8.1600e-003**	**8.8200e-003**	**331.6832**

3.3 Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6096	18.9751	26.1637	0.0737		0.7476	0.7476		0.6878	0.6878		7,128.8375	7,128.8375	2.3056		7,186.4777
Total	**2.6096**	**18.9751**	**26.1637**	**0.0737**		**0.7476**	**0.7476**		**0.6878**	**0.6878**		**7,128.8375**	**7,128.8375**	**2.3056**		**7,186.4777**

Unmitigated Construction Off-Site

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1867	12.8102	2.3210	0.0607	1.8355	0.1219	1.9574	0.5031	0.1166	0.6197		6,425.9509	6,425.9509	0.0103	1.0100	6,727.1732
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.3079**	**12.8934**	**3.2949**	**0.0640**	**2.2461**	**0.1238**	**2.3698**	**0.6120**	**0.1183**	**0.7303**		**6,754.8006**	**6,754.8006**	**0.0185**	**1.0188**	**7,058.8564**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6096	18.9751	26.1637	0.0737		0.7476	0.7476		0.6878	0.6878	0.0000	7,128.8375	7,128.8375	2.3056		7,186.4777
Total	**2.6096**	**18.9751**	**26.1637**	**0.0737**		**0.7476**	**0.7476**		**0.6878**	**0.6878**	**0.0000**	**7,128.8375**	**7,128.8375**	**2.3056**		**7,186.4777**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.1867	12.8102	2.3210	0.0607	1.8355	0.1219	1.9574	0.5031	0.1166	0.6197		6,425.9509	6,425.9509	0.0103	1.0100	6,727.1732
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.3079**	**12.8934**	**3.2949**	**0.0640**	**2.2461**	**0.1238**	**2.3698**	**0.6120**	**0.1183**	**0.7303**		**6,754.8006**	**6,754.8006**	**0.0185**	**1.0188**	**7,058.8564**

3.4 Cleanup - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1081	0.0000	0.1081	0.0117	0.0000	0.0117			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1081**	**0.0000**	**0.1081**	**0.0117**	**0.0000**	**0.0117**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	2.1400e-003	0.1039	0.0283	4.7000e-004	0.0167	6.7000e-004	0.0174	4.8000e-003	6.4000e-004	5.4400e-003		50.0856	50.0856	1.2000e-004	7.6200e-003	52.3596
Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.1233**	**0.1872**	**1.0022**	**3.7200e-003**	**0.4273**	**2.5600e-003**	**0.4298**	**0.1137**	**2.3800e-003**	**0.1161**		**378.9353**	**378.9353**	**8.2800e-003**	**0.0164**	**384.0429**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1081	0.0000	0.1081	0.0117	0.0000	0.0117			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1081**	**0.0000**	**0.1081**	**0.0117**	**0.0000**	**0.0117**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.1039	0.0283	4.7000e-004	0.0167	6.7000e-004	0.0174	4.8000e-003	6.4000e-004	5.4400e-003		50.0856	50.0856	1.2000e-004	7.6200e-003	52.3596

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Worker	0.1212	0.0833	0.9739	3.2500e-003	0.4106	1.8900e-003	0.4125	0.1089	1.7400e-003	0.1106		328.8497	328.8497	8.1600e-003	8.8200e-003	331.6832
Total	**0.1233**	**0.1872**	**1.0022**	**3.7200e-003**	**0.4273**	**2.5600e-003**	**0.4298**	**0.1137**	**2.3800e-003**	**0.1161**		**378.9353**	**378.9353**	**8.2800e-003**	**0.0164**	**384.0429**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.003849

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Unmitigated	0.3699	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3043					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**		**4.6000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0655					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3043					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	2.0100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3200e-003	4.3200e-003	1.0000e-005		4.6000e-003
Total	**0.3699**	**2.0000e-005**	**2.0100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3200e-003**	**4.3200e-003**	**1.0000e-005**		**4.6000e-003**

Knights Landing Ridge Cut Improvements - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Input Template

Project Name: Portuguese Bend Multi-benefit Enhancement
Project Location: Yolo/Solano AQMD
CEC Climate Zone: 3
Land Use Setting: Rural
Operational Year: 2025 (construction occuring concurrently with the Knights Landing Ridge Cut)

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60

Note: Area of disturbance associated with staging/stockpiling is already accounted for in the model run for Knights Landing Ridge Cut

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2024	12/31/2024	6	314	20	2	32	15	9	20

Notes:
Worker, Vendor, and Hauling trip lengths are default
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Goat transportation truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (10) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Small Excavator	Excavator	1	9	158	0.38	default
Masticator	Tractor/Loader/Backhoe	1	9	132	0.37	Adjusted default hp to 132 hp

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	0	CY	
Export	250	CY	(vegetation)
Total material movement (assumed not balanced on site)	250	CY	
Size of truck	16	CY/truck	
Number of trucks	16	trucks	
Number of one-way truck trips	32	one-way trips	
Highway haul truck	0	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	0	days	
Total roundtrips for highway haul trucks	0	roundtrips	
Total one-way highway haul truck trips	0	one-way trips	
Total one-way truck trips	32	trips	

Source: Project Description

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2024

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	314.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0688	0.4816	1.1352	2.0200e-003	0.0504	0.0229	0.0733	0.0114	0.0211	0.0325	0.0000	179.5989	179.5989	0.0475	1.8700e-003	181.3436
Maximum	**0.0688**	**0.4816**	**1.1352**	**2.0200e-003**	**0.0504**	**0.0229**	**0.0733**	**0.0114**	**0.0211**	**0.0325**	**0.0000**	**179.5989**	**179.5989**	**0.0475**	**1.8700e-003**	**181.3436**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0688	0.4816	1.1352	2.0200e-003	0.0504	0.0229	0.0733	0.0114	0.0211	0.0325	0.0000	179.5987	179.5987	0.0475	1.8700e-003	181.3434

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**0.0688**	**0.4816**	**1.1352**	**2.0200e-003**	**0.0504**	**0.0229**	**0.0733**	**0.0114**	**0.0211**	**0.0325**	**0.0000**	**179.5987**	**179.5987**	**0.0475**	**1.8700e-003**	**181.3434**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2024**	**3-31-2024**	0.1372	0.1372
2	**4-1-2024**	**6-30-2024**	0.1366	0.1366
3	**7-1-2024**	**9-30-2024**	0.1381	0.1381
		Highest	0.1381	0.1381

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	12/31/2024	6	314	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

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Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0586	0.4572	1.0467	1.6500e-003		0.0226	0.0226		0.0208	0.0208	0.0000	144.9461	144.9461	0.0469	0.0000	146.1181
Total	**0.0586**	**0.4572**	**1.0467**	**1.6500e-003**	**0.0129**	**0.0226**	**0.0356**	**1.4000e-003**	**0.0208**	**0.0222**	**0.0000**	**144.9461**	**144.9461**	**0.0469**	**0.0000**	**146.1181**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.0200e-003	4.5000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.9037	0.9037	0.0000	1.4000e-004	0.9460
Vendor	3.5000e-004	0.0159	4.3600e-003	7.0000e-005	2.5500e-003	1.0000e-004	2.6500e-003	7.4000e-004	1.0000e-004	8.4000e-004	0.0000	7.1264	7.1264	2.0000e-005	1.0800e-003	7.4498
Worker	9.8500e-003	6.4400e-003	0.0837	2.9000e-004	0.0346	1.7000e-004	0.0348	9.2100e-003	1.5000e-004	9.3600e-003	0.0000	26.6227	26.6227	6.0000e-004	6.4000e-004	26.8296
Total	**0.0102**	**0.0244**	**0.0885**	**3.7000e-004**	**0.0375**	**2.9000e-004**	**0.0378**	**0.0100**	**2.7000e-004**	**0.0103**	**0.0000**	**34.6527**	**34.6527**	**6.2000e-004**	**1.8600e-003**	**35.2255**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0586	0.4572	1.0467	1.6500e-003		0.0226	0.0226		0.0208	0.0208	0.0000	144.9460	144.9460	0.0469	0.0000	146.1179
Total	**0.0586**	**0.4572**	**1.0467**	**1.6500e-003**	**0.0129**	**0.0226**	**0.0356**	**1.4000e-003**	**0.0208**	**0.0222**	**0.0000**	**144.9460**	**144.9460**	**0.0469**	**0.0000**	**146.1179**

Mitigated Construction Off-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.0200e-003	4.5000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.9037	0.9037	0.0000	1.4000e-004	0.9460
Vendor	3.5000e-004	0.0159	4.3600e-003	7.0000e-005	2.5500e-003	1.0000e-004	2.6500e-003	7.4000e-004	1.0000e-004	8.4000e-004	0.0000	7.1264	7.1264	2.0000e-005	1.0800e-003	7.4498
Worker	9.8500e-003	6.4400e-003	0.0837	2.9000e-004	0.0346	1.7000e-004	0.0348	9.2100e-003	1.5000e-004	9.3600e-003	0.0000	26.6227	26.6227	6.0000e-004	6.4000e-004	26.8296
Total	**0.0102**	**0.0244**	**0.0885**	**3.7000e-004**	**0.0375**	**2.9000e-004**	**0.0378**	**0.0100**	**2.7000e-004**	**0.0103**	**0.0000**	**34.6527**	**34.6527**	**6.2000e-004**	**1.8600e-003**	**35.2255**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

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	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.003849

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Unmitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2024

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	314.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	0.4460	3.0573	7.3172	0.0131	0.3290	0.1459	0.4749	0.0747	0.1343	0.2090	0.0000	1,277.5281	1,277.5281	0.3333	0.0128	1,289.6828
Maximum	**0.4460**	**3.0573**	**7.3172**	**0.0131**	**0.3290**	**0.1459**	**0.4749**	**0.0747**	**0.1343**	**0.2090**	**0.0000**	**1,277.5281**	**1,277.5281**	**0.3333**	**0.0128**	**1,289.6828**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	0.4460	3.0573	7.3172	0.0131	0.3290	0.1459	0.4749	0.0747	0.1343	0.2090	0.0000	1,277.5281	1,277.5281	0.3333	0.0128	1,289.6828
Maximum	**0.4460**	**3.0573**	**7.3172**	**0.0131**	**0.3290**	**0.1459**	**0.4749**	**0.0747**	**0.1343**	**0.2090**	**0.0000**	**1,277.5281**	**1,277.5281**	**0.3333**	**0.0128**	**1,289.6828**

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	12/31/2024	6	314	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0824	0.0000	0.0824	8.9000e-003	0.0000	8.9000e-003			0.0000			0.0000
Off-Road	0.3733	2.9121	6.6667	0.0105		0.1441	0.1441		0.1326	0.1326		1,017.6800	1,017.6800	0.3291		1,025.9085
Total	**0.3733**	**2.9121**	**6.6667**	**0.0105**	**0.0824**	**0.1441**	**0.2265**	**8.9000e-003**	**0.1326**	**0.1415**		**1,017.6800**	**1,017.6800**	**0.3291**		**1,025.9085**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-004	0.0122	2.8200e-003	6.0000e-005	1.7800e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.3410	6.3410	1.0000e-005	1.0000e-003	6.6383
Vendor	2.2900e-003	0.0961	0.0274	4.7000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.9982	49.9982	1.2000e-004	7.6000e-003	52.2669
Worker	0.0701	0.0370	0.6203	2.0100e-003	0.2281	1.0500e-003	0.2292	0.0605	9.7000e-004	0.0615		203.5089	203.5089	4.0700e-003	4.2200e-003	204.8692
Total	**0.0727**	**0.1453**	**0.6505**	**2.5400e-003**	**0.2466**	**1.8300e-003**	**0.2484**	**0.0658**	**1.7100e-003**	**0.0675**		**259.8481**	**259.8481**	**4.2000e-003**	**0.0128**	**263.7744**

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0824	0.0000	0.0824	8.9000e-003	0.0000	8.9000e-003			0.0000			0.0000
Off-Road	0.3733	2.9121	6.6667	0.0105		0.1441	0.1441		0.1326	0.1326	0.0000	1,017.6800	1,017.6800	0.3291		1,025.9085
Total	**0.3733**	**2.9121**	**6.6667**	**0.0105**	**0.0824**	**0.1441**	**0.2265**	**8.9000e-003**	**0.1326**	**0.1415**	**0.0000**	**1,017.6800**	**1,017.6800**	**0.3291**		**1,025.9085**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-004	0.0122	2.8200e-003	6.0000e-005	1.7800e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.3410	6.3410	1.0000e-005	1.0000e-003	6.6383
Vendor	2.2900e-003	0.0961	0.0274	4.7000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.9982	49.9982	1.2000e-004	7.6000e-003	52.2669
Worker	0.0701	0.0370	0.6203	2.0100e-003	0.2281	1.0500e-003	0.2292	0.0605	9.7000e-004	0.0615		203.5089	203.5089	4.0700e-003	4.2200e-003	204.8692
Total	**0.0727**	**0.1453**	**0.6505**	**2.5400e-003**	**0.2466**	**1.8300e-003**	**0.2484**	**0.0658**	**1.7100e-003**	**0.0675**		**259.8481**	**259.8481**	**4.2000e-003**	**0.0128**	**263.7744**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.003849

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2024

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	314.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	0.4430	3.0754	7.2389	0.0129	0.3290	0.1459	0.4749	0.0747	0.1343	0.2090	0.0000	1,256.8096	1,256.8096	0.3338	0.0135	1,269.1840
Maximum	**0.4430**	**3.0754**	**7.2389**	**0.0129**	**0.3290**	**0.1459**	**0.4749**	**0.0747**	**0.1343**	**0.2090**	**0.0000**	**1,256.8096**	**1,256.8096**	**0.3338**	**0.0135**	**1,269.1840**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	0.4430	3.0754	7.2389	0.0129	0.3290	0.1459	0.4749	0.0747	0.1343	0.2090	0.0000	1,256.8096	1,256.8096	0.3338	0.0135	1,269.1840

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**0.4430**	**3.0754**	**7.2389**	**0.0129**	**0.3290**	**0.1459**	**0.4749**	**0.0747**	**0.1343**	**0.2090**	**0.0000**	**1,256.8096**	**1,256.8096**	**0.3338**	**0.0135**	**1,269.1840**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2024	12/31/2024	6	314	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0824	0.0000	0.0824	8.9000e-003	0.0000	8.9000e-003			0.0000			0.0000
Off-Road	0.3733	2.9121	6.6667	0.0105		0.1441	0.1441		0.1326	0.1326		1,017.6800	1,017.6800	0.3291		1,025.9085
Total	**0.3733**	**2.9121**	**6.6667**	**0.0105**	**0.0824**	**0.1441**	**0.2265**	**8.9000e-003**	**0.1326**	**0.1415**		**1,017.6800**	**1,017.6800**	**0.3291**		**1,025.9085**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0132	2.8800e-003	6.0000e-005	1.7800e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.3497	6.3497	1.0000e-005	1.0000e-003	6.6474
Vendor	2.1400e-003	0.1039	0.0283	4.7000e-004	0.0167	6.7000e-004	0.0174	4.8000e-003	6.4000e-004	5.4400e-003		50.0856	50.0856	1.2000e-004	7.6200e-003	52.3596
Worker	0.0673	0.0463	0.5411	1.8100e-003	0.2281	1.0500e-003	0.2292	0.0605	9.7000e-004	0.0615		182.6943	182.6943	4.5300e-003	4.9000e-003	184.2685

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0697**	**0.1634**	**0.5722**	**2.3400e-003**	**0.2466**	**1.8400e-003**	**0.2484**	**0.0658**	**1.7200e-003**	**0.0675**		**239.1296**	**239.1296**	**4.6600e-003**	**0.0135**	**243.2755**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0824	0.0000	0.0824	8.9000e-003	0.0000	8.9000e-003			0.0000			0.0000
Off-Road	0.3733	2.9121	6.6667	0.0105		0.1441	0.1441		0.1326	0.1326	0.0000	1,017.6800	1,017.6800	0.3291		1,025.9085
Total	**0.3733**	**2.9121**	**6.6667**	**0.0105**	**0.0824**	**0.1441**	**0.2265**	**8.9000e-003**	**0.1326**	**0.1415**	**0.0000**	**1,017.6800**	**1,017.6800**	**0.3291**		**1,025.9085**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0132	2.8800e-003	6.0000e-005	1.7800e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.3497	6.3497	1.0000e-005	1.0000e-003	6.6474
Vendor	2.1400e-003	0.1039	0.0283	4.7000e-004	0.0167	6.7000e-004	0.0174	4.8000e-003	6.4000e-004	5.4400e-003		50.0856	50.0856	1.2000e-004	7.6200e-003	52.3596
Worker	0.0673	0.0463	0.5411	1.8100e-003	0.2281	1.0500e-003	0.2292	0.0605	9.7000e-004	0.0615		182.6943	182.6943	4.5300e-003	4.9000e-003	184.2685
Total	**0.0697**	**0.1634**	**0.5722**	**2.3400e-003**	**0.2466**	**1.8400e-003**	**0.2484**	**0.0658**	**1.7200e-003**	**0.0675**		**239.1296**	**239.1296**	**4.6600e-003**	**0.0135**	**243.2755**

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Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.512350	0.056893	0.178530	0.139791	0.031559	0.007084	0.020535	0.017167	0.000579	0.000603	0.030442	0.000618	0.00384

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Date: 1/3/2023 8:50 AM

Portuguese Bend Multi-benefit Enhancement_2024 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Input Template

Project Name: Sacramento River Right Bank Levee Improvements: Cutoff Wall
Project Location: Yolo/Solano AQMD
CEC Climate Zone: 3
Land Use Setting: Rural
Operational Year: 2026

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	35.12	Acre	35.12	1,529,827.20

Note: Total area of disturbance including staging (28.12 acres + 7 acres staging/stockpiling)

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2025	1/30/2025	6	26	30	0	0	15	9	30
Construction	Building Construction	4/15/2025	11/1/2025	6	173	30	0	8312	15	9	30
Cleanup	Site Preparation	11/2/2025	12/31/2025	6	51	30	2	0	15	9	30

Notes:
Worker and Vendor trip lengths are default. Haul trip length to borrow sources is 30 miles one-way per project description.
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Hydroseeding truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (15) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Dozer	Rubber Tired Dozers	4	9	247	0.4	default
Motor Grader	Graders	2	9	187	0.41	default
Construction						
Excavator	Excavators	6	9	158	0.38	default
Water truck	Off-Highway Trucks	4	2	350	0.38	Adjusted default hp to 350 hp and hours to 2 hours per day
Maintenance truck	Off-Highway Trucks	1	9	410	0.38	Adjusted default hp to 410 hp
Sheepsfoot Roller/Compactor	Rollers	2	9	150	0.38	Adjusted default hp to 150 hp
Pump	Pump	4	9	84	0.74	default
Generator	Generator	2	9	84	0.74	default
Scraper	Scraper	4	9	367	0.4824	default
Tractor	Off-Highway Tractor	2	9	124	0.4355	default
Skyhook Man Lift	Aerial Lift	2	9	63	0.3082	default
Forklift	Forklift	2	9	89	0.2	default
Cleanup						
Side by Side or ATV	Off-Highway Trucks	3	9	90	0.38	Adjusted default hp to 90 hp

Notes:
Horsepower was adjusted for some equipment based on the typical horsepower for that specific equipment

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	48,417	CY	(clay cap, backfill)
Export	5198	CY	(topsoil)
Total material movement (assumed not balanced on site)	53615	CY	
Size of truck	16	CY/truck	
Number of trucks	3351	trucks	
Number of one-way truck trips	6702	one-way trips	
Highway haul truck	35	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	23	days	
Total roundtrips for highway haul trucks	805	roundtrips	
Total one-way highway haul truck trips	1610	one-way trips	
Total one-way truck trips	8312	trips	

