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San Joaquin Field Division Operations and Maintenance Center Drainage Culvert Replacement Project

Prepared for:

California Department of Water Resources

Operations and Maintenance

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BMP	best management practice
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
DWR	California Department of Water Resources
FTA	Federal Transit Administration
GHG	greenhouse gas
ips	inches per second
IS	Initial Study
L_{dn}	day/night average sound level
L_{eq}	average energy-equivalent sound level over a given period
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MT	metric ton
NOx	oxides of nitrogen
O&M	operations and maintenance
PG&E	Pacific Gas & Electric Company
PPV	peak particle velocity
PRC	California Public Resources Code
Project	San Joaquin Field Division Operations and Maintenance Center Drainage Culvert Replacement Project
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
SJFD	San Joaquin Field Division
SJVAPCD	San Joaquin Valley Air Pollution Control District
SOx	sulfur oxides
SWP	State Water Project
TAC	toxic air contaminant
VMT	vehicle miles traveled

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1 Introduction

1.1 Project Overview

The California Department of Water Resources (DWR) is proposing to replace the existing drainage culvert at the entrance to the San Joaquin Field Division (SJFD) Operations and Maintenance (O&M) Center. The SJFD O&M Center Drainage Culvert Replacement Project (Project) site is in unincorporated Kern County, approximately 23 miles south of the City of Bakersfield and accessed via South Sabodan Street near the community of Mettler.

The purpose of the Project is to improve drainage. The existing culvert is approximately 50% obstructed due to the accumulation of sediment, and therefore restricts stormwater flows during large rain events. The Project would involve removing the existing culvert structure and constructing a new concrete box culvert and reinforced concrete headwall structures, totaling 0.299 acres. The Project site contains a 10,000-square-foot (0.230-acre) staging area approximately 600 feet south of the culvert site within the SJFD O&M Center site; this area would be used for equipment storage and personal vehicle parking. The two Project activity areas (culvert replacement site and staging area) are collectively referred to as the Project site. The Project site is owned and operated by DWR and is designated as Non-Jurisdictional Land (1.1 state or federal land) by the Kern County General Plan Land Use Map – Central Kern County (County of Kern 2010).

The Project would ensure improved drainage flows, protect against flooding of and damage to the entrance road, and ensure that access to the SJFD O&M Center is maintained during and following storm events. The culvert replacement has been identified by the Division of Operations and Maintenance Reliability and Security Office as a necessary upgrade to State Water Project (SWP) assets.

A detailed description of the Project and its potential impacts are presented in Chapter 3, Initial Study Checklist.

1.2 California Environmental Quality Act Compliance

The California Environmental Quality Act (CEQA) applies to projects initiated by, funded by, or requiring discretionary approvals from state or local government agencies. The proposed Project constitutes a project as defined by CEQA (California Public Resources Code Section 21000 et seq.). The State of California CEQA Guidelines (CEQA Guidelines) Section 15367 states that a "lead agency" is "the public agency which has the principal responsibility for carrying out or approving a project." Therefore, DWR is the lead agency responsible for compliance with CEQA for the proposed Project.

As the lead agency, DWR must complete an environmental review to determine if implementation of the proposed Project would result in significant adverse environmental impacts. To fulfill the purpose of CEQA, an Initial Study (IS) has been prepared to assist in making that determination. Pursuant to CEQA Guidelines Section 15063(d), an Initial Study must contain the following:

1. A description of the project, including the location of the project.
2. An identification of the environmental setting.
3. An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to

support the entries. The brief explanation may be either through a narrative or a reference to another information source such as an attached map, photographs, or an earlier Environmental Impact Report or Negative Declaration. A reference to another document should include, where appropriate, a citation to the page or pages where the information is found.

4. A discussion of the ways to mitigate the significant effects identified, if any.
5. An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls.
6. The name of the person or persons who prepared or participated in the Initial Study.

Based on the nature and scope of the proposed Project and the evaluation contained in the Environmental Checklist (contained herein as Chapter 3), DWR, as the lead agency, concluded that a Mitigated Negative Declaration (MND) is the proper level of environmental documentation for the proposed Project. The IS shows that impacts caused by the proposed Project would be either less than significant or significant but mitigable with incorporation of appropriate mitigation measures, as defined herein. This conclusion is supported by CEQA Guidelines Section 15070, which states that an MND can be prepared under the following conditions:

> The initial study shows that there is not substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or (b) the initial study identifies potentially significant effects, but (1) revisions in the project plans or proposals made by, or agreed to by the applicant, before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

This IS/MND is composed of four chapters. Chapter 1, Introduction, provides a general overview of the proposed Project, CEQA requirements related to the Project, and the public review process. Chapter 2, Project Setting and Description, provides a description of the environmental setting and the proposed Project components, anticipated construction schedule, and operational characteristics. Chapter 3 provides the CEQA Initial Study Checklist, which contains an assessment of potential environmental impacts and identifies mitigation measures to reduce potentially significant impacts to less than significant. Chapter 4, References and Preparers, provides a list of sources used and a list of staff and consultants involved in preparing this IS/MND. This IS/MND also includes appendices that contain technical memoranda, reports, and data files related to and referenced in this document.

1.3 Project Planning Setting

DWR's Reliability and Security Office has issued O&M Policy CP_60, under which the physical security of SWP assets should be addressed. The Physical Security Upgrades program intends to address physical security for SWP assets that have been identified by the Reliability and Security Office. The SJFD O&M Center supports the operation and management of the California Aqueduct, the Chrisman Pumping Plant, and other SWP facilities within DWR's SJFD service area, and is considered an SWP asset. The Project would replace an existing culvert to improve drainage and avoid flooding and roadway damage at the entrance to the SJFD O&M Center facility, and ensure that appropriate access to the facility is maintained during and following storm events.

1.4 Public Review Process

In accordance with CEQA and the CEQA Guidelines, a 30-day public review period for this IS/MND commenced on December 15th, 2023 and will conclude on January 16th, 2024. This IS/MND was distributed for review to interested and involved public agencies, responsible/trustee agencies, organizations, and private individuals who have requested in writing to be informed of the proposed Project. In addition, consistent with CEQA Guidelines Section 15072, DWR is required to provide a Notice of Intent to adopt this IS/MND to the public, responsible agencies, trustee agencies, and the County Clerk, and will mail a Notice of Intent to adopt this IS/MND to the last known name and address of all organizations and individuals who have previously requested such notice.

An electronic copy of this IS/MND can be viewed at the following web address:

https://water.ca.gov/News/Public-Notices

During the 30-day public review period, the public will have the opportunity to provide written comments on the information contained within this IS/MND. DWR's discretionary approval/denial of the proposed Project will be based on the information contained in this document.

In reviewing this IS/MND, interested members of the public should focus on the sufficiency of the document in identifying and analyzing potential Project impacts on the environment, and the sufficiency of any mitigation measures proposed to reduce potential impacts to a less-than-significant level. Comments on the IS/MND should be submitted by the end of the 30-day public review period and must be postmarked by January 16th, 2024. Submit written comments by mail or email with the subject line "San Juaquin Field Division O&M Center Culvert Replacement Project" to the following address:

Jennifer Worsley
California Department of Water Resources
715 P Street, 5th Floor, Mailbox 9
PO Box 942836
Sacramento, California 94236-0001
jennifer.worsley@water.ca.gov

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2 Project Setting and Description

2.1 Project Location

The Project site is at the SJFD O&M Center in southern Kern County, 23 miles south of the City of Bakersfield. The SJFD O&M Center is at the base of the Tehachapi Mountains in unincorporated Kern County, adjacently east of the California Aqueduct and west of the interchange of Interstate 5 and State Route 99 (see Figure 1, Project Location). The Project site is accessed from the north via the gated entrance on South Sabodan Street just east of the SJFD O&M Center. The Project site consists of an existing drainage culvert, oriented northwest/southeast underneath South Sabodan Street, which runs generally north to south. The Project would also involve the use of a separate 10,000-square-foot staging area that would be used for equipment storage and personal vehicle parking by construction personnel, approximately 600 feet south of the culvert replacement site, on the southeastern portion of the SJFD O&M Center (collectively referred to as the Project site) (see Figure 2, Project Site).

2.2 Existing Conditions and Setting

2.2.1 Existing On-Site Conditions

The existing drainage culvert crosses under South Sabodan Street and is approximately 50% full of sediment, which restricts stormwater flow during large rain events. The existing culvert consists of a 72-inch-wide by 85-foot-long arch corrugated metal pipe and shotcrete in the drainage channel upstream and downstream of the pipe. South Sabodan Street, located directly over the middle of the culvert, consists of asphalt pavement with an approximately 62-foot-long metal guardrail along the western edge of the road. An existing chain-link fence with a wind guard crosses, in an east/west direction, the portion of South Sabodan Street directly above the culvert. The guard structure is on the east side of South Sabodan Street, north of the culvert.

The proposed staging area currently consists of a flat, gravel-covered area in the southern portion of the SJFD O&M Center, southeast of the southernmost building of the O&M Center. This area is used periodically for parking or temporary storage of equipment as part of normal facility operations.

The Project site is owned and operated by DWR and is designated as Non-Jurisdictional Land (1.1 state or federal land) by the Kern County General Plan Land Use Map – Central Kern County (County of Kern 2010). The Project site is not included in the Kern County Zoning Map because, as state-owned land, the property is not subject to local zoning requirements (see Figure 3, Land Use and Zoning Designations).

2.2.2 Surrounding Land Uses

The Project site is east of the SJFD O&M Center, which consists of seven buildings, paved driveways, parking areas with shade structures, landscaping, and staging/storage areas. North of the Project site is the Wheeler Ridge Oil Field, followed by agricultural land generally cultivated with row crops. East of the Project site is the Wheeler Ridge Oil Field and the Wheeler Ridge Sand and Gravel Mine, followed by agricultural land generally cultivated with row crops. South of the Project site is the Wheeler Ridge Oil Field followed by open, vacant land. West of the Project site is the California Aqueduct, which traverses from the northwest to the southeast. The land farther west is currently

vacant. The Chrisman Pumping Plant is located along the California Aqueduct southwest of the Project site. Interstate 5 traverses in a northwest/southeast alignment north of the Project site.