Source: Project Description

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Cutoff Wall

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	35.12	Acre	35.12	1,529,827.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 35.12 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment lsit

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	740.00	173.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	30.00	26.00
tblConstructionPhase	NumDays	30.00	51.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	87.75	12.00
tblGrading	AcresOfGrading	0.00	12.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	8,312.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	251.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	643.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.7563	7.0672	8.7544	0.0221	0.5127	0.2679	0.7806	0.2353	0.2514	0.4866	0.0000	1,966.6134	1,966.6134	0.4236	0.0541	1,993.3347
Maximum	**0.7563**	**7.0672**	**8.7544**	**0.0221**	**0.5127**	**0.2679**	**0.7806**	**0.2353**	**0.2514**	**0.4866**	**0.0000**	**1,966.6134**	**1,966.6134**	**0.4236**	**0.0541**	**1,993.3347**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.7563	7.0672	8.7544	0.0221	0.5127	0.2679	0.7806	0.2353	0.2514	0.4866	0.0000	1,966.6115	1,966.6115	0.4236	0.0541	1,993.3328

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**0.7563**	**7.0672**	**8.7544**	**0.0221**	**0.5127**	**0.2679**	**0.7806**	**0.2353**	**0.2514**	**0.4866**	**0.0000**	**1,966.6115**	**1,966.6115**	**0.4236**	**0.0541**	**1,993.3328**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2025**	**3-31-2025**	0.5322	0.5322
2	**4-1-2025**	**6-30-2025**	2.7618	2.7618
3	**7-1-2025**	**9-30-2025**	3.2998	3.2998
		Highest	3.2998	3.2998

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1202	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1202**	**0.0000**	**3.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3000e-004**	**6.3000e-004**	**0.0000**	**0.0000**	**6.7000e-004**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1202	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1202**	**0.0000**	**3.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3000e-004**	**6.3000e-004**	**0.0000**	**0.0000**	**6.7000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	1/30/2025	6	26	
2	Construction	Building Construction	4/15/2025	11/1/2025	6	173	

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3	Cleanup	Site Preparation	11/2/2025	12/31/2025	6	51	

Acres of Grading (Site Preparation Phase): 12

Acres of Grading (Grading Phase): 0

Acres of Paving: 35.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	2	9.00	187	0.41
Site Preparation	Rubber Tired Dozers	4	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Aerial Lifts	2	9.00	63	0.31
Construction	Cranes	0	9.00	231	0.29
Construction	Excavators	6	9.00	158	0.38
Construction	Forklifts	2	9.00	89	0.20
Construction	Generator Sets	2	9.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Tractors	2	9.00	124	0.44
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	1	9.00	410	0.38
Construction	Pumps	4	9.00	84	0.74
Construction	Rollers	2	9.00	150	0.38
Construction	Scrapers	4	9.00	367	0.48
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	3	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	29	30.00	0.00	8,312.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	3	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3587	0.0000	0.3587	0.1943	0.0000	0.1943	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0470	0.4890	0.2220	6.9000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	60.8759	60.8759	0.0197	0.0000	61.3681
Total	**0.0470**	**0.4890**	**0.2220**	**6.9000e-004**	**0.3587**	**0.0202**	**0.3789**	**0.1943**	**0.0186**	**0.2130**	**0.0000**	**60.8759**	**60.8759**	**0.0197**	**0.0000**	**61.3681**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.2000e-004	9.7000e-003	3.0000e-005	4.3000e-003	2.0000e-005	4.3200e-003	1.1400e-003	2.0000e-005	1.1600e-003	0.0000	3.1937	3.1937	7.0000e-005	7.0000e-005	3.2177
Total	**1.1400e-003**	**7.2000e-004**	**9.7000e-003**	**3.0000e-005**	**4.3000e-003**	**2.0000e-005**	**4.3200e-003**	**1.1400e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**3.1937**	**3.1937**	**7.0000e-005**	**7.0000e-005**	**3.2177**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3587	0.0000	0.3587	0.1943	0.0000	0.1943	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0470	0.4890	0.2220	6.9000e-004		0.0202	0.0202		0.0186	0.0186	0.0000	60.8758	60.8758	0.0197	0.0000	61.3680
Total	**0.0470**	**0.4890**	**0.2220**	**6.9000e-004**	**0.3587**	**0.0202**	**0.3789**	**0.1943**	**0.0186**	**0.2130**	**0.0000**	**60.8758**	**60.8758**	**0.0197**	**0.0000**	**61.3680**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1400e-003	7.2000e-004	9.7000e-003	3.0000e-005	4.3000e-003	2.0000e-005	4.3200e-003	1.1400e-003	2.0000e-005	1.1600e-003	0.0000	3.1937	3.1937	7.0000e-005	7.0000e-005	3.2177
Total	**1.1400e-003**	**7.2000e-004**	**9.7000e-003**	**3.0000e-005**	**4.3000e-003**	**2.0000e-005**	**4.3200e-003**	**1.1400e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**3.1937**	**3.1937**	**7.0000e-005**	**7.0000e-005**	**3.2177**

3.3 Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6868	5.8326	8.3026	0.0176		0.2403	0.2403		0.2257	0.2257	0.0000	1,535.1487	1,535.1487	0.4027	0.0000	1,545.2171
Total	**0.6868**	**5.8326**	**8.3026**	**0.0176**		**0.2403**	**0.2403**		**0.2257**	**0.2257**	**0.0000**	**1,535.1487**	**1,535.1487**	**0.4027**	**0.0000**	**1,545.2171**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Hauling	0.0114	0.7362	0.1359	3.5300e-003	0.1059	7.1800e-003	0.1131	0.0291	6.8700e-003	0.0360	0.0000	338.7460	338.7460	5.6000e-004	0.0532	354.6249
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6100e-003	4.7600e-003	0.0645	2.3000e-004	0.0286	1.3000e-004	0.0288	7.6100e-003	1.2000e-004	7.7300e-003	0.0000	21.2506	21.2506	4.5000e-004	5.0000e-004	21.4100
Total	**0.0190**	**0.7409**	**0.2004**	**3.7600e-003**	**0.1345**	**7.3100e-003**	**0.1418**	**0.0367**	**6.9900e-003**	**0.0437**	**0.0000**	**359.9966**	**359.9966**	**1.0100e-003**	**0.0537**	**376.0350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6868	5.8326	8.3026	0.0176		0.2403	0.2403		0.2257	0.2257	0.0000	1,535.1469	1,535.1469	0.4027	0.0000	1,545.2152
Total	**0.6868**	**5.8326**	**8.3026**	**0.0176**		**0.2403**	**0.2403**		**0.2257**	**0.2257**	**0.0000**	**1,535.1469**	**1,535.1469**	**0.4027**	**0.0000**	**1,545.2152**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0114	0.7362	0.1359	3.5300e-003	0.1059	7.1800e-003	0.1131	0.0291	6.8700e-003	0.0360	0.0000	338.7460	338.7460	5.6000e-004	0.0532	354.6249

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6100e-003	4.7600e-003	0.0645	2.3000e-004	0.0286	1.3000e-004	0.0288	7.6100e-003	1.2000e-004	7.7300e-003	0.0000	21.2506	21.2506	4.5000e-004	5.0000e-004	21.4100
Total	**0.0190**	**0.7409**	**0.2004**	**3.7600e-003**	**0.1345**	**7.3100e-003**	**0.1418**	**0.0367**	**6.9900e-003**	**0.0437**	**0.0000**	**359.9966**	**359.9966**	**1.0100e-003**	**0.0537**	**376.0350**

3.4 Cleanup - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3600e-003	0.0000	6.3600e-003	6.9000e-004	0.0000	6.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3600e-003**	**0.0000**	**6.3600e-003**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	6.0000e-005	2.5700e-003	6.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1338	1.1338	0.0000	1.7000e-004	1.1853
Worker	2.2400e-003	1.4000e-003	0.0190	7.0000e-005	8.4400e-003	4.0000e-005	8.4800e-003	2.2400e-003	4.0000e-005	2.2800e-003	0.0000	6.2646	6.2646	1.3000e-004	1.5000e-004	6.3116
Total	**2.3000e-003**	**3.9700e-003**	**0.0197**	**8.0000e-005**	**8.8500e-003**	**6.0000e-005**	**8.9100e-003**	**2.3600e-003**	**6.0000e-005**	**2.4200e-003**	**0.0000**	**7.3984**	**7.3984**	**1.3000e-004**	**3.2000e-004**	**7.4969**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3600e-003	0.0000	6.3600e-003	6.9000e-004	0.0000	6.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3600e-003**	**0.0000**	**6.3600e-003**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	6.0000e-005	2.5700e-003	6.9000e-004	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1338	1.1338	0.0000	1.7000e-004	1.1853
Worker	2.2400e-003	1.4000e-003	0.0190	7.0000e-005	8.4400e-003	4.0000e-005	8.4800e-003	2.2400e-003	4.0000e-005	2.2800e-003	0.0000	6.2646	6.2646	1.3000e-004	1.5000e-004	6.3116
Total	**2.3000e-003**	**3.9700e-003**	**0.0197**	**8.0000e-005**	**8.8500e-003**	**6.0000e-005**	**8.9100e-003**	**2.3600e-003**	**6.0000e-005**	**2.4200e-003**	**0.0000**	**7.3984**	**7.3984**	**1.3000e-004**	**3.2000e-004**	**7.4969**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.003685

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Mitigated	0.1202	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004
Unmitigated	0.1202	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0213					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0989					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004
Total	**0.1202**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.3000e-004**	**6.3000e-004**	**0.0000**	**0.0000**	**6.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating	0.0213					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0989					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.3000e-004	6.3000e-004	0.0000	0.0000	6.7000e-004
Total	**0.1202**	**0.0000**	**3.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.3000e-004**	**6.3000e-004**	**0.0000**	**0.0000**	**6.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Cutoff Wall

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	35.12	Acre	35.12	1,529,827.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 35.12 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment lsit

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	740.00	173.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	30.00	26.00
tblConstructionPhase	NumDays	30.00	51.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	87.75	12.00
tblGrading	AcresOfGrading	0.00	12.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	HaulingTripNumber	0.00	8,312.00
tblTripsAndVMT	VendorTripNumber	251.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	643.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	8.1736	75.5164	98.4107	0.2468	27.9310	2.8628	29.4884	15.0396	2.6903	16.4725	0.0000	24,173.0339	24,173.0339	5.1451	0.6841	24,505.5162
Maximum	**8.1736**	**75.5164**	**98.4107**	**0.2468**	**27.9310**	**2.8628**	**29.4884**	**15.0396**	**2.6903**	**16.4725**	**0.0000**	**24,173.0339**	**24,173.0339**	**5.1451**	**0.6841**	**24,505.5162**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2025	8.1736	75.5164	98.4107	0.2468	27.9310	2.8628	29.4884	15.0396	2.6903	16.4725	0.0000	24,173.0339	24,173.0339	5.1451	0.6841	24,505.5162
Maximum	**8.1736**	**75.5164**	**98.4107**	**0.2468**	**27.9310**	**2.8628**	**29.4884**	**15.0396**	**2.6903**	**16.4725**	**0.0000**	**24,173.0339**	**24,173.0339**	**5.1451**	**0.6841**	**24,505.5162**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**	**0.0000**	**8.1900e-003**

Mitigated Operational

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**	**0.0000**	**8.1900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	1/30/2025	6	26	
2	Construction	Building Construction	4/15/2025	11/1/2025	6	173	
3	Cleanup	Site Preparation	11/2/2025	12/31/2025	6	51	

Acres of Grading (Site Preparation Phase): 12

Acres of Grading (Grading Phase): 0

Acres of Paving: 35.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	2	9.00	187	0.41
Site Preparation	Rubber Tired Dozers	4	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Aerial Lifts	2	9.00	63	0.31
Construction	Cranes	0	9.00	231	0.29
Construction	Excavators	6	9.00	158	0.38
Construction	Forklifts	2	9.00	89	0.20
Construction	Generator Sets	2	9.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Tractors	2	9.00	124	0.44
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	1	9.00	410	0.38
Construction	Pumps	4	9.00	84	0.74
Construction	Rollers	2	9.00	150	0.38
Construction	Scrapers	4	9.00	367	0.48
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	3	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	29	30.00	0.00	8,312.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	3	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					27.5889	0.0000	27.5889	14.9489	0.0000	14.9489			0.0000			0.0000
Off-Road	3.6163	37.6178	17.0765	0.0533		1.5559	1.5559		1.4315	1.4315		5,161.8596	5,161.8596	1.6695		5,203.5959
Total	**3.6163**	**37.6178**	**17.0765**	**0.0533**	**27.5889**	**1.5559**	**29.1448**	**14.9489**	**1.4315**	**16.3803**		**5,161.8596**	**5,161.8596**	**1.6695**		**5,203.5959**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.0983**	**0.0496**	**0.8667**	**2.9200e-003**	**0.3422**	**1.5000e-003**	**0.3437**	**0.0907**	**1.3800e-003**	**0.0921**		**294.7848**	**294.7848**	**5.5100e-003**	**5.9200e-003**	**296.6866**

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Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					27.5889	0.0000	27.5889	14.9489	0.0000	14.9489			0.0000			0.0000
Off-Road	3.6163	37.6178	17.0765	0.0533		1.5559	1.5559		1.4315	1.4315	0.0000	5,161.8596	5,161.8596	1.6695		5,203.5959
Total	**3.6163**	**37.6178**	**17.0765**	**0.0533**	**27.5889**	**1.5559**	**29.1448**	**14.9489**	**1.4315**	**16.3803**	**0.0000**	**5,161.8596**	**5,161.8596**	**1.6695**		**5,203.5959**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.0983**	**0.0496**	**0.8667**	**2.9200e-003**	**0.3422**	**1.5000e-003**	**0.3437**	**0.0907**	**1.3800e-003**	**0.0921**		**294.7848**	**294.7848**	**5.5100e-003**	**5.9200e-003**	**296.6866**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.9400	67.4284	95.9837	0.2031		2.7783	2.7783		2.6095	2.6095		19,563.1420	19,563.1420	5.1323		19,691.4482
Total	**7.9400**	**67.4284**	**95.9837**	**0.2031**		**2.7783**	**2.7783**		**2.6095**	**2.6095**		**19,563.1420**	**19,563.1420**	**5.1323**		**19,691.4482**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1353	8.0384	1.5604	0.0408	1.2601	0.0830	1.3431	0.3454	0.0794	0.4248		4,315.1071	4,315.1071	7.2900e-003	0.6782	4,517.3815
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.2336**	**8.0880**	**2.4271**	**0.0437**	**1.6023**	**0.0845**	**1.6868**	**0.4361**	**0.0808**	**0.5169**		**4,609.8920**	**4,609.8920**	**0.0128**	**0.6841**	**4,814.0681**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.9400	67.4284	95.9837	0.2031		2.7783	2.7783		2.6095	2.6095	0.0000	19,563.1420	19,563.1420	5.1323		19,691.4482
Total	**7.9400**	**67.4284**	**95.9837**	**0.2031**		**2.7783**	**2.7783**		**2.6095**	**2.6095**	**0.0000**	**19,563.1420**	**19,563.1420**	**5.1323**		**19,691.4482**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1353	8.0384	1.5604	0.0408	1.2601	0.0830	1.3431	0.3454	0.0794	0.4248		4,315.1071	4,315.1071	7.2900e-003	0.6782	4,517.3815
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.2336**	**8.0880**	**2.4271**	**0.0437**	**1.6023**	**0.0845**	**1.6868**	**0.4361**	**0.0808**	**0.5169**		**4,609.8920**	**4,609.8920**	**0.0128**	**0.6841**	**4,814.0681**

3.4 Cleanup - 2025

Unmitigated Construction On-Site

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Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2495	0.0000	0.2495	0.0269	0.0000	0.0269			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2495**	**0.0000**	**0.2495**	**0.0269**	**0.0000**	**0.0269**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2400e-003	0.0957	0.0269	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		48.9754	48.9754	1.2000e-004	7.4500e-003	51.1985
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.1005**	**0.1452**	**0.8936**	**3.3800e-003**	**0.3589**	**2.1600e-003**	**0.3610**	**0.0955**	**2.0100e-003**	**0.0976**		**343.7602**	**343.7602**	**5.6300e-003**	**0.0134**	**347.8850**

Mitigated Construction On-Site

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2495	0.0000	0.2495	0.0269	0.0000	0.0269			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2495**	**0.0000**	**0.2495**	**0.0269**	**0.0000**	**0.0269**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2400e-003	0.0957	0.0269	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		48.9754	48.9754	1.2000e-004	7.4500e-003	51.1985
Worker	0.0983	0.0496	0.8667	2.9200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		294.7848	294.7848	5.5100e-003	5.9200e-003	296.6866
Total	**0.1005**	**0.1452**	**0.8936**	**3.3800e-003**	**0.3589**	**2.1600e-003**	**0.3610**	**0.0955**	**2.0100e-003**	**0.0976**		**343.7602**	**343.7602**	**5.6300e-003**	**0.0134**	**347.8850**

4.0 Operational Detail - Mobile

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.003685

5.0 Energy Detail

Historical Energy Use: N

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Unmitigated	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003

6.2 Area by SubCategory

Unmitigated

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1166					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**		**8.1900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1166					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**		**8.1900e-003**

7.0 Water Detail

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Cutoff Wall

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	35.12	Acre	35.12	1,529,827.20	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 35.12 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment lsit

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	740.00	173.00
tblConstructionPhase	NumDays	30.00	26.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	30.00	51.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	87.75	12.00
tblGrading	AcresOfGrading	0.00	12.00
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	8,312.00
tblTripsAndVMT	VendorTripNumber	251.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	15.00	30.00
tblTripsAndVMT	WorkerTripNumber	643.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	8.1617	76.1958	98.3277	0.2465	27.9310	2.8629	29.4884	15.0396	2.6904	16.4725	0.0000	24,146.9857	24,146.9857	5.1453	0.6857	24,479.9519
Maximum	**8.1617**	**76.1958**	**98.3277**	**0.2465**	**27.9310**	**2.8629**	**29.4884**	**15.0396**	**2.6904**	**16.4725**	**0.0000**	**24,146.9857**	**24,146.9857**	**5.1453**	**0.6857**	**24,479.9519**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	8.1617	76.1958	98.3277	0.2465	27.9310	2.8629	29.4884	15.0396	2.6904	16.4725	0.0000	24,146.9857	24,146.9857	5.1453	0.6857	24,479.9519
Maximum	**8.1617**	**76.1958**	**98.3277**	**0.2465**	**27.9310**	**2.8629**	**29.4884**	**15.0396**	**2.6904**	**16.4725**	**0.0000**	**24,146.9857**	**24,146.9857**	**5.1453**	**0.6857**	**24,479.9519**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**	**0.0000**	**8.1900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	0.6588	3.0000e-005	3.5800e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005	0.0000	8.1900e-003

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	1/30/2025	6	26	
2	Construction	Building Construction	4/15/2025	11/1/2025	6	173	
3	Cleanup	Site Preparation	11/2/2025	12/31/2025	6	51	

Acres of Grading (Site Preparation Phase): 12

Acres of Grading (Grading Phase): 0

Acres of Paving: 35.12

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	2	9.00	187	0.41
Site Preparation	Rubber Tired Dozers	4	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Aerial Lifts	2	9.00	63	0.31
Construction	Cranes	0	9.00	231	0.29
Construction	Excavators	6	9.00	158	0.38
Construction	Forklifts	2	9.00	89	0.20

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction	Generator Sets	2	9.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Tractors	2	9.00	124	0.44
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	1	9.00	410	0.38
Construction	Pumps	4	9.00	84	0.74
Construction	Rollers	2	9.00	150	0.38
Construction	Scrapers	4	9.00	367	0.48
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	3	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	29	30.00	0.00	8,312.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	3	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fugitive Dust					27.5889	0.0000	27.5889	14.9489	0.0000	14.9489			0.0000			0.0000
Off-Road	3.6163	37.6178	17.0765	0.0533		1.5559	1.5559		1.4315	1.4315		5,161.8596	5,161.8596	1.6695		5,203.5959
Total	**3.6163**	**37.6178**	**17.0765**	**0.0533**	**27.5889**	**1.5559**	**29.1448**	**14.9489**	**1.4315**	**16.3803**		**5,161.8596**	**5,161.8596**	**1.6695**		**5,203.5959**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.0946**	**0.0620**	**0.7581**	**2.6200e-003**	**0.3422**	**1.5000e-003**	**0.3437**	**0.0907**	**1.3800e-003**	**0.0921**		**264.6964**	**264.6964**	**6.1600e-003**	**6.8700e-003**	**266.8969**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					27.5889	0.0000	27.5889	14.9489	0.0000	14.9489			0.0000			0.0000

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	3.6163	37.6178	17.0765	0.0533		1.5559	1.5559		1.4315	1.4315	0.0000	5,161.8596	5,161.8596	1.6695		5,203.5959
Total	**3.6163**	**37.6178**	**17.0765**	**0.0533**	**27.5889**	**1.5559**	**29.1448**	**14.9489**	**1.4315**	**16.3803**	**0.0000**	**5,161.8596**	**5,161.8596**	**1.6695**		**5,203.5959**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.0946**	**0.0620**	**0.7581**	**2.6200e-003**	**0.3422**	**1.5000e-003**	**0.3437**	**0.0907**	**1.3800e-003**	**0.0921**		**264.6964**	**264.6964**	**6.1600e-003**	**6.8700e-003**	**266.8969**

3.3 Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.9400	67.4284	95.9837	0.2031		2.7783	2.7783		2.6095	2.6095		19,563.1420	19,563.1420	5.1323		19,691.4482
Total	**7.9400**	**67.4284**	**95.9837**	**0.2031**		**2.7783**	**2.7783**		**2.6095**	**2.6095**		**19,563.1420**	**19,563.1420**	**5.1323**		**19,691.4482**

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Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1271	8.7054	1.5859	0.0408	1.2601	0.0831	1.3432	0.3454	0.0795	0.4248		4,319.1474	4,319.1474	6.9000e-003	0.6788	4,521.6068
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.2217**	**8.7674**	**2.3440**	**0.0434**	**1.6023**	**0.0846**	**1.6869**	**0.4361**	**0.0809**	**0.5170**		**4,583.8437**	**4,583.8437**	**0.0131**	**0.6857**	**4,788.5037**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.9400	67.4284	95.9837	0.2031		2.7783	2.7783		2.6095	2.6095	0.0000	19,563.1420	19,563.1420	5.1323		19,691.4482
Total	**7.9400**	**67.4284**	**95.9837**	**0.2031**		**2.7783**	**2.7783**		**2.6095**	**2.6095**	**0.0000**	**19,563.1420**	**19,563.1420**	**5.1323**		**19,691.4482**

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1271	8.7054	1.5859	0.0408	1.2601	0.0831	1.3432	0.3454	0.0795	0.4248		4,319.1474	4,319.1474	6.9000e-003	0.6788	4,521.6068
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.2217**	**8.7674**	**2.3440**	**0.0434**	**1.6023**	**0.0846**	**1.6869**	**0.4361**	**0.0809**	**0.5170**		**4,583.8437**	**4,583.8437**	**0.0131**	**0.6857**	**4,788.5037**

3.4 Cleanup - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2495	0.0000	0.2495	0.0269	0.0000	0.0269			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2495**	**0.0000**	**0.2495**	**0.0269**	**0.0000**	**0.0269**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

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Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.1034	0.0277	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.0617	49.0617	1.1000e-004	7.4700e-003	51.2898
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.0967**	**0.1655**	**0.7858**	**3.0800e-003**	**0.3589**	**2.1600e-003**	**0.3610**	**0.0955**	**2.0100e-003**	**0.0976**		**313.7580**	**313.7580**	**6.2700e-003**	**0.0143**	**318.1867**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2495	0.0000	0.2495	0.0269	0.0000	0.0269			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2495**	**0.0000**	**0.2495**	**0.0269**	**0.0000**	**0.0269**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.1034	0.0277	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.0617	49.0617	1.1000e-004	7.4700e-003	51.2898
Worker	0.0946	0.0620	0.7581	2.6200e-003	0.3422	1.5000e-003	0.3437	0.0907	1.3800e-003	0.0921		264.6964	264.6964	6.1600e-003	6.8700e-003	266.8969
Total	**0.0967**	**0.1655**	**0.7858**	**3.0800e-003**	**0.3589**	**2.1600e-003**	**0.3610**	**0.0955**	**2.0100e-003**	**0.0976**		**313.7580**	**313.7580**	**6.2700e-003**	**0.0143**	**318.1867**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.003685

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Mitigated	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Unmitigated	0.6588	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1166					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**		**8.1900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1166					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Sac River Right Bank Levee Improvements: Cutoff Wall - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Consumer Products	0.5419					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.6900e-003	7.6900e-003	2.0000e-005		8.1900e-003
Total	**0.6588**	**3.0000e-005**	**3.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.6900e-003**	**7.6900e-003**	**2.0000e-005**		**8.1900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Input Template

Project Name:	Portuguese Bend Multi-benefit Enhancement	
Project Location:	Yolo/Solano AQMD	
CEC Climate Zone:	3	
Land Use Setting:	Rural	
Operational Year:	2026	(construction occuring concurrently with the Cutoff Wall)

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60

Note: Area of disturbance associated with staging/stockpiling is already accounted for in the model run for Cutoff Wall

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2025	12/31/2025	6	313	20	2	32	15	9	20

Notes:
Worker, Vendor, and Hauling trip lengths are default
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Goat transportation truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (10) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Small Excavator	Excavator	1	9	158	0.38	default
Masticator	Tractor/Loader/Backhoe	1	9	132	0.37	Adjusted default hp to 132 hp

Notes:
Horsepower was adjusted for some equipment based on the typical horsepower for that specific equipment

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	0	CY	
Export	250	CY	(vegetation)
Total material movement (assumed not balanced on site)	250	CY	
Size of truck	16	CY/truck	
Number of trucks	16	trucks	
Number of one-way truck trips	32	one-way trips	
Highway haul truck	0	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	0	days	
Total roundtrips for highway haul trucks	0	roundtrips	
Total one-way highway haul truck trips	0	one-way trips	
Total one-way truck trips	32	trips	

Source: Project Description

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2025

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0635	0.4176	1.1240	2.0100e-003	0.0503	0.0197	0.0700	0.0114	0.0181	0.0295	0.0000	177.9607	177.9607	0.0473	1.8000e-003	179.6786
Maximum	**0.0635**	**0.4176**	**1.1240**	**2.0100e-003**	**0.0503**	**0.0197**	**0.0700**	**0.0114**	**0.0181**	**0.0295**	**0.0000**	**177.9607**	**177.9607**	**0.0473**	**1.8000e-003**	**179.6786**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2025	0.0635	0.4176	1.1240	2.0100e-003	0.0503	0.0197	0.0700	0.0114	0.0181	0.0295	0.0000	177.9605	177.9605	0.0473	1.8000e-003	179.6785
Maximum	**0.0635**	**0.4176**	**1.1240**	**2.0100e-003**	**0.0503**	**0.0197**	**0.0700**	**0.0114**	**0.0181**	**0.0295**	**0.0000**	**177.9605**	**177.9605**	**0.0473**	**1.8000e-003**	**179.6785**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2025**	**3-31-2025**	0.1190	0.1190
2	**4-1-2025**	**6-30-2025**	0.1198	0.1198
3	**7-1-2025**	**9-30-2025**	0.1211	0.1211
		Highest	0.1211	0.1211

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	12/31/2025	6	313	

Acres of Grading (Site Preparation Phase): 24.41

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.3941	1.0415	1.6500e-003		0.0194	0.0194		0.0179	0.0179	0.0000	144.4859	144.4859	0.0467	0.0000	145.6542
Total	**0.0540**	**0.3941**	**1.0415**	**1.6500e-003**	**0.0129**	**0.0194**	**0.0324**	**1.4000e-003**	**0.0179**	**0.0193**	**0.0000**	**144.4859**	**144.4859**	**0.0467**	**0.0000**	**145.6542**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.0000e-003	4.4000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8846	0.8846	0.0000	1.4000e-004	0.9261
Vendor	3.4000e-004	0.0158	4.2600e-003	7.0000e-005	2.5400e-003	1.0000e-004	2.6500e-003	7.3000e-004	1.0000e-004	8.3000e-004	0.0000	6.9584	6.9584	2.0000e-005	1.0600e-003	7.2743
Worker	9.1800e-003	5.7400e-003	0.0778	2.8000e-004	0.0345	1.6000e-004	0.0347	9.1800e-003	1.4000e-004	9.3300e-003	0.0000	25.6318	25.6318	5.4000e-004	6.0000e-004	25.8241
Total	**9.5600e-003**	**0.0235**	**0.0825**	**3.6000e-004**	**0.0373**	**2.8000e-004**	**0.0376**	**9.9800e-003**	**2.6000e-004**	**0.0103**	**0.0000**	**33.4748**	**33.4748**	**5.6000e-004**	**1.8000e-003**	**34.0245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.3941	1.0415	1.6500e-003		0.0194	0.0194		0.0179	0.0179	0.0000	144.4857	144.4857	0.0467	0.0000	145.6540
Total	**0.0540**	**0.3941**	**1.0415**	**1.6500e-003**	**0.0129**	**0.0194**	**0.0324**	**1.4000e-003**	**0.0179**	**0.0193**	**0.0000**	**144.4857**	**144.4857**	**0.0467**	**0.0000**	**145.6540**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	2.0000e-003	4.4000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8846	0.8846	0.0000	1.4000e-004	0.9261
Vendor	3.4000e-004	0.0158	4.2600e-003	7.0000e-005	2.5400e-003	1.0000e-004	2.6500e-003	7.3000e-004	1.0000e-004	8.3000e-004	0.0000	6.9584	6.9584	2.0000e-005	1.0600e-003	7.2743
Worker	9.1800e-003	5.7400e-003	0.0778	2.8000e-004	0.0345	1.6000e-004	0.0347	9.1800e-003	1.4000e-004	9.3300e-003	0.0000	25.6318	25.6318	5.4000e-004	6.0000e-004	25.8241
Total	**9.5600e-003**	**0.0235**	**0.0825**	**3.6000e-004**	**0.0373**	**2.8000e-004**	**0.0376**	**9.9800e-003**	**2.6000e-004**	**0.0103**	**0.0000**	**33.4748**	**33.4748**	**5.6000e-004**	**1.8000e-003**	**34.0245**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.00368

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Unmitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

Mitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2025

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	0.4128	2.6590	7.2622	0.0130	0.3293	0.1258	0.4551	0.0747	0.1158	0.1905	0.0000	1,269.4156	1,269.4156	0.3329	0.0124	1,281.4270
Maximum	**0.4128**	**2.6590**	**7.2622**	**0.0130**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1158**	**0.1905**	**0.0000**	**1,269.4156**	**1,269.4156**	**0.3329**	**0.0124**	**1,281.4270**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	0.4128	2.6590	7.2622	0.0130	0.3293	0.1258	0.4551	0.0747	0.1158	0.1905	0.0000	1,269.4156	1,269.4156	0.3329	0.0124	1,281.4270

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**0.4128**	**2.6590**	**7.2622**	**0.0130**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1158**	**0.1905**	**0.0000**	**1,269.4156**	**1,269.4156**	**0.3329**	**0.0124**	**1,281.4270**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	12/31/2025	6	313	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141		1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**		**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-004	0.0121	2.8200e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9100e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.2272	6.2272	1.0000e-005	9.8000e-004	6.5192
Vendor	2.2400e-003	0.0957	0.0269	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		48.9754	48.9754	1.2000e-004	7.4500e-003	51.1985
Worker	0.0655	0.0330	0.5778	1.9400e-003	0.2281	1.0000e-003	0.2291	0.0605	9.2000e-004	0.0614		196.5232	196.5232	3.6700e-003	3.9500e-003	197.7910

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0680**	**0.1408**	**0.6075**	**2.4600e-003**	**0.2466**	**1.7800e-003**	**0.2484**	**0.0658**	**1.6600e-003**	**0.0675**		**251.7258**	**251.7258**	**3.8000e-003**	**0.0124**	**255.5087**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141	0.0000	1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**	**0.0000**	**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.4000e-004	0.0121	2.8200e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9100e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.2272	6.2272	1.0000e-005	9.8000e-004	6.5192
Vendor	2.2400e-003	0.0957	0.0269	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		48.9754	48.9754	1.2000e-004	7.4500e-003	51.1985
Worker	0.0655	0.0330	0.5778	1.9400e-003	0.2281	1.0000e-003	0.2291	0.0605	9.2000e-004	0.0614		196.5232	196.5232	3.6700e-003	3.9500e-003	197.7910
Total	**0.0680**	**0.1408**	**0.6075**	**2.4600e-003**	**0.2466**	**1.7800e-003**	**0.2484**	**0.0658**	**1.6600e-003**	**0.0675**		**251.7258**	**251.7258**	**3.8000e-003**	**0.0124**	**255.5087**

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.00368

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2025

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	0.4102	2.6761	7.1906	0.0128	0.3293	0.1258	0.4551	0.0747	0.1158	0.1905	0.0000	1,249.4515	1,249.4515	0.3334	0.0130	1,261.6676
Maximum	**0.4102**	**2.6761**	**7.1906**	**0.0128**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1158**	**0.1905**	**0.0000**	**1,249.4515**	**1,249.4515**	**0.3334**	**0.0130**	**1,261.6676**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	0.4102	2.6761	7.1906	0.0128	0.3293	0.1258	0.4551	0.0747	0.1158	0.1905	0.0000	1,249.4515	1,249.4515	0.3334	0.0130	1,261.6676

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**0.4102**	**2.6761**	**7.1906**	**0.0128**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1158**	**0.1905**	**0.0000**	**1,249.4515**	**1,249.4515**	**0.3334**	**0.0130**	**1,261.6676**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2025	12/31/2025	6	313	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141		1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**		**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0131	2.8700e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9100e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.2358	6.2358	1.0000e-005	9.8000e-004	6.5282
Vendor	2.0900e-003	0.1034	0.0277	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.0617	49.0617	1.1000e-004	7.4700e-003	51.2898
Worker	0.0631	0.0413	0.5054	1.7500e-003	0.2281	1.0000e-003	0.2291	0.0605	9.2000e-004	0.0614		176.4643	176.4643	4.1100e-003	4.5800e-003	177.9313

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0654**	**0.1579**	**0.5360**	**2.2700e-003**	**0.2466**	**1.7800e-003**	**0.2484**	**0.0658**	**1.6600e-003**	**0.0675**		**231.7617**	**231.7617**	**4.2300e-003**	**0.0130**	**235.7493**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141	0.0000	1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**	**0.0000**	**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0131	2.8700e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9100e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.2358	6.2358	1.0000e-005	9.8000e-004	6.5282
Vendor	2.0900e-003	0.1034	0.0277	4.6000e-004	0.0167	6.6000e-004	0.0174	4.8000e-003	6.3000e-004	5.4400e-003		49.0617	49.0617	1.1000e-004	7.4700e-003	51.2898
Worker	0.0631	0.0413	0.5054	1.7500e-003	0.2281	1.0000e-003	0.2291	0.0605	9.2000e-004	0.0614		176.4643	176.4643	4.1100e-003	4.5800e-003	177.9313
Total	**0.0654**	**0.1579**	**0.5360**	**2.2700e-003**	**0.2466**	**1.7800e-003**	**0.2484**	**0.0658**	**1.6600e-003**	**0.0675**		**231.7617**	**231.7617**	**4.2300e-003**	**0.0130**	**235.7493**

Date: 1/3/2023 10:36 AM

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.516016	0.056838	0.178643	0.137090	0.030249	0.006943	0.021486	0.017302	0.000566	0.000616	0.029948	0.000619	0.00368

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Portuguese Bend Multi-benefit Enhancement_2025 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Input Template

Project Name: Sacramento River Right Bank Levee Improvements: Stability Berms
Project Location: Yolo/Solano AQMD
CEC Climate Zone: 3
Land Use Setting: Rural
Operational Year: 2027

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	60.04	Acre	60.04	2,615,342.40

Note: Total area of disturbance including staging (53.04 acres + 7 acres staging/stockpiling)

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2026	1/30/2026	6	26	30	0	0	15	9	30
Construction	Building Construction	4/15/2026	11/1/2026	6	172	30	0	42474	15	9	30
Cleanup	Site Preparation	11/2/2026	12/31/2026	6	52	30	2	0	15	9	30

Notes:
Worker and Vendor trip lengths are default. Haul trip length to borrow sources is 30 miles one-way per project description.
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Hydroseeding truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (15) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Motor Grader	Graders	2	9	187	0.41	default
Dozer	Rubber Tired Dozers	8	9	247	0.4	default
Construction						
Excavator	Excavators	5	9	158	0.38	default
Water truck	Off-Highway Trucks	4	2	350	0.38	Adjusted default hp to 350 hp and hours to 2 hours per day
Maintenance truck	Off-Highway Trucks	2	9	410	0.38	Adjusted default hp to 410 hp
Sheepsfoot Roller/Compactor	Rollers	4	9	150	0.38	Adjusted default hp to 150 hp
Pump	Pump	2	9	84	0.74	default
Cleanup						
Side by Side or ATV	Off-Highway Trucks	4	9	90	0.38	Adjusted default hp to 90 hp

Notes:
Horsepower was adjusted for some equipment based on the typical horsepower for that specific equipment

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	253,644	CY	(berm fill, drainage layer)
Export	12544	CY	(topsoil)
Total material movement (assumed not balanced on site)	266188	CY	
Size of truck	16	CY/truck	
Number of trucks	16637	trucks	
Number of one-way truck trips	33274	one-way trips	
Highway haul truck	40	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	115	days	
Total roundtrips for highway haul trucks	4600	roundtrips	
Total one-way highway haul truck trips	9200	one-way trips	
Total one-way truck trips	42474	trips	

Source: Project Description

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Stability Berms

Yolo/Solano AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	60.04	Acre	60.04	2,615,342.40	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 60.04 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	172.00
tblConstructionPhase	NumDays	40.00	26.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	40.00	52.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	146.25	12.74
tblGrading	AcresOfGrading	0.00	11.90
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	42,474.00
tblTripsAndVMT	VendorTripNumber	429.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	25.00	30.00
tblTripsAndVMT	WorkerTripNumber	1,098.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.4687	6.8769	5.4729	0.0284	1.3005	0.1692	1.4698	0.5486	0.1586	0.7072	0.0000	2,641.5110	2,641.5110	0.2688	0.2671	2,727.8360
Maximum	**0.4687**	**6.8769**	**5.4729**	**0.0284**	**1.3005**	**0.1692**	**1.4698**	**0.5486**	**0.1586**	**0.7072**	**0.0000**	**2,641.5110**	**2,641.5110**	**0.2688**	**0.2671**	**2,727.8360**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.4686	6.8769	5.4729	0.0284	1.3005	0.1692	1.4698	0.5486	0.1586	0.7072	0.0000	2,641.5099	2,641.5099	0.2688	0.2671	2,727.8349
Maximum	**0.4686**	**6.8769**	**5.4729**	**0.0284**	**1.3005**	**0.1692**	**1.4698**	**0.5486**	**0.1586**	**0.7072**	**0.0000**	**2,641.5099**	**2,641.5099**	**0.2688**	**0.2671**	**2,727.8349**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2026**	**3-31-2026**	0.9528	0.9528
2	**4-1-2026**	**6-30-2026**	2.3682	2.3682
3	**7-1-2026**	**9-30-2026**	2.8295	2.8295
		Highest	2.8295	2.8295