Surrounding land uses directly adjacent to the Project site that contains the SJFD O&M Center, the California Aqueduct, and the Chrisman Pumping Station are designated as Non-Jurisdictional Land (1.1 state or federal land) (County of Kern 2010). Beyond the surrounding state-owned lands in the Project vicinity, land uses to the east and south are designated as Light Industrial, Service Industrial, Public or Private Recreation Areas, and State or Federal Land, as designated by the Kern County General Plan Land Use (County of Kern 2010). Land to the north and west are designated as Service Industrial, Public or Private Recreation Areas, and State or Federal Land. Surrounding land is zoned as Extensive Agriculture, Limited Agriculture, or State or Federal Land (no local zoning) (see Figure 3, Land Use and Zoning Designations).

2.3 Project Description

2.3.1 Project Background

DWR is implementing the Physical Security Upgrades SJFD Project at the SJFD O&M Center, as described in Section 1.1, Project Overview. The SJFD serves Kern, Kings, San Luis Obispo, and Santa Barbara Counties, and is responsible for O&M of 123 miles of the California Aqueduct, the 14.8-mile-long Coastal Branch Aqueduct, and associated facilities. Management of O&M activities for facilities within SJFD jurisdiction occur primarily out of the SJFD O&M Center.

2.3.2 Project Components

2.3.2.1 Proposed Culvert

The proposed Project would include replacement of the existing arch corrugated metal pipe culvert with a new concrete box culvert, improvements to the upstream and downstream flow channels, and improvements to the connection to an existing drainage swale (see Figure 4, Proposed Project Components). The Project proposes a new pre-cast reinforced concrete box culvert that would be approximately 92 feet long, 4 feet wide, 4 feet tall, and 6 inches thick, and 12 inches deeper than the existing culvert, with cast-in-place reinforced concrete headwall structures at each end of the culvert. The headwall structures would consist of one headwall, two wing walls, a foundation slab, and a cutoff wall. The headwall would be approximately 6 feet tall with a 1-foot, 2-inch-deep footing; the wing walls with the same dimensions would extend out approximately 6 feet, and a cutoff wall at the start/end of the structure would extend down 4 feet from invert elevation. The wing walls would be approximately 6 feet tall with a 1-foot, 2-inch-deep footing, angled at 30 degrees and extending approximately 5 feet, 3 inches out from the headwall. The headwall, cutoff wall, and wing walls would be 1 foot thick. The upstream headwall and wingwall would be at a depth of 5 feet from existing ground. The downstream headwall and wingwall would be at a depth of 9 feet from existing ground. The elevation at the inlet of the new box culvert would be placed approximately 12 inches lower than the existing culvert flowline. The invert elevation at the outlet of the new box culvert would be at an elevation of approximately 789 feet above mean sea level (see Figure 5, Proposed Culvert Site Plan). The Project would also include improvements within the upstream flow channel, southeast of the existing box culvert, and within the downstream flow channel, northwest of the existing box culvert.

Improvements to the upstream flow channel would consist of a trapezoidal-shaped concrete liner that would be approximately 4 inches thick and 27 feet long. The southern terminus of the concrete liner would be approximately 22 feet wide, and the northern terminus, located adjacent to the headwall structure, would be approximately 33 feet wide. Rock slope protection with concrete would be placed directly south of the concrete liner and would be approximately 5 feet long by 21 feet wide by 3 feet thick.

Improvements to the downstream flow channel would consist of a trapezoidal-shaped concrete liner that would be approximately 4 inches thick and 20 feet long. The southern terminus, located adjacent to the headwall structure, would be approximately 23 feet wide, and the northern terminus would be approximately 20 feet wide. The inlet liner would be 6 inches below existing ground and the outlet liner would be 5 feet below existing ground. Rock slope protection (riprap) with concrete would be placed north of the concrete liner and would be approximately 26 feet long by 19 feet wide by 3 feet thick. Additional rock slope protection would be placed to connect an existing drainage swale from the SJFD O&M Center parking lot to the downstream flow channel. The swale rock slope protection would be approximately 76 feet long by 8 feet wide by 2 feet thick.

An existing gravel parking area measuring 100 feet by 100 feet (10,000 square feet) and located in the southeast portion of the SJFD O&M Center site, southeast of the southernmost building, would be used during construction as a staging area for materials and parking by construction personnel (see Figure 6, Proposed Staging Area). Access to the staging area would be provided from the internal circulation road, northwest of the staging area.

2.3.2.2 Demolition

The existing structural features at the Project site that would be removed as part of the Project consist of the following: 72-inch-wide by 85-feet-long arch corrugated metal drainpipe, shotcrete, asphalt pavement, road base, curb and gutter, and fencing and guardrail. Demolition of the existing structures would require trenching and excavation, and would require use of an excavator and/or backhoe. Demolished materials would be either recycled or disposed of at the nearest landfill that is permitted to dispose of construction and demolition waste. The contractor would minimize generation of construction/demolition waste and would reuse materials when feasible.