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2055	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2055**	**0.0000**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0700e-003**	**1.0700e-003**	**0.0000**	**0.0000**	**1.1400e-003**

Mitigated Operational

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2055	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2055**	**0.0000**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0700e-003**	**1.0700e-003**	**0.0000**	**0.0000**	**1.1400e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	1/30/2026	6	26	
2	Construction	Building Construction	4/15/2026	11/1/2026	6	172	
3	Cleanup	Site Preparation	11/2/2026	12/31/2026	6	52	

Acres of Grading (Site Preparation Phase): 12.74

Acres of Grading (Grading Phase): 0

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Paving: 60.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	8	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	5	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	2	9.00	410	0.38
Construction	Pumps	2	9.00	84	0.74
Construction	Rollers	4	9.00	150	0.38
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	2	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	10	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	17	30.00	0.00	42,474.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7113	0.0000	0.7113	0.3880	0.0000	0.3880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0849	0.8766	0.3972	1.1900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	104.7090	104.7090	0.0339	0.0000	105.5557
Total	**0.0849**	**0.8766**	**0.3972**	**1.1900e-003**	**0.7113**	**0.0372**	**0.7485**	**0.3880**	**0.0342**	**0.4222**	**0.0000**	**104.7090**	**104.7090**	**0.0339**	**0.0000**	**105.5557**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	6.5000e-004	9.1200e-003	3.0000e-005	4.3000e-003	2.0000e-005	4.3200e-003	1.1400e-003	2.0000e-005	1.1600e-003	0.0000	3.0973	3.0973	6.0000e-005	7.0000e-005	3.1199
Total	**1.0800e-003**	**6.5000e-004**	**9.1200e-003**	**3.0000e-005**	**4.3000e-003**	**2.0000e-005**	**4.3200e-003**	**1.1400e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**3.0973**	**3.0973**	**6.0000e-005**	**7.0000e-005**	**3.1199**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7113	0.0000	0.7113	0.3880	0.0000	0.3880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0849	0.8766	0.3972	1.1900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	104.7089	104.7089	0.0339	0.0000	105.5555
Total	**0.0849**	**0.8766**	**0.3972**	**1.1900e-003**	**0.7113**	**0.0372**	**0.7485**	**0.3880**	**0.0342**	**0.4222**	**0.0000**	**104.7089**	**104.7089**	**0.0339**	**0.0000**	**105.5555**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	6.5000e-004	9.1200e-003	3.0000e-005	4.3000e-003	2.0000e-005	4.3200e-003	1.1400e-003	2.0000e-005	1.1600e-003	0.0000	3.0973	3.0973	6.0000e-005	7.0000e-005	3.1199
Total	**1.0800e-003**	**6.5000e-004**	**9.1200e-003**	**3.0000e-005**	**4.3000e-003**	**2.0000e-005**	**4.3200e-003**	**1.1400e-003**	**2.0000e-005**	**1.1600e-003**	**0.0000**	**3.0973**	**3.0973**	**6.0000e-005**	**7.0000e-005**	**3.1199**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3155	2.2690	4.2944	9.2700e-003		0.0956	0.0956		0.0895	0.0895	0.0000	811.5482	811.5482	0.2315	0.0000	817.3364
Total	**0.3155**	**2.2690**	**4.2944**	**9.2700e-003**		**0.0956**	**0.0956**		**0.0895**	**0.0895**	**0.0000**	**811.5482**	**811.5482**	**0.2315**	**0.0000**	**817.3364**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0578	3.7225	0.6929	0.0176	0.5411	0.0363	0.5773	0.1487	0.0347	0.1834	0.0000	1,694.3386	1,694.3386	2.7900e-003	0.2663	1,773.7607
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1100e-003	4.2800e-003	0.0604	2.2000e-004	0.0285	1.2000e-004	0.0286	7.5700e-003	1.1000e-004	7.6800e-003	0.0000	20.4900	20.4900	4.0000e-004	4.7000e-004	20.6390
Total	**0.0650**	**3.7267**	**0.7532**	**0.0179**	**0.5695**	**0.0364**	**0.6059**	**0.1563**	**0.0348**	**0.1911**	**0.0000**	**1,714.8286**	**1,714.8286**	**3.1900e-003**	**0.2668**	**1,794.3998**

Mitigated Construction On-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3155	2.2690	4.2944	9.2700e-003		0.0956	0.0956		0.0895	0.0895	0.0000	811.5473	811.5473	0.2315	0.0000	817.3354
Total	**0.3155**	**2.2690**	**4.2944**	**9.2700e-003**		**0.0956**	**0.0956**		**0.0895**	**0.0895**	**0.0000**	**811.5473**	**811.5473**	**0.2315**	**0.0000**	**817.3354**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0578	3.7225	0.6929	0.0176	0.5411	0.0363	0.5773	0.1487	0.0347	0.1834	0.0000	1,694.3386	1,694.3386	2.7900e-003	0.2663	1,773.7607
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1100e-003	4.2800e-003	0.0604	2.2000e-004	0.0285	1.2000e-004	0.0286	7.5700e-003	1.1000e-004	7.6800e-003	0.0000	20.4900	20.4900	4.0000e-004	4.7000e-004	20.6390
Total	**0.0650**	**3.7267**	**0.7532**	**0.0179**	**0.5695**	**0.0364**	**0.6059**	**0.1563**	**0.0348**	**0.1911**	**0.0000**	**1,714.8286**	**1,714.8286**	**3.1900e-003**	**0.2668**	**1,794.3998**

3.4 Cleanup - 2026

Unmitigated Construction On-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3100e-003	0.0000	6.3100e-003	6.8000e-004	0.0000	6.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3100e-003**	**0.0000**	**6.3100e-003**	**6.8000e-004**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.6100e-003	7.0000e-004	1.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1332	1.1332	0.0000	1.7000e-004	1.1847
Worker	2.1500e-003	1.2900e-003	0.0182	7.0000e-005	8.6000e-003	4.0000e-005	8.6400e-003	2.2900e-003	3.0000e-005	2.3200e-003	0.0000	6.1947	6.1947	1.2000e-004	1.4000e-004	6.2397
Total	**2.2100e-003**	**3.9000e-003**	**0.0189**	**8.0000e-005**	**9.0200e-003**	**6.0000e-005**	**9.0800e-003**	**2.4100e-003**	**5.0000e-005**	**2.4600e-003**	**0.0000**	**7.3278**	**7.3278**	**1.2000e-004**	**3.1000e-004**	**7.4244**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
Fugitive Dust					6.3100e-003	0.0000	6.3100e-003	6.8000e-004	0.0000	6.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.3100e-003**	**0.0000**	**6.3100e-003**	**6.8000e-004**	**0.0000**	**6.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.6100e-003	7.0000e-004	1.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.1332	1.1332	0.0000	1.7000e-004	1.1847
Worker	2.1500e-003	1.2900e-003	0.0182	7.0000e-005	8.6000e-003	4.0000e-005	8.6400e-003	2.2900e-003	3.0000e-005	2.3200e-003	0.0000	6.1947	6.1947	1.2000e-004	1.4000e-004	6.2397
Total	**2.2100e-003**	**3.9000e-003**	**0.0189**	**8.0000e-005**	**9.0200e-003**	**6.0000e-005**	**9.0800e-003**	**2.4100e-003**	**5.0000e-005**	**2.4600e-003**	**0.0000**	**7.3278**	**7.3278**	**1.2000e-004**	**3.1000e-004**	**7.4244**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.003532

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2055	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003
Unmitigated	0.2055	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating	0.0364					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003
Total	**0.2055**	**0.0000**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0700e-003**	**1.0700e-003**	**0.0000**	**0.0000**	**1.1400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0364					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0700e-003	1.0700e-003	0.0000	0.0000	1.1400e-003
Total	**0.2055**	**0.0000**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0700e-003**	**1.0700e-003**	**0.0000**	**0.0000**	**1.1400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Stability Berms

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	60.04	Acre	60.04	2,615,342.40	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 60.04 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	172.00
tblConstructionPhase	NumDays	40.00	26.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	40.00	52.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	146.25	12.74
tblGrading	AcresOfGrading	0.00	11.90
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	42,474.00
tblTripsAndVMT	VendorTripNumber	429.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	25.00	30.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripNumber	1,098.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	6.6225	67.4782	58.7524	0.3157	55.0606	2.8622	57.9228	29.9389	2.6332	32.5721	0.0000	32,396.6772	32,396.6772	3.0092	3.4173	33,490.2575
Maximum	**6.6225**	**67.4782**	**58.7524**	**0.3157**	**55.0606**	**2.8622**	**57.9228**	**29.9389**	**2.6332**	**32.5721**	**0.0000**	**32,396.6772**	**32,396.6772**	**3.0092**	**3.4173**	**33,490.2575**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	6.6225	67.4782	58.7524	0.3157	55.0606	2.8622	57.9228	29.9389	2.6332	32.5721	0.0000	32,396.6772	32,396.6772	3.0092	3.4173	33,490.2575
Maximum	**6.6225**	**67.4782**	**58.7524**	**0.3157**	**55.0606**	**2.8622**	**57.9228**	**29.9389**	**2.6332**	**32.5721**	**0.0000**	**32,396.6772**	**32,396.6772**	**3.0092**	**3.4173**	**33,490.2575**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**	**0.0000**	**0.0140**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**	**0.0000**	**0.0140**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	1/30/2026	6	26	
2	Construction	Building Construction	4/15/2026	11/1/2026	6	172	
3	Cleanup	Site Preparation	11/2/2026	12/31/2026	6	52	

Acres of Grading (Site Preparation Phase): 12.74

Acres of Grading (Grading Phase): 0

Acres of Paving: 60.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	8	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	5	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	2	9.00	410	0.38
Construction	Pumps	2	9.00	84	0.74
Construction	Rollers	4	9.00	150	0.38
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	2	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	10	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	17	30.00	0.00	42,474.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					54.7184	0.0000	54.7184	29.8482	0.0000	29.8482			0.0000			0.0000

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Road	6.5303	67.4334	30.5548	0.0917		2.8607	2.8607		2.6319	2.6319		8,878.6125	8,878.6125	2.8715		8,950.4006
Total	**6.5303**	**67.4334**	**30.5548**	**0.0917**	**54.7184**	**2.8607**	**57.5792**	**29.8482**	**2.6319**	**32.4800**		**8,878.6125**	**8,878.6125**	**2.8715**		**8,950.4006**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.0922**	**0.0448**	**0.8146**	**2.8300e-003**	**0.3422**	**1.4400e-003**	**0.3436**	**0.0907**	**1.3200e-003**	**0.0921**		**285.8411**	**285.8411**	**5.0000e-003**	**5.5800e-003**	**287.6296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					54.7184	0.0000	54.7184	29.8482	0.0000	29.8482			0.0000			0.0000
Off-Road	6.5303	67.4334	30.5548	0.0917		2.8607	2.8607		2.6319	2.6319	0.0000	8,878.6125	8,878.6125	2.8715		8,950.4006

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**6.5303**	**67.4334**	**30.5548**	**0.0917**	**54.7184**	**2.8607**	**57.5792**	**29.8482**	**2.6319**	**32.4800**	**0.0000**	**8,878.6125**	**8,878.6125**	**2.8715**		**8,950.4006**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.0922**	**0.0448**	**0.8146**	**2.8300e-003**	**0.3422**	**1.4400e-003**	**0.3436**	**0.0907**	**1.3200e-003**	**0.0921**		**285.8411**	**285.8411**	**5.0000e-003**	**5.5800e-003**	**287.6296**

3.3 Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6688	26.3832	49.9352	0.1078		1.1116	1.1116		1.0408	1.0408		10,402.0789	10,402.0789	2.9676		10,476.2689
Total	**3.6688**	**26.3832**	**49.9352**	**0.1078**		**1.1116**	**1.1116**		**1.0408**	**1.0408**		**10,402.0789**	**10,402.0789**	**2.9676**		**10,476.2689**

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Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6903	40.8834	8.0027	0.2051	6.4760	0.4215	6.8974	1.7748	0.4032	2.1780		21,708.7572	21,708.7572	0.0366	3.4117	22,726.3590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.7825**	**40.9282**	**8.8173**	**0.2079**	**6.8181**	**0.4229**	**7.2410**	**1.8656**	**0.4045**	**2.2701**		**21,994.5983**	**21,994.5983**	**0.0416**	**3.4173**	**23,013.9886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6688	26.3832	49.9352	0.1078		1.1116	1.1116		1.0408	1.0408	0.0000	10,402.0789	10,402.0789	2.9676		10,476.2689
Total	**3.6688**	**26.3832**	**49.9352**	**0.1078**		**1.1116**	**1.1116**		**1.0408**	**1.0408**	**0.0000**	**10,402.0789**	**10,402.0789**	**2.9676**		**10,476.2689**

Mitigated Construction Off-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6903	40.8834	8.0027	0.2051	6.4760	0.4215	6.8974	1.7748	0.4032	2.1780		21,708.7572	21,708.7572	0.0366	3.4117	22,726.3590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.7825**	**40.9282**	**8.8173**	**0.2079**	**6.8181**	**0.4229**	**7.2410**	**1.8656**	**0.4045**	**2.2701**		**21,994.5983**	**21,994.5983**	**0.0416**	**3.4173**	**23,013.9886**

3.4 Cleanup - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2427	0.0000	0.2427	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2427**	**0.0000**	**0.2427**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1900e-003	0.0953	0.0265	4.5000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0078	48.0078	1.2000e-004	7.3100e-003	50.1877
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.0944**	**0.1401**	**0.8411**	**3.2800e-003**	**0.3589**	**2.1000e-003**	**0.3609**	**0.0955**	**1.9500e-003**	**0.0975**		**333.8490**	**333.8490**	**5.1200e-003**	**0.0129**	**337.8173**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2427	0.0000	0.2427	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2427**	**0.0000**	**0.2427**	**0.0262**	**0.0000**	**0.0262**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day											lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1900e-003	0.0953	0.0265	4.5000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0078	48.0078	1.2000e-004	7.3100e-003	50.1877
Worker	0.0922	0.0448	0.8146	2.8300e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		285.8411	285.8411	5.0000e-003	5.5800e-003	287.6296
Total	**0.0944**	**0.1401**	**0.8411**	**3.2800e-003**	**0.3589**	**2.1000e-003**	**0.3609**	**0.0955**	**1.9500e-003**	**0.0975**		**333.8490**	**333.8490**	**5.1200e-003**	**0.0129**	**337.8173**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.003532

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Unmitigated	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1993					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9264					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6000e-004	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**		**0.0140**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1993					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9264					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Landscaping	5.6000e-004	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**		**0.0140**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Sac River Right Bank Levee Improvements: Stability Berms

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	60.04	Acre	60.04	2,615,342.40	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - total area of disturbance (including staging) is 60.04 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips and hauling trip length per project data

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,110.00	172.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	40.00	26.00
tblConstructionPhase	NumDays	40.00	52.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	146.25	12.74
tblGrading	AcresOfGrading	0.00	11.90
tblOffRoadEquipment	HorsePower	402.00	350.00
tblOffRoadEquipment	HorsePower	402.00	410.00
tblOffRoadEquipment	HorsePower	402.00	90.00
tblOffRoadEquipment	HorsePower	80.00	150.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	42,474.00

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	429.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	25.00	30.00
tblTripsAndVMT	WorkerTripNumber	1,098.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	6.6194	70.7155	58.7812	0.3156	55.0606	2.8622	57.9228	29.9389	2.6332	32.5721	0.0000	32,387.9148	32,387.9148	3.0078	3.4215	33,482.7095
Maximum	**6.6194**	**70.7155**	**58.7812**	**0.3156**	**55.0606**	**2.8622**	**57.9228**	**29.9389**	**2.6332**	**32.5721**	**0.0000**	**32,387.9148**	**32,387.9148**	**3.0078**	**3.4215**	**33,482.7095**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	6.6194	70.7155	58.7812	0.3156	55.0606	2.8622	57.9228	29.9389	2.6332	32.5721	0.0000	32,387.9148	32,387.9148	3.0078	3.4215	33,482.7095

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	**6.6194**	**70.7155**	**58.7812**	**0.3156**	**55.0606**	**2.8622**	**57.9228**	**29.9389**	**2.6332**	**32.5721**	**0.0000**	**32,387.9148**	**32,387.9148**	**3.0078**	**3.4215**	**33,482.7095**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**	**0.0000**	**0.0140**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	lb/day										lb/day					
Area	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**	**0.0000**	**0.0140**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	1/30/2026	6	26	
2	Construction	Building Construction	4/15/2026	11/1/2026	6	172	
3	Cleanup	Site Preparation	11/2/2026	12/31/2026	6	52	

Acres of Grading (Site Preparation Phase): 12.74

Acres of Grading (Grading Phase): 0

Acres of Paving: 60.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Site Preparation	Rubber Tired Dozers	8	9.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Construction	Cranes	0	7.00	231	0.29
Construction	Excavators	5	9.00	158	0.38
Construction	Forklifts	0	8.00	89	0.20
Construction	Generator Sets	0	8.00	84	0.74
Construction	Graders	0	9.00	187	0.41
Construction	Off-Highway Trucks	4	2.00	350	0.38
Construction	Off-Highway Trucks	2	9.00	410	0.38
Construction	Pumps	2	9.00	84	0.74
Construction	Rollers	4	9.00	150	0.38
Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Construction	Welders	0	8.00	46	0.45
Cleanup	Off-Highway Trucks	4	9.00	90	0.38
Cleanup	Rubber Tired Dozers	0	8.00	247	0.40
Cleanup	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Graders	2	9.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	10	30.00	0.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Construction	17	30.00	0.00	42,474.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT
Cleanup	4	30.00	2.00	0.00	15.00	9.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					54.7184	0.0000	54.7184	29.8482	0.0000	29.8482			0.0000			0.0000
Off-Road	6.5303	67.4334	30.5548	0.0917		2.8607	2.8607		2.6319	2.6319		8,878.6125	8,878.6125	2.8715		8,950.4006
Total	**6.5303**	**67.4334**	**30.5548**	**0.0917**	**54.7184**	**2.8607**	**57.5792**	**29.8482**	**2.6319**	**32.4800**		**8,878.6125**	**8,878.6125**	**2.8715**		**8,950.4006**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.0890**	**0.0560**	**0.7137**	**2.5400e-003**	**0.3422**	**1.4400e-003**	**0.3436**	**0.0907**	**1.3200e-003**	**0.0921**		**256.7150**	**256.7150**	**5.6100e-003**	**6.4700e-003**	**258.7842**

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					54.7184	0.0000	54.7184	29.8482	0.0000	29.8482			0.0000			0.0000
Off-Road	6.5303	67.4334	30.5548	0.0917		2.8607	2.8607		2.6319	2.6319	0.0000	8,878.6125	8,878.6125	2.8715		8,950.4006
Total	**6.5303**	**67.4334**	**30.5548**	**0.0917**	**54.7184**	**2.8607**	**57.5792**	**29.8482**	**2.6319**	**32.4800**	**0.0000**	**8,878.6125**	**8,878.6125**	**2.8715**		**8,950.4006**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.0890**	**0.0560**	**0.7137**	**2.5400e-003**	**0.3422**	**1.4400e-003**	**0.3436**	**0.0907**	**1.3200e-003**	**0.0921**		**256.7150**	**256.7150**	**5.6100e-003**	**6.4700e-003**	**258.7842**

3.3 Construction - 2026

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6688	26.3832	49.9352	0.1078		1.1116	1.1116		1.0408	1.0408		10,402.0789	10,402.0789	2.9676		10,476.2689
Total	**3.6688**	**26.3832**	**49.9352**	**0.1078**		**1.1116**	**1.1116**		**1.0408**	**1.0408**		**10,402.0789**	**10,402.0789**	**2.9676**		**10,476.2689**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6482	44.2762	8.1324	0.2053	6.4760	0.4219	6.8978	1.7748	0.4036	2.1784		21,729.1210	21,729.1210	0.0346	3.4150	22,747.6565
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.7372**	**44.3323**	**8.8461**	**0.2078**	**6.8181**	**0.4233**	**7.2414**	**1.8656**	**0.4049**	**2.2705**		**21,985.8359**	**21,985.8359**	**0.0402**	**3.4215**	**23,006.4407**

Mitigated Construction On-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6688	26.3832	49.9352	0.1078		1.1116	1.1116		1.0408	1.0408	0.0000	10,402.0789	10,402.0789	2.9676		10,476.2689
Total	**3.6688**	**26.3832**	**49.9352**	**0.1078**		**1.1116**	**1.1116**		**1.0408**	**1.0408**	**0.0000**	**10,402.0789**	**10,402.0789**	**2.9676**		**10,476.2689**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6482	44.2762	8.1324	0.2053	6.4760	0.4219	6.8978	1.7748	0.4036	2.1784		21,729.1210	21,729.1210	0.0346	3.4150	22,747.6565
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.7372**	**44.3323**	**8.8461**	**0.2078**	**6.8181**	**0.4233**	**7.2414**	**1.8656**	**0.4049**	**2.2705**		**21,985.8359**	**21,985.8359**	**0.0402**	**3.4215**	**23,006.4407**

3.4 Cleanup - 2026

Unmitigated Construction On-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2427	0.0000	0.2427	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2427**	**0.0000**	**0.2427**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0400e-003	0.1030	0.0273	4.6000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0927	48.0927	1.1000e-004	7.3200e-003	50.2775
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.0911**	**0.1590**	**0.7410**	**3.0000e-003**	**0.3589**	**2.1000e-003**	**0.3609**	**0.0955**	**1.9500e-003**	**0.0975**		**304.8077**	**304.8077**	**5.7200e-003**	**0.0138**	**309.0617**

Mitigated Construction On-Site

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2427	0.0000	0.2427	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2427**	**0.0000**	**0.2427**	**0.0262**	**0.0000**	**0.0262**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0400e-003	0.1030	0.0273	4.6000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0927	48.0927	1.1000e-004	7.3200e-003	50.2775
Worker	0.0890	0.0560	0.7137	2.5400e-003	0.3422	1.4400e-003	0.3436	0.0907	1.3200e-003	0.0921		256.7150	256.7150	5.6100e-003	6.4700e-003	258.7842
Total	**0.0911**	**0.1590**	**0.7410**	**3.0000e-003**	**0.3589**	**2.1000e-003**	**0.3609**	**0.0955**	**1.9500e-003**	**0.0975**		**304.8077**	**304.8077**	**5.7200e-003**	**0.0138**	**309.0617**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.003532

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Unmitigated	1.1262	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SubCategory	lb/day										lb/day					
Architectural Coating	0.1993					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9264					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6000e-004	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**		**0.0140**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1993					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9264					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.6000e-004	6.0000e-005	6.1100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0131	0.0131	3.0000e-005		0.0140
Total	**1.1262**	**6.0000e-005**	**6.1100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0131**	**0.0131**	**3.0000e-005**		**0.0140**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

Sac River Right Bank Levee Improvements: Stability Berms - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Input Template

Project Name: Portuguese Bend Multi-benefit Enhancement
Project Location: Yolo/Solano AQMD
CEC Climate Zone: 3
Land Use Setting: Rural
Operational Year: 2027 (construction occuring concurrently with the Stability Berms)

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Parking	Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60

Note: Area of disturbance associated with staging/stockpiling is already accounted for in the model run for Stability Berms

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	Total Days	# one-way worker trips/day	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Preparation	Site Preparation	1/1/2026	12/31/2026	6	313	20	2	32	15	9	20

Notes:
Worker, Vendor, and Hauling trip lengths are default
Work would occur 7am-5pm (9 hours/day) Monday through Saturday (6 days/week)
Goat transportation truck trips (1 truck per day or 2 truck trips per day) included as vendor trips
Pickup trucks (10) are assumed to be worker pickup trucks

List of Construction Equipment

Equipment Name	CalEEMod Equipment Name	Count	Hours/Day	HP	Load Factor	Notes
Site Preparation						
Small Excavator	Excavator	1	9	158	0.38	default
Masticator	Tractor/Loader/Backhoe	1	9	132	0.37	Adjusted default hp to 132 hp

Notes:
Horsepower was adjusted for some equipment based on the typical horsepower for that specific equipment

Demolition - N/A

Amount of material to be demolished	0	CY	
Size of truck		CY/truck	
Number of trucks		trucks	
Number of one-way truck trips		trips	

Grading

Import	0	CY	
Export	250	CY	(vegetation)
Total material movement (assumed not balanced on site)	250	CY	
Size of truck	16	CY/truck	
Number of trucks	16	trucks	
Number of one-way truck trips	32	one-way trips	
Highway haul truck	0	trucks	
Truck roundtrips/day	1	truck trip/day	
Highway haul truck days of use	0	days	
Total roundtrips for highway haul trucks	0	roundtrips	
Total one-way highway haul truck trips	0	one-way trips	
Total one-way truck trips	32	trips	

Source: Project Description

Date: 1/3/2023 11:02 AM

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.0630	0.4170	1.1193	2.0000e-003	0.0503	0.0197	0.0700	0.0114	0.0181	0.0295	0.0000	177.0307	177.0307	0.0472	1.7400e-003	178.7302
Maximum	**0.0630**	**0.4170**	**1.1193**	**2.0000e-003**	**0.0503**	**0.0197**	**0.0700**	**0.0114**	**0.0181**	**0.0295**	**0.0000**	**177.0307**	**177.0307**	**0.0472**	**1.7400e-003**	**178.7302**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2026	0.0630	0.4170	1.1193	2.0000e-003	0.0503	0.0197	0.0700	0.0114	0.0181	0.0295	0.0000	177.0306	177.0306	0.0472	1.7400e-003	178.7300
Maximum	**0.0630**	**0.4170**	**1.1193**	**2.0000e-003**	**0.0503**	**0.0197**	**0.0700**	**0.0114**	**0.0181**	**0.0295**	**0.0000**	**177.0306**	**177.0306**	**0.0472**	**1.7400e-003**	**178.7300**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2026**	**3-31-2026**	0.1187	0.1187
2	**4-1-2026**	**6-30-2026**	0.1195	0.1195
3	**7-1-2026**	**9-30-2026**	0.1208	0.1208
		Highest	0.1208	0.1208

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	12/31/2026	6	313	

Acres of Grading (Site Preparation Phase): 24.41

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.3941	1.0415	1.6500e-003		0.0194	0.0194		0.0179	0.0179	0.0000	144.4859	144.4859	0.0467	0.0000	145.6542
Total	**0.0540**	**0.3941**	**1.0415**	**1.6500e-003**	**0.0129**	**0.0194**	**0.0324**	**1.4000e-003**	**0.0179**	**0.0193**	**0.0000**	**144.4859**	**144.4859**	**0.0467**	**0.0000**	**145.6542**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.9800e-003	4.4000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8659	0.8659	0.0000	1.4000e-004	0.9065
Vendor	3.3000e-004	0.0157	4.2000e-003	7.0000e-005	2.5400e-003	1.0000e-004	2.6400e-003	7.3000e-004	1.0000e-004	8.3000e-004	0.0000	6.8209	6.8209	2.0000e-005	1.0400e-003	7.1307
Worker	8.6300e-003	5.1900e-003	0.0732	2.7000e-004	0.0345	1.5000e-004	0.0347	9.1800e-003	1.4000e-004	9.3200e-003	0.0000	24.8580	24.8580	4.9000e-004	5.7000e-004	25.0388
Total	**9.0000e-003**	**0.0229**	**0.0779**	**3.5000e-004**	**0.0373**	**2.7000e-004**	**0.0376**	**9.9800e-003**	**2.6000e-004**	**0.0102**	**0.0000**	**32.5448**	**32.5448**	**5.1000e-004**	**1.7500e-003**	**33.0760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0129	0.0000	0.0129	1.4000e-003	0.0000	1.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0540	0.3941	1.0415	1.6500e-003		0.0194	0.0194		0.0179	0.0179	0.0000	144.4857	144.4857	0.0467	0.0000	145.6540
Total	**0.0540**	**0.3941**	**1.0415**	**1.6500e-003**	**0.0129**	**0.0194**	**0.0324**	**1.4000e-003**	**0.0179**	**0.0193**	**0.0000**	**144.4857**	**144.4857**	**0.0467**	**0.0000**	**145.6540**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.9800e-003	4.4000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8659	0.8659	0.0000	1.4000e-004	0.9065
Vendor	3.3000e-004	0.0157	4.2000e-003	7.0000e-005	2.5400e-003	1.0000e-004	2.6400e-003	7.3000e-004	1.0000e-004	8.3000e-004	0.0000	6.8209	6.8209	2.0000e-005	1.0400e-003	7.1307
Worker	8.6300e-003	5.1900e-003	0.0732	2.7000e-004	0.0345	1.5000e-004	0.0347	9.1800e-003	1.4000e-004	9.3200e-003	0.0000	24.8580	24.8580	4.9000e-004	5.7000e-004	25.0388
Total	**9.0000e-003**	**0.0229**	**0.0779**	**3.5000e-004**	**0.0373**	**2.7000e-004**	**0.0376**	**9.9800e-003**	**2.6000e-004**	**0.0102**	**0.0000**	**32.5448**	**32.5448**	**5.1000e-004**	**1.7500e-003**	**33.0760**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.00353

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Unmitigated	0.0835	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

Mitigated

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0148					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.6000e-004
Total	**0.0835**	**0.0000**	**2.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2026

Yolo/Solano AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	0.4087	2.6553	7.2270	0.0129	0.3293	0.1258	0.4551	0.0747	0.1157	0.1905	0.0000	1,262.3536	1,262.3536	0.3326	0.0120	1,274.2401
Maximum	**0.4087**	**2.6553**	**7.2270**	**0.0129**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1157**	**0.1905**	**0.0000**	**1,262.3536**	**1,262.3536**	**0.3326**	**0.0120**	**1,274.2401**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	0.4087	2.6553	7.2270	0.0129	0.3293	0.1258	0.4551	0.0747	0.1157	0.1905	0.0000	1,262.3536	1,262.3536	0.3326	0.0120	1,274.2401
Maximum	**0.4087**	**2.6553**	**7.2270**	**0.0129**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1157**	**0.1905**	**0.0000**	**1,262.3536**	**1,262.3536**	**0.3326**	**0.0120**	**1,274.2401**

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	12/31/2026	6	313	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141		1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**		**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3000e-004	0.0120	2.8100e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.0952	6.0952	1.0000e-005	9.6000e-004	6.3810
Vendor	2.1900e-003	0.0953	0.0265	4.5000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0078	48.0078	1.2000e-004	7.3100e-003	50.1877
Worker	0.0615	0.0299	0.5430	1.8900e-003	0.2281	9.6000e-004	0.2291	0.0605	8.8000e-004	0.0614		190.5608	190.5608	3.3300e-003	3.7200e-003	191.7531
Total	**0.0639**	**0.1371**	**0.5723**	**2.4000e-003**	**0.2466**	**1.7400e-003**	**0.2483**	**0.0658**	**1.6200e-003**	**0.0674**		**244.6638**	**244.6638**	**3.4600e-003**	**0.0120**	**248.3218**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141	0.0000	1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**	**0.0000**	**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3000e-004	0.0120	2.8100e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.0952	6.0952	1.0000e-005	9.6000e-004	6.3810
Vendor	2.1900e-003	0.0953	0.0265	4.5000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0078	48.0078	1.2000e-004	7.3100e-003	50.1877
Worker	0.0615	0.0299	0.5430	1.8900e-003	0.2281	9.6000e-004	0.2291	0.0605	8.8000e-004	0.0614		190.5608	190.5608	3.3300e-003	3.7200e-003	191.7531
Total	**0.0639**	**0.1371**	**0.5723**	**2.4000e-003**	**0.2466**	**1.7400e-003**	**0.2483**	**0.0658**	**1.6200e-003**	**0.0674**		**244.6638**	**244.6638**	**3.4600e-003**	**0.0120**	**248.3218**

4.0 Operational Detail - Mobile

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.003532

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Portuguese Bend Multi-benefit Enhancement_2026

Yolo/Solano AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	24.41	Acre	24.41	1,063,299.60	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	55
Climate Zone	3			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Area of disturbance is 24.41 acres

Construction Phase - adjusted per project specific construction schedule

Off-road Equipment - adjusted per project specific equipment list

Trips and VMT - adjusted #trips

Grading - trips associated with import/export accounted for on the Trips and VMT screen

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	313.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	24.41
tblOffRoadEquipment	HorsePower	97.00	132.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	8.00	9.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	32.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	5.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	0.4065	2.6715	7.1606	0.0127	0.3293	0.1258	0.4551	0.0747	0.1157	0.1905	0.0000	1,243.0295	1,243.0295	0.3330	0.0126	1,255.1084
Maximum	**0.4065**	**2.6715**	**7.1606**	**0.0127**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1157**	**0.1905**	**0.0000**	**1,243.0295**	**1,243.0295**	**0.3330**	**0.0126**	**1,255.1084**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2026	0.4065	2.6715	7.1606	0.0127	0.3293	0.1258	0.4551	0.0747	0.1157	0.1905	0.0000	1,243.0295	1,243.0295	0.3330	0.0126	1,255.1084
Maximum	**0.4065**	**2.6715**	**7.1606**	**0.0127**	**0.3293**	**0.1258**	**0.4551**	**0.0747**	**0.1157**	**0.1905**	**0.0000**	**1,243.0295**	**1,243.0295**	**0.3330**	**0.0126**	**1,255.1084**

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**	**0.0000**	**5.6900e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2026	12/31/2026	6	313	

Acres of Grading (Site Preparation Phase): 24.41

Acres of Grading (Grading Phase): 0

Acres of Paving: 24.41

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	1	9.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	9.00	132	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	20.00	2.00	32.00	15.00	9.00	20.00	LD_Mix	HDT_Mix	HHDT

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141		1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**		**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0130	2.8600e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.1036	6.1036	1.0000e-005	9.6000e-004	6.3898
Vendor	2.0400e-003	0.1030	0.0273	4.6000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0927	48.0927	1.1000e-004	7.3200e-003	50.2775
Worker	0.0594	0.0374	0.4758	1.6900e-003	0.2281	9.6000e-004	0.2291	0.0605	8.8000e-004	0.0614		171.1433	171.1433	3.7400e-003	4.3200e-003	172.5228
Total	**0.0616**	**0.1533**	**0.5059**	**2.2100e-003**	**0.2466**	**1.7400e-003**	**0.2483**	**0.0658**	**1.6200e-003**	**0.0674**		**225.3397**	**225.3397**	**3.8600e-003**	**0.0126**	**229.1901**

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0827	0.0000	0.0827	8.9300e-003	0.0000	8.9300e-003			0.0000			0.0000
Off-Road	0.3449	2.5182	6.6546	0.0105		0.1240	0.1240		0.1141	0.1141	0.0000	1,017.6898	1,017.6898	0.3291		1,025.9183
Total	**0.3449**	**2.5182**	**6.6546**	**0.0105**	**0.0827**	**0.1240**	**0.2067**	**8.9300e-003**	**0.1141**	**0.1230**	**0.0000**	**1,017.6898**	**1,017.6898**	**0.3291**		**1,025.9183**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2000e-004	0.0130	2.8600e-003	6.0000e-005	1.7900e-003	1.2000e-004	1.9000e-003	4.9000e-004	1.1000e-004	6.0000e-004		6.1036	6.1036	1.0000e-005	9.6000e-004	6.3898
Vendor	2.0400e-003	0.1030	0.0273	4.6000e-004	0.0167	6.6000e-004	0.0173	4.8000e-003	6.3000e-004	5.4300e-003		48.0927	48.0927	1.1000e-004	7.3200e-003	50.2775
Worker	0.0594	0.0374	0.4758	1.6900e-003	0.2281	9.6000e-004	0.2291	0.0605	8.8000e-004	0.0614		171.1433	171.1433	3.7400e-003	4.3200e-003	172.5228
Total	**0.0616**	**0.1533**	**0.5059**	**2.2100e-003**	**0.2466**	**1.7400e-003**	**0.2483**	**0.0658**	**1.6200e-003**	**0.0674**		**225.3397**	**225.3397**	**3.8600e-003**	**0.0126**	**229.1901**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	15.00	8.00	9.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.519353	0.056808	0.178726	0.134646	0.029061	0.006805	0.022418	0.017398	0.000553	0.000629	0.029454	0.000618	0.003532

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Unmitigated	0.4579	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		5.3400e-003	5.3400e-003	1.0000e-005		5.6900e-003
Total	**0.4579**	**2.0000e-005**	**2.4900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**5.3400e-003**	**5.3400e-003**	**1.0000e-005**		**5.6900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Portuguese Bend Multi-benefit Enhancement_2026 - Yolo/Solano AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C. Biological Resources Information

Summary of Special-Status Plant Species

Scientific Name	Common Name	Federal	State	CRPR	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Astragalus tener var. tener	alkali milk-vetch	None	None	1B.2	Alkaline soils in playas, adobe clay grassland, and vernal pools. Elevation: 0–195 feet. Blooming period: March–June	N	Suitable habitat not present.	
Atriplex depressa	brittlescale	None	None	1B.2	Alkaline or clay soils in chenopod scrub, meadows, seeps, playas, vernal pools, and grassland. Elevation: 3–1,049 feet. Blooming period: April–October	N	Suitable habitat not present.	
Chloropyron palmatum	palmate-bracted bird's-beak	Federally Endangered	State Endangered	1B.1	Alkaline soils in chenopod scrub and grassland. Elevation: 15–510 feet. Blooming period: May–October	N	Suitable habitat not present.	Covered
Extriplex joaquinana	San Joaquin spearscale	None	None	1B.2	Alkaline soils in chenopod scrub, meadows, seeps, playas, and grassland. Elevation: 0–2,740 feet. Blooming period: April–October	N	Suitable habitat not present.	
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	None	None	1B.2	Often in riprap on sides of levees in freshwater marshes and swamps. Elevation: 0–395 feet. Blooming period: June–September	Y	Suitable habitat present along Knights Landing Ridge Cut and Sacramento River.	
Lepidium latipes var. heckardii	Heckard's pepper-grass	None	None	1B.2	Grassland of alkaline flats. Elevation: 5–655 feet. Blooming period: March–May	N	Suitable habitat not present.	
Puccinellia simplex	California alkali grass	None	None	1B.2	Alkaline and vernal mesic soils in sinks, flats, and lake margins of chenopod scrub, meadows, seeps, grassland, and vernal pools. Elevation: 5–3,050 feet. Blooming period: March–May	N	Suitable habitat not present.	
Sagittaria sanfordii	Sanford's arrowhead	None	None	1B.2	Fresh water marshes and swamps that are typically shallow. Elevation: 0–2,132 feet. Blooming period: May–October	Y	Suitable habitat present in Knights Landing Ridge Cut and agricultural ditches supporting emergent vegetation.	
Symphyotrichum lentum	Suisun Marsh aster	None	None	1B.2	Brackish and freshwater marshes and swamps. Elevation: 0–9 feet. Blooming period: (April)May–November	N	Has not been observed in the Central Valley north of the Delta since 1945 (Consortium of California Herbaria 2022)	
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	None	None	2B.1	Alkaline soils in meadows, seeps, marshes, swamps, riparian forests, and vernal pools. Elevation: 16–1,427 feet. Blooming period: May–September	N	Suitable habitat not present.	
Trifolium hydrophilum	saline clover	None	None	1B.2	Marshes, swamps, vernal pools, and grassland with mesic or alkaline soils. Elevation: 0–985 feet. Blooming period: April–June	N	Suitable habitat not present.	