2.3.2.3 Construction

Construction is anticipated to last approximately 4 months and would take place in the late spring through early fall of 2024. Approximately 10 construction personnel would be present on site for the duration of construction activities. Construction of the proposed box culvert would require trenching across the road and removal of the existing piping. Once the existing earthen material and piping are removed, the foundation material would be excavated. Approximately 150 cubic yards of material would be exported from the Project site. During ground-moving activities and construction, all existing utilities would be maintained in place. Aggregate base may be placed directly on the soil where it would be compacted to the required range. The culvert would be pre-cast, and the headwalls and concrete liner would be cast-in-place using a concrete pump, concrete mixer, concrete vibrator, and other equipment. Rock slope protection with concrete would be placed upstream and downstream of the box culvert using a backhoe to prevent erosion. The entrance road and drainage channel slopes would require grading to match the existing slope outside of the work area. Total grading would equal approximately 1,350 square feet. Grading would extend approximately 35 feet upstream of the box culvert and 50 feet downstream of the box culvert. The road would be backfilled where trenching had occurred and then repaved with aggregate base overlayed with hot

mix asphalt using a compactor, paver screed, steel-wheeled roller, and pneumatic tire roller. Approximately 150 cubic yards of material would be imported for use on site.

During construction, South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through-traffic. To ensure access to employees of the SJFD O&M Center, a temporary traffic plan would be prepared, and an alternate access route would be provided.

2.3.2.4 Operation

Once constructed, the Project would not generate any new employees or additional site visits by employees during O&M—the number and frequency of site visits would remain the same as existing conditions. O&M activities would involve annual inspections and cleaning out sediment or materials, as necessary. The Project is anticipated to reduce required maintenance on the culvert because the improved design would allow for better water flow and reduced erosion, and would require fewer maintenance visits to clean out sediment build-up or to address erosion issues on the main drainage or tributary drainage. Therefore, the Project would not generate additional trips over existing conditions. In addition, operation of the culvert would not result in long-term changes to the Project site.

2.4 Discretionary Actions

2.4.1 California Department of Water Resources

This IS/MND is intended to serve as the primary environmental document pursuant to CEQA for actions associated with the proposed Project, including discretionary approvals required to implement the Project. In addition, this IS/MND is the primary reference document for the formulation and implementation of the Mitigation Monitoring and Reporting Program for the Project, in accordance with Section 15097 of the CEQA Guidelines. Discretionary actions subject to DWR's review and approval includes adoption and certification of this IS/MND, and approval of the proposed Project.

2.4.2 Responsible and Trustee Agencies

Table 1 identifies all agencies, including responsible and trustee agencies, that are known or expected to have permit or approval authority over the proposed Project. Table 1 also identifies discretionary actions and permits that could be required from each agency to carry out the Project.

Table 1. Responsible and Trustee Agency Approvals

Permit/Action	Agency
Nationwide Permit under Section 404 of the Clean Water Act	U.S. Army Corps of Engineers
Clean Water Act Section 401 Water Quality Certification	Regional Water Quality Control Board, Los Angeles
Streambed Alteration Agreement, Fish and Game Code Section 1600	California Department of Fish and Wildlife

3 Initial Study Checklist

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 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	☐ Mandatory Findings of Significance

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature Date

3.1 Aesthetics

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – 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 buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). 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?	☐	☐	☒	☐

a) Would the project have a substantial adverse effect on a scenic vista?

No Impact. Kern County's General Plan Environmental Impact Report identifies features with high aesthetic values in Kern County, such as lakes (e.g., Lake Isabella), rivers (e.g., Kern River), buildings (e.g., Beale Clock Tower), mountainous ridgelines (e.g., Sierra Nevada and Tehachapi Mountains), and other features of the region that are important for aesthetic considerations (County of Kern 2004). The Kern County General Plan identifies no features with high aesthetic value near the Project site; the closest feature identified under the General Plan is the foothills of the Tehachapi Mountains, approximately 12 miles southeast of the Project site (County of Kern 2009a). The Project would involve the replacement of an existing drainage culvert at the entrance of the SJFD O&M Center. The Project would not introduce elements that would significantly alter the existing visual conditions of the site or surrounding area. Therefore, because the Project would result in repairs to an existing drainage culvert on site, because the Project would not be visible from scenic vantage points or other aesthetic features, and because it would not result in the introduction of elements that would have a substantial adverse effect on a scenic vista, no impact would occur.

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. There are several scenic routes in Kern County, such as State Highway 14/U.S. Highway 395, State Highway 58, and State Highway 41, but none of the state highways are adopted State Scenic Highways (County of Kern 2004). The nearest officially designated State Scenic Highway to the Project site is State Route 33, approximately 30 miles southwest of the Project site (Caltrans 2023). The Project would not be visible from a State Scenic Highway, and therefore would not substantially damage scenic resources, including trees, rock outcroppings, and historic buildings, within a State Scenic Highway. No impact would occur.