Source for all Habitat Characteristics (CNPS 2022)

California Rare Plant Rank (CRPR)

1A = Plants presumed extirpated in California and either rare or extinct elsewhere

1B = Plants Rare, Threatened, or Endangered in California and elsewhere

2A = Plants presumed extirpated in California, but more common elsewhere

2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3 = Plants about which we need more information – review list

4 = Plants of limited distribution – watch list

CRPR Threat Code Extension

None = Plants Lacking any threat information

1 = Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)

2 = Moderately threatened in California (20-80% of occurrences threatened; moderate degree and immediacy of threat)

3 = Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

Summary of Special-Status Wildlife Species

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Invertebrates							
Branchinecta lynchi	vernal pool fairy shrimp	FT	None	Endemic to the grasslands of the Central Valley and the Central and South Coast Range mountains of California, and the Agate Desert of southern Oregon. Found only in cool water vernal pools and vernal pool-like habitats; does not occur in riverine, marine, or other permanent bodies of water (USFWS 2007).	N	Suitable habitat not present.	
Danaus plexippus	monarch butterfly	FCT	None	Overwinters along the coast from Mendocino County south into Baja California in wind-protected groves of gum (Eucalyptus spp.), Monterey pine (Pinus radiata), or Monterey cypress (Hesperocyparis macrocarpa) with nectar and water sources nearby (IELP 2012).	N	Suitable habitat not present. Overwintering sites not present. Milkweed not observed during surveys.	
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	None	Dependent on host plant, elderberry (Sambucus spp.), which most commonly grows in riparian woodlands, but also in some upland habitats such as oak savannas and annual grasslands. Current presumed range in Central Valley extends from Shasta County south to Fresno County, including the valley floor and lower foothills up to about 500 feet in elevation (USFWS 2017).	Y	Suitable habitat present. Elderberries documented in and adjacent to the Proposed Project, mostly in or adjacent to riparian areas.	Covered
Lepidurus packardi	vernal pool tadpole shrimp	FE	None	Found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands. Patchily distributed across the Central Valley from Shasta County south to Tulare County with isolated occurrences in the East Bay Area (USFWS 2007).	N	Suitable habitat not present.	
Fish							
Acipenser medirostris	green sturgeon (southern DPS)	FT	SSC	Spawning occurs primarily in the Sacramento River, but those that spawn in the Feather and Yuba Rivers are also part of the southern DPS. Oceanic waters, bays, and estuaries during non-spawning season. Enters San Francisco Bay late winter through early spring, and spawn occurs from April through early July. Spawn in cool sections of river mainstems in deep pools containing small to medium-sized gravel, cobble, or boulder substrate (NMFS 2015).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Acipenser transmontanus	white sturgeon	None	SSC	Salt water from Ensenada to Alaska. Spawn in large river systems along the west coast. Currently, self-sustaining populations only occur in the Sacramento, Columbia, and Fraser Rivers. Spawn in large, deep pools (Moyle 2002).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Collus gulosus	riffle sculpin	None	SSC	Found in many increasingly isolated watersheds in the Central Valley drainage and the central coast. In the Sacramento River drainage, they are present in Putah Creek on the west side and most tributaries on the east side, from the American River north to the upper Sacramento and McCloud rivers. In streams that are clear and shaded, with moderate gradients. Live in areas sheltered from strong currents, under rocks or logs and in small pools that contain undercut banks, rubble, or other complex cover. Dissolved oxygen levels must be at or near saturation, a requirement that also restricts them to areas with flowing water (CDFW 2015). Adults require clean, gravelly riffles in permanent streams for spawning, while the ammocoetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C (Moyle 2002).	N	Suitable habitat not present.	

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Hypomesus transpacificus	delta smelt	FT	SE	Endemic to open waters of San Francisco Bay and Sacramento-San Joaquin River Delta. Distribution includes San Pablo Bay up through Suisun Bay, upstream through the delta to the Sacramento River below Isleton, and the San Joaquin River below Mossdale. Spawning has not been observed in the wild, but is thought to take place in sloughs and shallow edge-water channels in the upper delta and in Montezuma Slough near Suisun Bay. (USFWS 2010).	Y	Although outside typical species range, individual was found in screw trap near Knights Landing in 2010 (Vincik and Julienne 2012). Would use Sacramento River for movement only – suitable spawning habitat not present.	
Lavinia exilicauda	Sacramento hitch	None	SSC	Has a scattered distribution within the Central Valley, from the Tulare Lake Basin to Shasta Reservoir (Moyle 2002). Inhabit warm lowland waters, from clear streams, to turbid sloughs to lakes and reservoirs. In streams they are usually found in pools or in runs among aquatic vegetation, although small individuals will also use riffles. Spawning takes place over gravel riffles, at temperatures ranging from 14° to 26° C. In the Sacramento River, they appear to inhabit much of their native range (in low elevation streams and rivers in Sacramento Valley) up to and including Shasta Reservoir, but populations are scattered (UC Davis 2021)	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Mylopharodon conocephalus	hardhead	None	SSC	Small to large streams in low to mid-elevation environments. May also inhabit lakes or reservoirs. Preferred stream temperature might easily exceed 68ºF, though these fish do not favor low dissolved oxygen levels. Usually found in clear deep streams with a slow but present flow. Though spawning may occur in pools, runs, or riffles, the bedding area will typically be characterized by gravel and rocky substrate. Occurs from Sacramento-San Joaquin and Russian River drainages from the Pit River, Modoc County in the north, to the Kern River, Kern County in the south. Low to mid-elevations in relatively undisturbed habitats of larger streams. In the Sacramento River, however, they are common in both the mainstem and tributaries up to 1500 meters. Usually absent from streams with alien species especially centrachids and streams that have been heavily altered. (UC Davis 2021)	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Oncorhynchus mykiss irideus (pop. 11)	steelhead (Central Valley DPS)	FT	None	Includes naturally spawned anadromous steelhead originating below natural and manmade impassable barriers from the Sacramento and San Joaquin Rivers and their tributaries; excludes such fish originating from San Francisco and San Pablo Bays and their tributaries. This DPS does include steelhead from two artificial propagation programs: Coleman National Fish Hatchery Program and Feather River Fish Hatchery Program. Spawning habitat includes gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning habitat includes estuarine and marine waters (NOAA 2019).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Oncorhynchus tshawytscha (pop. 6)	Chinook salmon (Central Valley spring-run ESU)	FT	ST	Currently found in the Sacramento-San Joaquin River Delta, the Sacramento River and its tributaries, including American, Yuba and Feather Rivers, and Mill, Deer, and Butte Creeks. The numbers of adults are dependent on pool depth and volume, amount of cover, and proximity to gravel. Water temperatures greater than 80°F are lethal to adults (NMFS 2016).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Oncorhynchus tshawytscha (pop. 7)	Chinook salmon (Sacramento River winter-run ESU)	FE	SE	Currently found in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not its tributaries. Requires clean, cold water over gravel beds with water temperatures between 42 and 57°F for spawning (NMFS 2011).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Oncorhynchus tshawytscha (pop. 13)	Chinook salmon (Central Valley fall / late fall-run ESU)	None	SSC	Currently found primarily in the Sacramento River, where most spawning and rearing of juveniles takes place in the reach between Red Bluff Diversion Dam and Redding's Keswick Dam. The specific habitat requirements of late fall-run chinook salmon have not been determined but they are presumably similar to other Central Valley chinook salmon runs. It is believed that optimal conditions fall within the range of physical and chemical characteristics of the unimpaired Sacramento River above Shasta Dam (CDFW 2015).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Pogonichthys macrolepidotus	Sacramento splittail	None	SSC	Adapted for estuarine life so are tolerant of a wide range of salinities and temperatures. Observed in Feather River upstream to Oroville, American River as high as the lower Tuolumne River. Now largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the San Francisco estuary. Spawn on upstream floodplains and channel edges. Young of year found in the Sacramento River over 200 kilometers upstream of the Delta common ©n beach seine Sampling between Rio Vista and Chipps Island (CDFW 2015).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Spirinchus thaleichthys	longfin smelt	FCT	ST	Considered pelagic and anadromous, though anadromy in this species is poorly understood, and certain populations are not anadromous, completing their life cycle in freshwater lakes and streams (USFWS 2012).	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Thaleichthys pacificus	eulachon (southern DPS)	FT	None	Spawn in lower reaches of coastal rivers with moderate water velocities and with bottoms of pea-sized gravel, sand, and woody debris (NMFS 2016). Range from the Bering Sea to Humboldt Bay, California. In 2006, an adult male was caught in a screw trap at Knights Landing, indicating the species is not locally extirpated but abundance is low. Primarily a marine fish but spawn in lower reaches of fresh water rivers and streams (Duran 2008)	Y	Suitable migratory habitat present in Sacramento River only. Fish passage barriers preclude presence in Knights Landing Ridge Cut.	
Amphibians							
Ambystoma californiense	California tiger salamander (Central California DPS)	FT	ST	Occurs in the San Joaquin- Sacramento River valleys, bordering foothills, and coastal valleys of Central California. Found from sea level in the Central Valley up to 3,940 feet in the coast ranges and 1,640 feet in the Sierra Nevada foothills. Have been reported to migrate up to 1.3 miles between breeding ponds and upland habitat. Require large tracts of upland habitat occupied by small burrowing mammals, especially California ground squirrel (*Otospermophilus beecheyi*) and Bott''s pocket gopher (*Thommomys bottae*). Spend most of the year underground in burrows. Upland habitat usually dominated by grassland, oak woodland, or oak savannah. Breed in fish-free vernal pools, natural ponds, livestock ponds, and other modified permanent or ephemeral ponds. May sometimes breed in ditches containing seasonal wetlands, slow-moving swales, and creeks near other suitable breeding habitat. Optimal breeding ponds dry for at least 30 days in the summer to preclude fish and bullfrogs (USFWS 2017). Breeding area should hold water for at least 12 weeks of the year and typically fill during winter rains (USFWS 2005).	N	Suitable habitat not present.	Covered
Reptiles							
Emys marmorata	western pond turtle	None	SSC	Ranges throughout California except for Inyo and Mono Counties. Generally occurs in various water bodies including permanent and ephemeral systems either natural or artificial. Upland habitat that is at least moderately undisturbed is required for nesting and overwintering, in soils that are loose enough for excavation (Thomson et al. 2016).	Y	Suitable habitat present in Sacramento River, Knights Landing Ridge Cut, and permanent agricultural ditches. Adjacent uplands provide nesting habitat.	Covered

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Thamnophis gigas	giant garter snake	FT	ST	Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November- mid March). Formerly ranged in the Central Valley from Butte County to Buena Vista Lake in Kern County, but now thought to be absent south of Fresno and in Stanislaus County (USFWS 2012).	Y	Suitable habitat present in Knights Landing Ridge Cut and connected agricultural ditches. Adjacent uplands provide refugia and overwintering habitat.	Covered
Birds							
Agelaius tricolor	tricolored blackbird	None	ST, SSC	Mostly a year-round resident in California. Common locally throughout Central Valley and in coastal districts from Sonoma County south. Breeds locally in northeastern California. Preferred nesting habitat includes cattails (*Typha* spp.), bulrushes (*Schoenoplectus* spp.), Himalayan blackberry (*Rubus armeniacus*), and agricultural silage. Dense vegetation is preferred but heavily lodged cattails not burned in recent years may preclude settlement. Need access to open water.	Y	Suitable nesting habitat present in dense riparian areas along Sacramento River and Knights Landing Ridge Cut. Observed flying over BSA during planning surveys; however, no nesting colonies identified. Likely uses the BSA for foraging only.	Covered
Asio flammeus	short-eared owl	None	SSC	Found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting. Associated with perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeds in coastal areas in Del Norte and Humboldt Counties, San Francisco Bay Delta, northeastern Modoc plateau, east Sierras from Lake Tahoe to Inyo County and San Joaquin Valley. Winters in the Central Valley, western Sierra Nevada foothills and along the coastline (CDFW 2022).	Y	Suitable wintering habitat present. Does not nest in Central Valley.	
Athene cunicularia	burrowing owl	None	SSC	Resident in much of the state in open, dry grasslands and various desert habitats. Requires open areas with mammal burrows; especially those of California ground squirrel (*Otospermophilus beecheyi*) Inhabits rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub, vacant lots and other open human disturbed lands such as airports and golf courses. Absent from northwest coast and elevations above 5,500 feet (CDFW 2022). Large breeding populations remain in agricultural areas in the Central and Imperial valleys, where they have adapted to highly modified habitats. In agricultural environments nest along roadsides and water conveyance structures surrounded by crops. Overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation. Most adults show strong fidelity to their nest site year to year (for California 32-50% in grassland and 57% in agricultural environment). Have long dispersal distance of up to 150 km have been observed in California (Shuford and Gardali 2008).	N	No burrowing owls or sign observed during 2021 and 2022 surveys and there are no previous records of burrowing owls in Knights Landing (CDFW 2022). Some small burrow complexes present; however, not plentiful due to ongoing rodent abatement. Habitat is low quality considering ongoing levee management including intensive rodent control and vegetation management such as burning and mowing. BSA not mapped as habitat in Yolo HCP/NCCP.	Covered
Buteo swainsoni	Swainson's hawk	None	ST	Nests in oak savanna and cottonwood riparian areas adjacent to foraging habitat of grasslands, agricultural fields, and pastures where they often follow farm equipment to gather killed and maimed rodents. Increasingly also nests in sparse stands of gum trees (*Eucalyptus* spp.) and Australian pines (*Casuarina equisetifolia*) and often forage along roadsides and grassy highway medians. Breeding resident in the Central Valley (CDFW 2022).	Y	Suitable habitat present. Nesting habitat includes riparian areas and large trees in the BSA. Foraging habitat includes cultivated lands.	Covered

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Charadrius montanus	mountain plover	None	SSC	Does not nest in California. Present in the state November through March in open grasslands and plowed fields with no or very short vegetation. Found in flocks mostly on the west side of the Central Valley from Colusa County south to Kern County, Carrizo Plain, Antelope Valley, Imperial Valley, and western Riverside County. Single individuals are rarely found on beaches or offshore islands (CDFW 2022).	Y	Suitable wintering habitat present. Does not nest in Central Valley.	
Charadrius nivosus	western snowy plover	FT	SSC	Coastal populations nest on sandy or gravelly dune-backed beaches, sand spits, and on estuarine salt pans and lagoons (USFWS 2005). Inland populations nest along barren to sparsely vegetated flats and along shores of alkaline and saline lakes, reservoirs, ponds, braided river channels, agricultural wastewater ponds, and salt evaporation ponds (Shuford and Gardali 2008). Inland nesting occurs at Salton Sea, Mono Lake, and isolated sites on the shores of alkali lakes in northeastern California, the Central Valley, and southeastern deserts (CDFW 2022).	N	Suitable habitat not present.	
Circus hudsonius	northern harrier	None	SSC	Nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breed and forage in a variety of open habitats such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats, and desert sinks. Breed mainly at private and public wetlands or other reserves, as well as in some types of agricultural fields and pasturelands (Shuford and Gardali 2008). Nests in shrubby vegetation, usually at marsh edge in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water (CDFW 2022)	Y	Nesting habitat present in Knights Landing Ridge Cut. Foraging habitat present throughout BSA.	
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT	SE	Has declined drastically in California due primarily to loss of habitat. Requires riparian woodland with dense cover; primarily old-growth cottonwood (*Populus* spp.) forests with willow (*Salix* spp.) understory, but will also nest in overgrown orchards adjacent to streams and dense thickets alongside marshes. Persists in small numbers along the Sacramento River between Red Bluff and Colusa, the Feather River between Yuba City and the Bear River, Owens Valley, the Kern River Valley, the Colorado River Valley, the Santa Ana River near Prado Basin, and the San Luis Rey River in northern San Diego County (USFWS 2021).	Y	Suitable habitat present in dense riparian stands along the Sacramento River; however, not observed during protocol-level surveys in 2021.	Covered
Elanus leucurus	white-tailed kite	None	FP	Fairly common resident of the Central Valley, coast, and Coast Range Mountains. Nests in oak savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat. Forages in open grasslands, meadows, farmlands, and emergent wetlands. Often seen hover foraging over roadsides or grassy highway medians (CDFW 2022).	Y	Suitable habitat present. Nesting habitat includes riparian areas and large trees in the BSA. Foraging habitat includes cultivated lands.	Covered
Empidonax traillii	willow flycatcher	None	SE	Uncommon summer resident in wet meadows and montane riparian habitats from 2,000 to 8,000 feet in elevation in the Sierra Nevada and Cascade Ranges. Most numerous where extensive thickets of low, dense willows (*Salix* spp.) edge on wet meadows, ponds, or backwaters. Common spring (mid-May to early June) and fall (mid-August to early September) migrant at lower elevations, primarily in riparian habitats throughout the state exclusive of the North Coast (CDFW 2022).	Y	Suitable wintering habitat present. Does not nest in Central Valley.	
Icteria virens	yellow-breasted chat	None	SSC	Nests in early-successional riparian habitats with a well-developed shrub layer and an open canopy. Restricted to narrow borders of streams, creeks, sloughs, and rivers. Often nest in dense thickets of blackberry (*Rubus* spp.) and willow (*Salix* spp.) (Shuford and Gardali 2008).	Y	Suitable nesting habitat present in riparian areas along Knights Landing Ridge Cut and the Sacramento River.	