c) In non-urbanized areas, would the project 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 point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. Per California Public Resources Code (PRC) Section 21071, an "urbanized area" is defined as "(a) An incorporated city that meets either of the following criteria: (1) Has a population of at least 100,000 persons, [or] (2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." The Project site is in a rural, unincorporated area of southern Kern County, 23 miles south of the City of Bakersfield. The closest community to the Project site is Wheeler Ridge, approximately 2.5 miles southeast of the site. Areas surrounding the Project site consist of primarily open, vacant, and agriculture lands. Therefore, the Project site is within a non-urbanized area. The Project would involve replacement of an existing drainage culvert. Any construction activities that have the potential to degrade the existing visual character would be temporary, because construction is expected to last only approximately 4 months. Upon completion, the Project site would aesthetically look the same as before construction, and would not introduce any new features that have the potential to degrade the existing visual character or quality of public views of the site or its surroundings. Therefore, no impact would occur.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact. The Project would not include installation of any new light sources or the use of reflective materials. Existing sources of lighting in the vicinity of the site include lighting from the SJFD O&M Center and from headlights from vehicles. If nighttime lighting is used during construction, lighting would be isolated to the work area (temporary impact area) and would be temporarily located for up to 4 months. The Project would not result in additional permanent sources of lighting or glare; therefore, the Project would result in less than significant impact related to light or glare.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – 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?	☐	☐	☐	☒

a) Would the project 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?

No Impact. The Project site is not mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance per the State of California Department of Conservation Farmland Mapping and Monitoring Program (CDOC 2023a). The nearest land mapped as Farmland by the Farmland Mapping and Monitoring Program is Farmland of Statewide Importance and Unique Farmland located approximately 0.40 miles north of the Project site, and Prime Farmland located approximately 1.10 miles east of the Project site. The

Project site is mapped as both Urban and Built-Up Land (on the west side of South Sabodan Street) and Grazing Land (east side of South Sabodan Street). Although a portion of the Project site is identified as Grazing Land, it is developed with a gravel parking area and the drainage channel, and therefore is not used for livestock grazing. The adjacent land to the north and east that is mapped as Grazing Land is developed as an oil field and not used for grazing. Furthermore, the Project would involve replacement of the existing culvert in its current location, and would not impact surrounding land such that it would convert farmland to non-agricultural uses. Therefore, the Project would not convert Farmland to non-agricultural uses, and no impact would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site has a "State or Federal Land" land use designation in the Kern County General Plan (County of Kern 2010). The Project site is located in the State or Federal Land – No Zoning (SF-NZ) Zoning District (see Figure 3, Land Use and Zoning Designations). The Project site is not zoned for agricultural use, nor is it under a Williamson Act contract. The closest land under a Williamson Act contract is a 53.6-acre parcel approximately 800 feet north of the Project site (CDOC 2023b). The Project, which would involve removing an existing culvert structure and constructing a new concrete box culvert, along with the temporary use of a 10,000-square-foot staging area within the SJFD O&M Center, would not conflict with or impact this nearby land currently under a Williamson Act contract. Therefore, the Project would not conflict with any existing zoning for agricultural use, nor a Williamson Act contract, and there would be no impact.

c) Would the project 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))?

No Impact. As previously mentioned, the Project site is zoned as State or Federal Land by the County of Kern (County of Kern 2010). This zone is not designated for forest or timberland; it is used to designate non-jurisdictional land that is owned by the federal government or State of California, and it is not within the County of Kern's jurisdiction. The Project site is part of the developed SJFD O&M Center, and it is currently developed with an existing culvert structure. The replacement culvert structure would not conflict with zoning for forestry uses, and no impacts would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Refer to Section 3.2(c). The Project site is currently developed with an existing culvert structure and would not result in removal of trees or forest land. Therefore, the Project would not result in the loss or conversion of forest lands to non-forest uses. No impacts would result.

e) Would the project 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?

No Impact. Refer Section 3.2(c) and Section 3.2(d). The Project would not involve changes that would result in the conversion of farmlands. No impacts would result.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – 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?	☐	☐	☒	☐

Setting

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the San Joaquin Valley Air Basin. The SJVAPCD's jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties, and the San Joaquin Valley portion of Kern County. The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards, the most recent of which include the 2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan (SJVAPCD 2014); 2013 Plan for the Revoked 1-Hour Ozone Standard (SJVAPCD 2013); 2007 PM_{10} Maintenance Plan and Request for Redesignation (SJVAPCD 2007); 2012 $PM_{2.5}$ Plan (SJVAPCD 2012); 2015 Plan for the 1997 $PM_{2.5}$ Standard (SJVAPCD 2015a); and 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards (SJVAPCD 2019). Table 2 presents the emissions-based thresholds developed in the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015b). These include significance thresholds for construction emissions and operational permitted and non-permitted equipment and activities. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period.

Table 2. San Joaquin Valley Air Pollution Control District Significance Thresholds for Criteria Pollutants

Pollutant	Construction Emissions (tons per year)	Operational Emissions (tons per year)	
		Permitted Equipment and Activities	*Non-Permitted Equipment and Activities*
ROG	10	10	10
NO_x	10	10	10
CO	100	100	100
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015b.
ROG = reactive organic gas; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns

In addition to the annual emissions mass thresholds listed in Table 2, the SJVAPCD has established screening criteria to determine whether a project would result in a carbon monoxide (CO) hotspot at affected roadway intersections (SJVAPCD 2015b). If neither of the following criteria are met at any of the intersections affected by a project, that project would result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the level of service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

The SJVAPCD has also established thresholds of significance for combined toxic air contaminant (TAC) emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015b). Projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.[1]
- Hazard Index[2] for acute and chronic noncarcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

[1] The cancer risk threshold was increased from 10 to 20 in 1 million with approval of APR 1906 (Framework for Performing Health Risk Assessments) on June 30, 2015.

[2] Non-cancer adverse health impact, both for acute (short-term) and chronic (long-term) health effects, is measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentration from a project to a published reference exposure level that could cause adverse health effects as established by the Office of Environmental Health Hazard Assessment. The ratio (referred to as the hazard quotient) of each noncarcinogenic substance that affects a certain organ system is added together to produce an overall hazard index for that organ system.

As described in the Guidance for Assessing and Mitigating Air Quality Impacts, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015b). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

- Generators: Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- Receivers: Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. A project is non-conforming with an air quality plan if it conflicts with or delays implementation of any applicable attainment or maintenance plan. The SJVAPCD has prepared plans to attain federal and state ozone and particulate matter ambient air quality standards as required under the federal and California Clean Air Acts. The SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on SJVAPCD New Source Review offset requirements for stationary sources. Stationary sources in the SJVAPCD jurisdiction are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of SJVAPCD offset requirements are a major component of the SJVAPCD's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict with or obstruct implementation of the SJVAPCD's air quality plan (SJVAPCD 2015b). As discussed in Section 3.3(b), the Project would not exceed SJVAPCD thresholds for criteria air pollutants during construction or operations. Therefore, the Project would not conflict with or delay implementation of SJVAPCD attainment plans, and would result in no impact.

b) Would the project 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?

Less-than-Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SJVAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

The California Emissions Estimator Model (CalEEMod), Version 2022, was used to estimate emissions from construction of the Project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and greenhouse gas (GHG) emissions associated with construction activities and operation of a variety of land use projects. CalEEMod input parameters, including the land use type used to represent the Project and its size, construction schedule, and anticipated use of construction equipment, were based on information provided by the applicant or default model assumptions if Project specifics were unavailable. Construction of the Project is scheduled to begin in April 2024 and would be complete no later than October 2024.

The construction equipment and on-road vehicles used for estimating the construction emissions of the Project is based on applicant-provided information and CalEEMod default values, as shown in Table 3.

Table 3. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Average Daily Haul Truck Trips*	*Equipment Type*	*Quantity*	*Daily Usage Hours*
Demolition	6	2	2	Excavators	1	8
				Rubber-Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	1	8
				Other Material-Handling Equipment	1	8
Grading	6	4	2	Graders	1	8
				Rollers	1	8
				Tractors/Loaders/ Backhoes	1	8
				Plate Compactors	2	8
				Other General Industrial Equipment	1	8
Construction of New Culvert	8	14	2	Cranes	1	8
				Tractors/Loaders/ Backhoes	1	8
				Other Construction Equipment	1	8
Paving	4	2	0	Paving Equipment	1	4
				Pavers	1	4
				Rollers	1	8
				Sweepers	1	8

Note: See Appendix A for details.

Construction of the Project would temporarily generate reactive organic gases, oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) emissions that would result in short-term impacts on ambient air quality in the area. Emissions would originate from mobile and stationary construction equipment exhaust, on-road vehicle (workers and trucks) exhaust, dust from culvert demolition and site clearing, and exposed soils eroded by wind. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content. On-site sources of criteria air pollutant emissions would include off-road equipment and fugitive dust, and off-site sources would include hauling and vendor trucks and worker vehicles. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The Project would be required to comply with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition) by law, which specifies standard construction practices to reduce fugitive dust emissions. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas two times per day, with additional watering depending on weather conditions. Table 4

presents the estimated annual construction emissions generated during construction of the Project. Details of the emission calculations are provided in Appendix A.

Table 4. Estimated Annual Construction Criteria Air Pollutant Emissions

Year[1]	ROG	NOx	CO	SOx	PM^{10}	$PM^{2.5}$
	Tons per year					
2024	0.03	0.26	0.27	<0.005	0.11	0.01
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix A for complete results.
Notes: ROG = reactive organic gases; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides; <0.005 = reported value less than 0.005.
[1] Total emissions reflect a rolling 12-month total.

As shown in Table 4, construction of the Project would not exceed SJVAPCD significance thresholds. Thus, the Project would have a less-than-significant cumulative impact in relation to regional emissions.

As recommended by the Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015b), an ambient air quality impact assessment is not required for this Project because construction would not generate on-site emissions of more than 100 pounds per day for any pollutant, as shown in Table 5. Summary tables of annual and daily emissions associated with construction are included in Appendix A.

Table 5. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year[1]	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
2024	1.65	15.10	16.70	0.03	1.31	0.77
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix A for complete results.
Notes: ROG = reactive organic gases; CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The SJVAPCD considers hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas as sensitive receptor land uses (SJVAPCD 2015b). The Project site is in a rural, largely undeveloped area; the nearest identified noise-sensitive receiver (an isolated residence) is approximately 5,000 feet northeast of the Project site. This sensitive receiver represents the nearest sensitive land use with the potential to be impacted by construction of the Project.