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Lanius ludovicianus	loggerhead shrike	None	SSC	Shrublands and open woodlands with a fair amount of grass cover and areas of bare ground. Requires tall shrubs or trees, fences, or power lines for hunting perches and territorial advertisement. Also requires open areas of short grasses, forbs, or bare ground for hunting, large shrubs or trees for nest placement, and thorny vegetation or barbed wire fences for impaling prey. Ranges across most of the state, but absent from the highest mountains and the northwest forests and coast (Shuford and Gardali 2008).	Y	Suitable habitat present. May nest and forage throughout BSA.	
Melospiza melodia	song sparrow (Modesto population)	None	SSC	Often found in emergent freshwater marshes dominated by bulrushes (*Scirpus* spp.), cattails (*Typha* spp.), and willow (*Salix* spp.). Also nests in riparian forests of valley oak (*Quercus lobata*) with a sufficient understory of blackberry (*Rubus* spp.), along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. Found throughout the Sacramento Valley, from the delta north to Chico (Shuford and Gardali 2008).	Y	Suitable nesting habitat present in riparian areas along Knights Landing Ridge Cut and the Sacramento River.	
Riparia	bank swallow	None	ST	A colonial nester in riparian and lacustrine bluffs or cliffs with fine-textured or sandy soils into which the nest cavities are dug. Also nests in earthen banks as well as sand and gravel pits. Declined drastically in the state over the 2^{0t}h century due to loss of riparian habitat and stabilization of natural banks. Currently most numerous in the Sacramento Valley along the Sacramento, Feather, and American Rivers, and Cache Creek in western Yolo County. (CDFW 2022).	Y	Suitable habitat present along banks of Sacramento River. Documented on opposite bank of Sacramento River during 2021 surveys.	Covered
Setophaga petechia	yellow warbler	None	SSC	Breeding distribution includes from the coast range in Del Norte county, east to Modoc Plateau, south along coast range to Santa Barbara and Ventura counties and along western slope of Sierra Nevada south to Kern county. Also includes eastern California from Lake Tahoe to Inyo county. Breeds in riparian woodlands from coastal and desert lowlands up to 2,500 m (8,000 ft) in Sierra Nevada. Additionally breeds in montane chaparral and open ponderosa pine and mixed conifer habitats with substantial amounts of brush. Usually found in riparian deciduous habitats in summer: cottonwoods (*Populus* ssp.), willows (*Salix* ssp.), alders (*Alnus* ssp.), and other small trees and shrubs typical of low, open-canopy riparian woodland. Rare to uncommon in many lowland areas (CDFW 2022).	Y	Suitable wintering habitat present. Does not nest in Central Valley.	
Vireo belli pusillus	Least Bell's vireo	FE	SE	Once occupied much of the Central Valley, but has disappeared from most its former range, and is now restricted to southern California from southern Inyo and Monterey Counties south through the South Coast and Inland Empire regions. Obligate riparian breeder, favoring cottonwood (*Populus* spp.), willow (*Salix* spp.), and oak (*Quercus* spp.) woodlands, and mule fat (*Baccharis salicifolia*) scrub along watercourses (USFWS 2006).	Y	Suitable habitat present in riparian areas along Knights Landing Ridge Cut and the Sacramento River; however, not observed during protocol-level surveys in 2021.	Covered
Mammals							
Antrozous pallidus	pallid bat	None	SSC	Ranges across nearly all of California except for high elevation portions of the Sierra Nevada Mountains and Del Norte, western Siskiyou, Humboldt, and northern Mendocino Counties. Generally found in a wide variety of habitats but with some preference for drier areas. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings (Harris et al. 1990).	Y	Suitable habitat present. May roost in structures and trees throughout BSA.	
Lasiurus blossevillii	western red bat	None	SSC	Ranges across the Central Valley, as well as the coast and Coast Range mountains from Mendocino County south, and east across the Los Angeles area into the Inland Empire region. Occurs in most habitats except desert and alpine areas. Roosts in trees, sometimes shrubs, and typically at the margins of habitats (CDFW 2022).	Y	Suitable habitat present. May roost in structures and trees throughout BSA.	

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale	Yolo HCP/NCCP
Taxidea taxus	American badger	None	SSC	Ranges across nearly all of California except northernmost Humboldt and Del Norte Counties. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils (CDFW 2022).	Y	Suitable habitat present in open areas incidental to agriculture throughout the BSA.	

USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; DPS: Distinct Population Segment

Species Status:

Federal (USFWS-NMFS)

BGEPA = Bald and Golden Eagle Protection Act

FE = Endangered

FT = Threatened

FCE = Candidate Endangered

FCT = Candidate Threatened

FCD = Candidate for delisting

State (CDFW)

SE = Endangered

ST = Threatened

SCE = Candidate Endangered

SCT = Candidate Threatened

SCD = Candidate for delisting

FP = Fully Protected

SSC = Species of Special Concern

CNDDB 9-Quad Species List 200 records.

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812186	SUTTER CAUSEWAY	Mapped	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812177	ELDORADO BEND	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812167	WOODLAND	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812167	WOODLAND	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	3812177	ELDORADO BEND	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812186	SUTTER CAUSEWAY	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias

Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812186	SUTTER CAUSEWAY	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812186	SUTTER CAUSEWAY	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812187	KIRKVILLE	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	3812167	WOODLAND	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812167	WOODLAND	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812175	VERONA	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812187	KIRKVILLE	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812176	KNIGHTS LANDING	Mapped	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	3812177	ELDORADO BEND	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius nivosus nivosus
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	3812185	NICOLAUS	Mapped	Animals - Birds - Cuculidae - Coccyzus americanus occidentalis

Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	3812166	GRAYS BEND	Mapped	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812177	ELDORADO BEND	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812175	VERONA	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	3812167	WOODLAND	Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812167	WOODLAND	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812177	ELDORADO BEND	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812176	KNIGHTS LANDING	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812187	KIRKVILLE	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812185	NICOLAUS	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812186	SUTTER CAUSEWAY	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Lanius ludovicianus	loggerhead shrike	ABPBR01030	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Birds - Laniidae - Lanius ludovicianus
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812166	GRAYS BEND	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Melospiza melodia	song sparrow (-inModesto-in population)	ABPBXA3010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Birds - Passerellidae - Melospiza melodia
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812187	KIRKVILLE	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus

Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812186	SUTTER CAUSEWAY	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Phalacrocorax auritus	double-crested cormorant	ABNFD01020	None	None	WL	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Birds - Phalacrocoracidae - Phalacrocorax auritus
Animals - Birds	Numenius americanus	long-billed curlew	ABNNF07070	None	None	WL	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Scolopacidae - Numenius americanus
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812166	GRAYS BEND	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812177	ELDORADO BEND	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	3812167	WOODLAND	Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812166	GRAYS BEND	Mapped	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Plegadis chihi	white-faced ibis	ABNGE02020	None	None	WL	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Birds - Threskiornithidae - Plegadis chihi
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Crustaceans	Branchinecta lynchi	vernal pool fairy shrimp	ICBRA03030	Threatened	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Branchinectidae - Branchinecta lynchi
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Linderiella occidentalis	California linderiella	ICBRA06010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Crustaceans - Chirocephalidae - Linderiella occidentalis
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812185	NICOLAUS	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Crustaceans	Lepidurus packardi	vernal pool tadpole shrimp	ICBRA10010	Endangered	None	-	-	3812175	VERONA	Mapped	Animals - Crustaceans - Triopsidae - Lepidurus packardi
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris

Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser medirostris	green sturgeon	AFCAA01030	Threatened	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	Cottus gulosus	riffle sculpin	AFC4E02140	None	None	SSC	-	3812185	NICOLAUS	Unprocessed	Animals - Fish - Cottidae - Cottus gulosus
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Lavinia exilicauda exilicauda	Sacramento hitch	AFCJB19012	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Mylopharodon conocephalus	hardhead	AFCJB25010	None	None	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Cyprinidae - Mylopharodon conocephalus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812177	ELDORADO BEND	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812185	NICOLAUS	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	None	None	SSC	-	3812166	GRAYS BEND	Mapped	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812166	GRAYS BEND	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii

Animals - Fish	Hysterocarpus traskii traskii	Sacramento-San Joaquin tule perch	AFCQK02012	None	None	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Embiotocidae - Hysterocarpus traskii traskii
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	3812166	GRAYS BEND	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812185	NICOLAUS	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812177	ELDORADO BEND	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812187	KIRKVILLE	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812166	GRAYS BEND	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 8
Animals - Fish	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	Threatened	None	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 8

Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812185	NICOLAUS	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	-	-	3812166	GRAYS BEND	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812166	GRAYS BEND	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Candidate Endangered	SSC	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Candidate Endangered	SSC	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Candidate Endangered	SSC	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812165	TAYLOR MONUMENT	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7

Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Fish	Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	-	-	3812175	VERONA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 7
Animals - Insects	Anthicus antiochensis	Antioch Dunes anthicid beetle	IICOL49020	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Anthicidae - Anthicus antiochensis
Animals - Insects	Anthicus sacramento	Sacramento anthicid beetle	IICOL49010	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Anthicidae - Anthicus sacramento
Animals - Insects	Bombus crotchii	Crotch bumble bee	IIHYM24480	None	Candidate Endangered	-	-	3812187	KIRKVILLE	Mapped	Animals - Insects - Apidae - Bombus crotchii
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	IICOL02106	None	None	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis abrupta
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812175	VERONA	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812167	WOODLAND	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812185	NICOLAUS	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Insects	Desmocerus californicus dimorphus	valley elderberry longhorn beetle	IICOL48011	Threatened	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Insects - Cerambycidae - Desmocerus californicus dimorphus
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812167	WOODLAND	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Vulpes vulpes patwin	Sacramento Valley red fox	AMAJA03015	None	None	-	-	3812176	KNIGHTS LANDING	Unprocessed	Animals - Mammals - Canidae - Vulpes vulpes patwin
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	3812167	WOODLAND	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Taxidea taxus
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	3812167	WOODLAND	Mapped	Animals - Mammals - Vespertilionidae - Antrozous pallidus
Animals - Mammals	Lasionycteris noctivagans	silver-haired bat	AMACC02010	None	None	-	-	3812167	WOODLAND	Mapped	Animals - Mammals - Vespertilionidae - Lasionycteris noctivagans

Animals - Mammals	Lasiurus blossevillii	western red bat	AMACC05060	None	None	SSC	-	3812176	KNIGHTS LANDING	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus blossevillii
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812176	KNIGHTS LANDING	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	3812167	WOODLAND	Mapped	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	3812165	TAYLOR MONUMENT	Mapped	Animals - Mollusks - Unionidae - Gonidea angulata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812166	GRAYS BEND	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812167	WOODLAND	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812175	VERONA	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812185	NICOLAUS	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812177	ELDORADO BEND	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812187	KIRKVILLE	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3812186	SUTTER CAUSEWAY	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812186	SUTTER CAUSEWAY	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812187	KIRKVILLE	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812177	ELDORADO BEND	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812185	NICOLAUS	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812176	KNIGHTS LANDING	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812175	VERONA	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812166	GRAYS BEND	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3812165	TAYLOR MONUMENT	Mapped and Unprocessed	Animals - Reptiles - Natricidae - Thamnophis gigas
Community - Terrestrial	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	-	-	3812186	SUTTER CAUSEWAY	Mapped	Community - Terrestrial - Coastal and Valley Freshwater Marsh

Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812187	KIRKVILLE	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812185	NICOLAUS	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812177	ELDORADO BEND	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	CTT61420CA	None	None	-	-	3812176	KNIGHTS LANDING	Mapped	Community - Terrestrial - Great Valley Mixed Riparian Forest
Community - Terrestrial	Valley Oak Woodland	Valley Oak Woodland	CTT71130CA	None	None	-	-	3812167	WOODLAND	Mapped	Community - Terrestrial - Valley Oak Woodland
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3812185	NICOLAUS	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812167	WOODLAND	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812165	TAYLOR MONUMENT	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Centromadia parryi ssp. rudis	Parry's rough tarplant	PDAST4R0P3	None	None	-	4.2	3812166	GRAYS BEND	Unprocessed	Plants - Vascular - Asteraceae - Centromadia parryi ssp. rudis
Plants - Vascular	Lessingia hololeuca	woolly-headed lessingia	PDAST5S030	None	None	-	3	3812167	WOODLAND	Unprocessed	Plants - Vascular - Asteraceae - Lessingia hololeuca
Plants - Vascular	Symphyotrichum lentum	Suisun Marsh aster	PDASTE8470	None	None	-	1B.2	3812176	KNIGHTS LANDING	Mapped	Plants - Vascular - Asteraceae - Symphyotrichum lentum
Plants - Vascular	Trichocoronis wrightii var. wrightii	Wright's trichocoronis	PDAST9F031	None	None	-	2B.1	3812187	KIRKVILLE	Mapped	Plants - Vascular - Asteraceae - Trichocoronis wrightii var. wrightii
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812177	ELDORADO BEND	Mapped	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Lepidium latipes var. heckardii	Heckard's pepper-grass	PDBRA1M0K1	None	None	-	1B.2	3812166	GRAYS BEND	Mapped and Unprocessed	Plants - Vascular - Brassicaceae - Lepidium latipes var. heckardii
Plants - Vascular	Atriplex depressa	brittlescale	PDCHE042L0	None	None	-	1B.2	3812166	GRAYS BEND	Mapped and Unprocessed	Plants - Vascular - Chenopodiaceae - Atriplex depressa
Plants - Vascular	Extriplex joaquinana	San Joaquin spearscale	PDCHE041F3	None	None	-	1B.2	3812166	GRAYS BEND	Mapped and Unprocessed	Plants - Vascular - Chenopodiaceae - Extriplex joaquinana
Plants - Vascular	Astragalus pauperculus	depauperate milk-vetch	PDFAB0F6N0	None	None	-	4.3	3812166	GRAYS BEND	Unprocessed	Plants - Vascular - Fabaceae - Astragalus pauperculus
Plants - Vascular	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1	None	None	-	1B.2	3812166	GRAYS BEND	Mapped and Unprocessed	Plants - Vascular - Fabaceae - Astragalus tener var. tener
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3812166	GRAYS BEND	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum

Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812166	GRAYS BEND	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812186	SUTTER CAUSEWAY	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812176	KNIGHTS LANDING	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3812175	VERONA	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpos var. occidentalis
Plants - Vascular	Chloropyron palmatum	palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	-	1B.1	3812166	GRAYS BEND	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Chloropyron palmatum
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812166	GRAYS BEND	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812167	WOODLAND	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Puccinellia simplex	California alkali grass	PMPOA53110	None	None	-	1B.2	3812177	ELDORADO BEND	Mapped	Plants - Vascular - Poaceae - Puccinellia simplex
Plants - Vascular	Navarretia cotulifolia	cotula navarretia	PDPLM0C040	None	None	-	4.2	3812166	GRAYS BEND	Unprocessed	Plants - Vascular - Polemoniaceae - Navarretia cotulifolia

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

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

Search Criteria

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

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

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	2B.1	S1	G4T3
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

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(online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 12 March 2021].

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United States Department of the Interior

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

In Reply Refer To: March 12, 2021
Consultation Code: 08ESMF00-2021-SLI-1269
Event Code: 08ESMF00-2021-E-03663
Project Name: Knights Landing Flood Risk Reduction

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

To Whom It May Concern:

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

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 08ESMF00-2021-SLI-1269
Event Code: 08ESMF00-2021-E-03663
Project Name: Knight's Landing Flood Risk Reduction
Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES
Project Description: Series of flood risk reduction projects around the community of Knight's Landing

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.7727692,-121.69605816257116,14z

Counties: Sutter and Yolo counties, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

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

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

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

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

Birds

NAME	STATUS
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: 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. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak *Cordylanthus palmatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1616	Endangered

Critical habitats

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

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

ESA Anadromous Fish

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

ESA Anadromous Fish Critical Habitat

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

ESA Marine Invertebrates

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

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

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

ESA Whales

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

ESA Pinnipeds

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

Essential Fish Habitat

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

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

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

MMPA Cetaceans -
MMPA Pinnipeds -

U.S. Fish and Wildlife Service
National Wetlands Inventory

Knights Landing

January 19, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
FERNS				
EQUISETACEAE – HORSETAIL FAMILY				
Equisetum sp.	horsetail			
EUDICOTS				
ADOXACEAE – MUSKROOT FAMILY				
Sambucus nigra ssp. caerulea	blue elderberry		FACU	
ANACARDIACEAE – SUMAC FAMILY				
Toxicodendron diversilobum	western poison oak		FACU	
APIACEAE – CARROT FAMILY				
*Torilis arvensis**	tall sock-destroyer			
Yabea microcarpa	small-fruited yabea		FACU	
ASTERACEAE – SUNFLOWER FAMILY				
Artemisia douglasiana	mugwort		FAC	
Baccharis pilularis ssp. consanguinea	coyote brush			
Heterotheca grandiflora	telegraph weed			
*Lactuca serriola**	prickly lettuce		FACU	
*Senecio vulgaris**	common groundsel		FACU	
*Silybum marianum**	blessed milk thistle			
Solidago sp.	goldenrod			
*Sonchus asper ssp. asper**	prickly sow thistle		FAC	
Xanthium strumarium	cocklebur		FAC	
BRASSICACEAE – MUSTARD FAMILY				
*Brassica nigra**	black mustard			
*Capsella bursa-pastoris**	shepherd's purse		FACU	
*Hirschfeldia incana**	shortpod mustard			
*Lepidium latifolium**	perennial pepperweed		FAC	B
*Raphanus sativus**	radish			
CHENOPODIACEAE – GOOSEFOOT FAMILY				
*Salsola tragus**	Russian thistle		FACU	C
CONVOLVULACEAE – MORNING–GLORY FAMILY				
Cuscuta sp.	dodder			C
CRASSULACEAE – STONECROP FAMILY				
Crassula aquatica	aquatic pygmy-weed		OBL	
EUPHORBIACEAE – SPURGE FAMILY				
Croton setiger	doveweed			
FABACEAE – LEGUME FAMILY				
*Trifolium hirtum**	rose clover			

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
Vicia americana ssp. americana	American vetch		FAC	
*Vicia villosa**	hairy vetch			
FAGACEAE – OAK FAMILY				
Quercus lobata	valley oak		FACU	
Quercus wislizeni	interior live oak			
GERANIACEAE – GERANIUM FAMILY				
*Erodium botrys**	long-beaked filaree		FACU	
*Erodium cicutarium**	redstem filaree			
JUGLANDACEAE – WALNUT FAMILY				
Juglans hindsii	northern California black walnut		FAC	
*Juglans regia**	English walnut			
LAMIACEAE – MINT FAMILY				
*Marrubium vulgare**	common horehound		FACU	
MALVACEAE – MALLOW FAMILY				
*Malva parviflora**	cheeseweed			
MONTIACEAE – MINER'S–LETTUCE FAMILY				
Claytonia perfoliata	miner's lettuce		FAC	
MYRTACEAE – MYRTLE FAMILY				
*Eucalyptus camaldulensis**	red gum		FAC	
OLEACEAE – OLIVE FAMILY				
Fraxinus latifolia	Oregon ash		FACW	
*Ligustrum lucidum**	Chinese privet			
*Olea europaea**	European olive			
ONAGRACEAE – EVENING PRIMROSE FAMILY				
Ludwigia sp.	false loosestrife			
OXALIDACEAE – OXALIS FAMILY				
*Oxalis pes-caprae**	bermuda buttercup			
PLANTAGINACEAE – PLANTAIN FAMILY				
*Plantago lanceolata**	English plantain		FAC	
PLATANACEAE – SYCAMORE FAMILY				
Platanus racemosa	western sycamore		FAC	
POLYGONACEAE – BUCKWHEAT FAMILY				
*Rumex crispus**	curly dock		FAC	
ROSACEAE – ROSE FAMILY				
*Cotoneaster sp.**	cotoneaster			
*Prunus dulcis**	almond			
Rosa californica	California rose		FAC	
*Rubus armeniacus**	Himalayan blackberry		FAC	
Rubus ursinus	California blackberry		FAC	

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
RUBIACEAE – COFFEE FAMILY				
Galium trifidum	three-part bedstraw		FACW	
SALICACEAE – WILLOW FAMILY				
Populus fremontii ssp. fremontii	Fremont's cottonwood		FAC	
*Salix babylonica**	weeping willow		FAC	
Salix exigua var. hindsiana	Hinds' willow		FACW	
Salix sp.	willow			
SAPINDACEAE – SOAPBERRY FAMILY				
Acer negundo	box elder		FACW	
Aesculus californica	California buckeye			
TAMARICACEAE – TAMARISK FAMILY				
*Tamarix parviflora**	smallflower tamarix		FAC	W
URTICACEAE – NETTLE FAMILY				
Urtica dioica	dioecious stinging nettle		FAC	
VISCACEAE – MISTLETOE FAMILY				
Phoradendron leucarpum ssp. macrophyllum	large-leaved American mistletoe			
VITACEAE – GRAPE FAMILY				
Vitis californica	California wild grape		FACU	
MONOCOTS				
AMARYLLIDACEAE – AMARYLLIS FAMILY				
*Narcissus pseudonarcissus**	daffodil			
ARECACEAE – PALM FAMILY				
*Phoenix canariensis**	Canary Island palm			
*Washingtonia robusta**	Mexican fan palm		FACW	
CYPERACEAE – SEDGE FAMILY				
Schoenoplectus acutus var. occidentalis	western sharp bulrush		OBL	
JUNCACEAE – RUSH FAMILY				
Juncus sp.	rush			
POACEAE – GRASS FAMILY				
*Avena fatua**	wild oat			
*Bromus diandrus**	ripgut grass			
*Bromus hordeaceus**	soft chess		FACU	
Distichlis spicata	salt grass		FAC	
*Hordeum murinum**	wall barley		FACU	
*Poa pratensis ssp. pratensis**	Kentucky blue grass		FAC	
*Sorghum halepense**	johnson grass		FACU	C

Legend

Symbols:

* Non-native species
^ Seed mix species
+ Volunteer species
cf. confer: This designation is used when a species or infraspecific taxon cannot be confirmed, but is believed to be the selected species of infraspecific taxon based on available anatomy

Federal Designations:

U.S. Fish and Wildlife Service:

FE Endangered
FT Threatened
FC Candidate Species

U.S. Forest Service:

FSS Forest Service Sensitive
WL Watch List

U.S. Army Corps of Engineers Wetland Rank:

OBL Wetland-dependent plants that require standing water or seasonally saturated soils near the surface.
FACW Plants dependent on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats.
FAC These plants can occur in wetlands or non-wetlands. They can grow in hydric, mesic, or xeric habitats.
FACU Plants that are not wetland dependent. They are non-wetland plants by habitat preference.
None Plants are upland plants and do not occur in wetlands.