Toxic Air Contaminants

"Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment

methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. TACs that would potentially be emitted during construction activities would be diesel particulate matter, emitted from heavy-duty construction equipment and heavy-duty trucks. Heavy-duty construction equipment and diesel trucks are subject to California Air Resources Board air toxic control measures to reduce diesel particulate matter emissions. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with a project (OEHHA 2015). Thus, the duration of proposed construction activities (3 months of activity) would constitute less than 1% of the total 30-year exposure period. Project-related health risk impacts associated with construction activities would therefore be less than significant.

Valley Fever Exposure

There are no specific thresholds for the evaluation of potential Valley Fever exposure. The Valley Fever fungal spores, *Coccidioides immitis,* live in the top 2 to 12 inches of soil in many parts of the state, including parts of Kern County. When fungal spores are present, any work activity that disturbs the soil, such as digging, grading, or other earth-moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, thereby increasing the risk of Valley Fever exposure (California Department of Industrial Relations 2013). All workers on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts, are at increased risk of becoming infected.

The fungal spores are too small to be seen by the naked eye, and there is no reliable way to test the soil for spores before working in a particular place. Accordingly, the Valley Fever analysis assumes the potential presence of the fungal spores within the Project site. The potential for Valley Fever exposure as a result of the Project was evaluated based on the anticipated earth-moving activities, and considered compliance with Rule 8021, which requires development and implementation of a dust control plan to help control release of the *Coccidioides immitis* fungus during construction activities.

Local Carbon Monoxide Concentrations

Mobile source impacts occur on two scales of motion. Regionally, Project-related travel would add to regional trip generation and increase the vehicle miles traveled (VMT) within the local airshed and the San Joaquin Valley Air Basin. Locally, Project-generated traffic would be added to Kern County's roadway system near the Project site during construction. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and/or is operating on roadways already crowded with non-Project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the San Joaquin Valley Air Basin is steadily decreasing.

The Project would have trip generation associated with construction worker vehicles and vendor trucks. The Code of Federal Regulations (CFR), Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (hotspot analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline'

methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site" (40 CFR 93.123[c][5]). Although Project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities would last approximately 3 months and would not require a Project-level construction hotspot analysis. Thus, the CO emissions impact would be less than significant on a Project-level and cumulative basis.

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

Less-than-Significant Impact. Section 41700 of the California Health and Safety Code and SJVAPCD Rule 4102 (Public Nuisance) prohibit emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property, including odors. Projects required to obtain permits from the SJVAPCD are evaluated by SJVAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SJVACPD Rule 4102 (Public Nuisance) also prohibits emissions of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative and the analysis focuses on existing and potential surrounding uses and the location of sensitive receptors.

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

Odors associated with the Project would be generated from vehicles and equipment exhaust emissions during construction. Potential odors produced during construction activities would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – 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 Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
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?	☐	☐	☒	☐

Setting

Dudek biologist Russel Sweet performed a field survey of the Project site and a 250-foot buffer around proposed activity areas (collectively referred to as the study area) on March 16, 2023. The purpose of the field survey was to identify and characterize biological resources within and adjacent to the Project site, with particular focus on the potential of the site to support special-status plant and wildlife species and other sensitive resources, such as riparian habitat and jurisdictional aquatic resources (i.e., wetlands and other waters of the United States and/or

state). A Biological Constraints Analysis (BCA) was prepared, which includes a detailed description of the biological resources existing setting, the methods of the survey, and the survey results. The BCA is included as Appendix B of this IS/MND.

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

Less-than-Significant Impact with Mitigation Incorporated. As mentioned above, a BCA was prepared for the Project site and vicinity (Appendix B). As stated in Appendix B, no special-status plant species have the potential to occur on or adjacent to the Project site.

Five special-status wildlife species are known to occur or have a moderate to high potential to occur within the Project site: California glossy snake (*Arizona elegans occidentalis*), blunt-nosed leopard lizard (*Gambelia* sila), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), San Joaquin kit fox (*Vulpes macrotis mutica*), and loggerhead shrike (*Lanius ludovicianus*).

Potential direct impacts to California glossy snake, blunt-nosed leopard lizard, and San Joaquin whipsnake include direct mortality or injury from ground-disturbing activities, construction equipment, grading, and other construction activities. These species are known to use burrows for refuge, which may be crushed by the weight of construction equipment, placement of building supplies or structures, or surface grading, even if the burrow is of sufficient depth to avoid direct excavation during grading. Indirect impacts include disturbance due to increased human activity and permanent loss of potential dispersal habitat within the construction footprint.

Although surveys of the Project site did not find any potential San Joaquin kit fox dens, there is still a low potential for San Joaquin kit foxes to use the site based on occurrences of the species around the Project site and marginally suitable grassland habitat along the Project boundary. Potential direct and indirect impacts are similar to those listed for the reptile species above.