Other Designations:

California Invasive Plant Council Rank:

High These species have severe ecological impacts on the surrounding habitat. They have moderate to high rates of dispersal and establishment, and most are widely distributed.
Moderate These species have substantial and apparent—but generally not severe—ecological impacts on the surrounding habitat. They have moderate to high rates of dispersal. Distribution may range from limited to widespread.
Limited These species are invasive, but their ecological impacts are minor on a statewide level. They have low to moderate rates of colonization. Although their distribution is generally limited, these species may be locally persistent and problematic.
Watch List These species are predicted to become invasive if no further actions are taken. Distribution may range from limited to widespread in specific regions.

State of California Designations:

California Department of Fish and Wildlife:

SE Endangered
ST Threatened
SR Rare

California Rare Plant Rank:

1A Plants presumed extirpated in California and either rare or extinct elsewhere
1B Plants Rare, Threatened, or Endangered in California and elsewhere
2A Plants presumed extirpated in California, but more common elsewhere
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3 Plants about which we need more information - review list
4 Plants of limited distribution - watch list

Threat Code Extensions:

None Plants lacking any threat information
.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Moderately threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

California Department of Food and Agriculture Weed Rank:

A eradication, containment, rejection, or other holding action at the state-County level is mandated
B eradication, containment, control, or other holding action is at the discretion of the commissioner
C no state action is required except to retard the speed of spreading
D no state action is required
W this plant is included in CCR Section 4500 list of state noxious weeds

Knights Landing Project – Wildlife Species Observed

INVERTEBRATES

Pipevine swallowtail (*Battus philenor*)
Western tiger swallowtail (*Papilio rutulus*)
Cabbage white (*Pieris rapae*)
Tarantula hawk sp. (*Pepsis* sp.)
Ladybird beetle sp.
Mosquito sp.

HERPS

Pacific chorus frog (*Pseudacris sierrae*)
Northwestern pond turtle (*Actinemys marmorata*) CA Species of Special Concern
Red-eared slider (*Trachemys scripta elegans*) non-native
Northwestern fence lizard (*Sceloporus occidentalis occidentalis*)

BIRDS

Canada goose (*Branta canadensis*)
Wood duck (*Aix sponsa*)
Mallard (*Anas platyrhynchos*)
Lesser scaup (*Aythya affinis*)
Canvasback (*Aythya valisineria*)
Bufflehead (*Bucephala albeola*)
Ruddy duck (*Oxyura jamaicensis*)
Domestic/Feral chicken (*Gallus gallus*) non-native
Indian peafowl (*Pavo cristatus*) non-native
Pied-billed grebe (*Podilymbus podiceps*)
Double-crested cormorant (*Phalacrocorax auritus*) CDFW Watch List (for colonies)
Great blue heron (*Ardea herodias*) CDF Sensitive (for colonies)
Great egret (*Ardea alba*) CDF Sensitive (for colonies)
Snowy egret (*Egretta thula*)
Turkey vulture (*Cathertes aura*) flyover
Sharp-shinned hawk (*Accipiter striatus*)
Red-shouldered hawk (*Buteo lineatus*)
Red-tailed hawk (*Buteo jamaicensis*)
Swainson's hawk (*Buteo swainsoni*) CA Threatened, USFWS Bird of Conservation Concern
American coot (*Fulica americana*)
Killdeer (*Charadrius vociferus*)
Greater yellowlegs (*Tringa melanoleuca*)
Rock pigeon (*Columba livia*) non-native
Eurasian collared-dove (*Streptopelia decaocto*) non-native
Mourning dove (*Zenaida macroura*)
Great horned owl (*Bubo virginianus*)
Anna's hummingbird (*Calypte anna*)

Belted kingfisher (*Megaceryle alcyon*)
Acorn woodpecker (*Melanerpes formicivorus*)
Nuttall's woodpecker (*Dryobates nuttallii*)
Downy woodpecker (*Dryobates pubescens*)
Northern flicker (*Colaptes auratus*)
American kestrel (*Falco sparverius*)
Black phoebe (*Sayornis nigricans*)
Say's phoebe (*Sayornis saya*)
California scrub-jay (*Aphelocoma californica*)
American crow (*Corvus brachyrhychos*)
Common raven (*Corvus corax*)
Tree swallow (*Tachycineta bicolor*)
Cliff swallow (*Petrochelidon pyrrhonota*)
Oak titmouse (*Baeolophus inornatus*)
Bushtit (*Psaltriparus minimus*)
White-breasted nuthatch (*Sitta carolinensis*)
Bewick's wren (*Thryomanes bewickii*)
House wren (*Troglodytes aedon*)
Marsh wren (*Cistothrus palustris*)
Ruby-crowned kinglet (*Regulus calendula*)
Western bluebird (*Sialia mexicana*)
Hermit thrush (*Catharus guttatus*)
American robin (*Turdus migratorius*)
Northern mockingbird (*Mimus polyglottos*)
European starling (*Sturnus vulgaris*) non-native
Cedar waxwing (*Bombycilla cedrorum*)
Orange-crowned warbler (*Oreothlypis celata*)
Yellow-rumped warbler (*Setophaga coronata*)
Spotted towhee (*Pipilo maculatus*)
California towhee (*Melozone crissalis*)
Savannah sparrow (*Passerculus sandwichensis*)
Song sparrow (*Melospiza melodia*) could be California Species of Special Concern Modesto population
Lincoln's sparrow (*Melospiza lincolnii*)
"Oregon" dark-eyed junco (*Junco hyemalis*)
White-crowned sparrow (*Zonotrichia leucophrys*)
Golden-crowned sparrow (*Zonotrichia atricapilla*)
Lark sparrow (*Chondestes grammacus*)
Brewer's blackbird (*Euphagus cyanocephalus*)
Brown-headed cowbird (*Molothrus ater*)
Western meadowlark (*Sturnella neglecta*)
House finch (*Haemorhous mexicanus*)
Pine siskin (*Spinus pinus*)
Lesser goldfinch (*Spinus psaltria*)
American goldfinch (*Spinus tristis*)
House sparrow (*Passer domesticus*) non-native

MAMMALS

American beaver (*Castor canadensis*) sign
Western gray squirrel (*Sciurus griseus*)
California ground squirrel (*Otospermophilus beecheyi*) few burrows on Ridge Cut side; no squirrels seen
Botta's pocket gopher (*Thomomys bottae*) sign
Coyote (*Canis latrans*) sign
Raccoon (*Procyon lotor*) sign
California Black-tailed deer (*Odocoileus hemionus columbianus*)

Yolo HCP AMMs Identified for the Proposed Project

General Project Design

AMM1, Establish Buffers. Project proponents will design projects to avoid and minimize direct andindirect effects of permanent development on the sensitive natural communities specified in Table 4-1 (herein referred to as *sensitive natural communities*) and covered species habitat specifiedin Table 4-1 by providing buffers, as stipulated in the relevant sensitive natural community AMMs (Section 4.3.3) and covered species AMMs (Section 4.3.4). On lands owned by the project proponent,the project proponent will establish a conservation easement, consistent with Section 6.4.1.3, *Land Protection Mechanisms,* to protect the buffer permanently if that land is being offered in lieu of development fees, as described in Section 4.2.2.6, *Item 6: HCP/NCCP Fees or Equivalent Mitigation*.

The project proponent will design buffer zones adjacent to permanent residential development projects to control access by humans and pets (*AMM2, Design Developments to Minimize IndirectEffects at Urban-Habitat Interfaces*).

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full buffer), the development will not encroach farther into the spacebetween the development and the sensitive natural community.

This AMM does not apply to seasonal construction buffers for covered species, which are detailedfor each species in Section 4.3.4, *Covered Species*.

A lesser buffer than is stipulated in the AMMs may be approved by the Conservancy, USFWS, and CDFW if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose (e.g., if the purpose of the project is to provide astream crossing or replace a bridge, the project may encroach into the buffer and the natural community or species habitat to the extent that is necessary to fulfill the project purpose).

General Construction and Operations and Maintenance

***AMM3, Confine and Delineate Work Area*.** Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the projectsite to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

AMM4, Cover Trenches and Holes during Construction and Maintenance. To prevent injury and mortality of giant garter snake, western pond turtle, and California tiger salamander, workers will cover open trenches and holes associated with implementation of covered activities that affect habitat for these species or design the trenches and holes with escape ramps that can be used duringnon-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

AMM5, Control Fugitive Dust. Workers will minimize the spread of dust from work sites to naturalcommunities or covered species habitats on adjacent lands.

AMM6, Conduct Worker Training. All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities andcovered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the FESA and NCCPA Permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

AMM7, Control Nighttime Lighting of Project Construction Sites. Workers will direct all lights for nighttime lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas. Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent projectfootprints, they will be located either in areas that do not support habitat for covered species or areeasily restored to prior or improved ecological functions (e.g., grassland and agricultural land).

Construction staging and other temporary work areas located outside of project footprints will besited in areas that avoid adverse effects on the following:

- Serpentine, valley oak woodland, alkali prairie, vernal pool complex, valley foothill riparian, andfresh emergent wetland land cover types.
- Occupied western burrowing owl burrows.[6]
- Nest sites for covered bird species and all raptors, including noncovered raptors, during thebreeding season.

Project proponents will follow specific AMMs for sensitive natural communities (Section 4.3.3, Sensitive *Natural Communities*) and covered species (Section 4.3.4, *Covered Species*) in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint,project proponents will conduct surveys to determine if any of the biological resources listed aboveare present.

Within one year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of theaffected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

Sensitive Natural Communities

AMM9, Establish Buffers around Sensitive Natural Communities. The buffers for each sensitive naturalcommunity are as follows:

- *Alkali prairie and vernal pools:* The area necessary to provide the hydrologic conditions needed to support the wetlands within these natural communities (250 feet). Covered activities will avoid vernal pools or alkali seasonal wetlands by 250 feet, or other distance based on site specific topography to avoid indirect hydrologic effects.[7] A buffer of less than 250 feet around

vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Otherconsiderations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to pre-project conditions prior to the following rainy season.

- *Valley foothill riparian:* One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in *AMM1*. Transportation or utility crossings may encroach into this sensitive natural community providedeffects are minimized and all other applicable AMMs are followed.
- *Lacustrine and riverine:* Outside urban planning units, 100 feet from the top of banks.[8] Withinurban planning units, 25 feet from the top of the banks.
- *Fresh emergent wetland:* Fifty feet from the edge of the natural community.

AMM10, Avoid and Minimize Effects on Wetlands and Waters. Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Fish and Game Code Section 1602, and Regional Board regulations. Other than requirements for buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species,this HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the USACE, State Board, Regional Board, and CDFW.

Covered Species

AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle. The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greaterthan one inch in diameter at ground level. *AMM1, Establish Buffers,* above, describes circumstances in which a lesser buffer may be applied. For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of exit holes. TheConservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle*. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the

shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrubis sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.

The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve systemthat has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.

Transplanting will follow the following measures:

1. Monitor: A qualified biologist will be on-site for the duration of the transplanting of theelderberry shrubs to ensure the effects on elderberry shrubs are minimized.
2. Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increasetransplantation success.
3. Transplantation procedure:
    a. Cut the plant back three to six feet from the ground or to 50 percent of its height (whicheveris taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.
    b. Relocate plant to approved location in the reserve system, and replant as described inSection 6.4.2.4.1, *Valley Elderberry Longhorn Beetle.*

AMM14, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle. There are no specific design requirements for western pond turtle habitat, however, project proponents must follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities described in AMMs 9 and 10, which require a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, basedon the outer boundary of the tree canopy). If modeled upland habitat will be impacted, a qualified biologist must be present and will assess the likelihood of western pond turtle nests occurring in thedisturbance area (based on sun exposure, soil conditions, and other species habitat requirements).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtlenests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings found.

AMM15, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake. The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat forgiant garter snake. To avoid effects on giant garter snake aquatic habitat, the

project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance bufferfrom the outer edge of potentially occupied aquatic habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent uplandhabitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for directmortality is reduced because snakes are expected to move and avoid danger.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat mustremain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.
- A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will basethe relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.
- If a live giant garter snake is encountered during construction activities, immediately notify theproject's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or,if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.
- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditchesfrom encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use ofhay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or otherwildlife will be permitted.

Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable totake because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction- related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, *Covered Species Accounts*) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when resloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakesare not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW.

AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite. Theproject proponent will retain a qualified biologist to conduct planning-level surveys and identify any nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under differentland ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initialtemporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site

biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks.

For covered activities that involve pruning or removal of a potential Swainson's hawk or white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistentwith the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

AMM17, Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo. The project proponent will retain a qualified biologist to conduct planning-level surveys and assess whether habitat for western yellow-billed cuckoo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of western yellow-billed cuckoo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding (or nesting)season records for the species within one-quarter mile of the covered activity within the previous three years, a qualified biologist will conduct planning-level surveys for active nests, consistent withUSFWS protocol (Appendix N), during the period from June 1 to August 30. Operations and maintenance activities that do not occur during the breeding season (June 1 to August 30) and do not remove western yellow-billed cuckoo habitat are not required to conduct surveys or record searches; no further avoidance or minimization is necessary for such activities.

If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat,unless the Conservancy, USFWS, and CDFW approve a shorter distance.

If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not a qualified biologist detected the species during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys that are consistent with USFWS protocol (Appendix N) during the same season when the activity will occur. If the biologist finds active territories (i.e., presence of a singing male), the project proponentwill avoid activity within 500 feet of suitable habitat that is contiguous with the territory from June 1 to August 30. Adjacent parcels under different land ownership will be surveyed only if accessis granted or if the parcels are visible from authorized areas.

AMM19, Minimize Take and Adverse Effects on Least Bell's Vireo. The project proponent will retain a qualified biologist to conduct planning-level surveys and determine if habitat for least Bell's vireo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of least Bell's vireo habitat. If the activity will encroach within 500 feet of habitat andthere are no breeding season records for the species within one-quarter mile of the covered activity within the previous three years, the qualified biologist will conduct planning-level surveys for activeterritories, consistent with USFWS (2001) guidelines, during the

breeding season (April 1 to July 15). Operations and maintenance activities that do not occur during the breeding season and do not affect least Bell's vireo habitat are not required to conduct surveys or record searches, and no further avoidance or minimization is necessary for such activities.

- If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitablehabitat, unless the Conservancy, USFWS, and CDFW approve a shorter distance.
- If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not the species was detected during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys, consistent with USFWS (2001) guidelines, during the same season when the activity will occur. If active territories are found, the project proponent will avoid activity within 500 feet of the habitat from April 1 to July 15. This buffer may be reduced with approval from the Conservancy, USFWS,and CDFW.
- The project proponent will avoid disturbance of previous least Bell's vireo territories (up to three years since known nest activity) during the breeding season, unless the disturbance is tomaintain public safety. Least Bell's vireo uses previous territories; disturbance during the breeding season may preclude birds from using existing unoccupied territories.
- The required buffer may be reduced in areas where barriers or topographic relief features are adequate for protecting the nest from excessive noise or other disturbance. Conservancy staff members will coordinate with the wildlife agencies and evaluate exceptions to the minimum nondisturbance buffer distance on a case-by-case basis. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorizedareas.
- If occupied territories are identified, a qualified biologist will monitor construction activities inthe vicinity of all active territories to ensure that covered activities do not affect nest success.

AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow. The project proponent will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat (as defined in Appendix A, *Covered Species Accounts*) within 500 feet of the project footprint. If a 500- foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy and CDFW to determine if bank swallow nesting colonies have been

active on the site within the previous five years. If there are no records of nesting bank swallows onthe site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

For operations and maintenance activities or other temporary activities that do not remove nestinghabitat and occur outside the nesting season (September 1 to February 28), it is not necessary to conduct a record search, planning and preconstruction surveys, or any additional avoidance measures. If activities will occur during the nesting season, surveys will be necessary as for other covered activities, but the 500-foot survey distance and buffer distance may be reduced upon Conservancy and wildlife agency approval based on site-specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and

the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony.

If an active bank swallow colony is present or has been present within the last 5 years within the planning-level survey area, the Conservancy, USFWS and CDFW will be notified in writing within 15working days, and the project proponent will design the project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

The reserve system management plan including bank swallow habitat will provide examples of additional measures that may apply to activities on reserve system lands to avoid and minimizeeffects on bank swallow.

AMM0, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird. The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Appendix A, Covered Species Accounts) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008). Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures. If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

CEQA Mitigation Measure or HCP AMM	Sacramento River Right Bank Levee	Knights Landing Ridge Cut	
MM-BIO-1a	X	X	
MM-BIO-1b	X	X	
MM-BIO-1c	X	X	
MM-BIO-1d	X	X	
MM-BIO-1e	X	X	
MM-BIO-1f	X	X	
MM-BIO-1g	X	X	
MM-BIO-1h	X	X	
MM-BIO-1i	X	X	
MM-BIO-1j	X	X	
MM-BIO-1k	X		
MM-BIO-1l	X	X	
MM-BIO-2	X	X	
HCP AMM1	X	X	
HCP AMM3	X	X	
HCP AMM4	X	X	
HCP AMM5	X	X	
HCP AMM6	X	X	
HCP AMM7	X	X	
HCP AMM8	X	X	
HCP AMM9	X	X	
HCP AMM10	X	X	
HCP AMM12	X		
HCP AMM14	X	X	
HCP AMM15		X	
HCP AMM16	X	X	
HCP AMM17	X		
HCP AMM19	X	X	
HCP AMM20	X		
HCP AMM21		X	