Trees, shrubs, and grasslands within the Project site may provide nesting and potential foraging habitat for a variety of birds. If Project implementation occurs during the nesting season (typically defined by the California Department of Fish and Wildlife as February 15 through September 1), direct impacts to nesting birds, including loggerhead shrike, may occur through destruction of active nests. Additionally, increased noise, human activity, and construction activities may disturb nesting birds, resulting in abandonment of nests, eggs, or chicks.

The Project would have the potential to impact nesting birds, California glossy snake, blunt-nosed leopard lizard, San Joaquin whipsnake, San Joaquin kit fox, and loggerhead shrike; however, with incorporation of mitigation measure (MM) MM-BIO-1 through MM-BIO-4, impacts to these species would be reduced to less than significant.

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

Less-than-Significant Impact. Per Appendix B, the Project site does not contain any riparian habitat. One ephemeral channel consisting of approximately 0.002 acres is present within the Project site. The proposed culvert replacement would improve flow from this channel under the road that leads to the SJFD O&M Center. The Project would incorporate erosion and runoff control measures, which are discussed in more detail in Section 3.10, Hydrology and Water Quality.

The Project site is largely covered with non-native plants and contains no sensitive natural communities. Therefore, impacts to riparian habitat or other sensitive natural communities would be less than significant.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Per Appendix B, no wetlands, marshes, or vernal pools are found on the Project site. No wetland features or vegetation indicative of wetland conditions were observed during the field survey. Therefore, there would be no impacts to wetlands due to the Project.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact. As discussed in Appendix B, because the Project site is not recognized, and does not serve, as a regional wildlife movement corridor, Project development would not impede local or seasonal wildlife movement in the Project region. Therefore, no adverse or significant impacts would occur related to substantial interference to wildlife movement corridors. In addition, because no native wildlife nursery sites, such as bat colony roosting sites or colonial bird nesting areas, occur on the Project site, development of the site would not impede the use of wildlife nursery sites by native species, and impacts to native resident or migratory wildlife corridors would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less-Than-Significant Impact with Mitigation Incorporated. The Project would not conflict with any local policies or ordinances protecting biological resources. With implementation of MM-BIO-1 through MM-BIO-4, the Project would not conflict with any adopted local plan such as the County of Kern General Plan as they relate to resources found on the Project site. Also, see response in f) below relating to San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). Thus, no conflicts with local policies or ordinances are anticipated. Therefore, Project impacts would be less than significant with mitigation incorporated.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less-than-Significant with Mitigation Incorporated. The Project site is not within an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan area. Therefore, the Project would not conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan. The Project was designed to be consistent with the SJMSCP. The Project would be implementing all avoidance, minimization, and mitigation measures MM-BIO-1 through MM-BIO-4 for preventing incidental take of Covered Species (San Joaquin whipsnake, loggerhead shrike, and San Joaquin kit fox) as described in the Plan. Example measures include Wildlife Awareness Education for on-site workers to educate them on issues of working around Covered Wildlife Species and pre-activity surveys. Therefore, with regard to potential conflicts with an adopted conservation plan, Project impacts would be less than significant with mitigation incorporated.

Mitigation Measures

MM-BIO-1 **Nesting Bird Protection.** To avoid impacts to nesting raptors and migratory birds, construction shall occur, where possible, outside the nesting season, or September 1 through January 31.

If construction must occur during the nesting season (February 1 through August 31), a qualified biologist shall conduct pre-construction surveys for active raptor and migratory bird nests within 5 days of the onset of these activities. Nest surveys shall include all areas on and within 500 feet of the Project site for nesting raptors, and within 100 feet of the Project site for nesting non-raptor migratory birds, where accessible. If no active nests are found within the survey area, no further mitigation is required.

Should any active nests be discovered in or near proposed construction zones, the qualified biologist shall identify a suitable construction-free buffer around the nest. This buffer shall be identified on the ground with flagging or fencing and shall be maintained until the qualified biologist has determined that the young have fledged.

MM-BIO-2 **Pre-Construction San Joaquin Kit Fox Survey.** A qualified biologist will conduct a pre-activity survey for kit fox within 14 days before ground disturbance activities.

MM-BIO-3 **Protocol-Level Blunt-Nosed Leopard Lizard Survey.** A protocol survey pursuant to the California Department of Fish and Wildlife's (CDFW) Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (October 2019) shall be conducted by a California Department of Water Resources (DWR) qualified biologist (someone who has adequate experience with the species to be able to positively identify the species in the field) in all suitable habitat for blunt-nosed leopard lizard within the Project site and 200-foot buffer (where legally accessible) surrounding the Project site within 1 year before Project implementation. Project implementation shall not proceed until survey results are provided to CDFW and until the following conditions are met:

- If blunt-nosed leopard lizards are not detected on the Project site or surrounding buffer area during the protocol survey, Project implementation may proceed unless such activities that may impact suitable habitat have not begun within 1 year since completion of the negative

survey results. To ensure avoidance of impacts to blunt-nosed leopard lizards during Project implementation, DWR shall implement the following actions:

- If blunt-nosed leopard lizard is detected on the Project site during Project activities, the qualified biologist shall direct that Project activities cease and allow the individual to leave the Project area unobstructed on its own. No Project activities shall be allowed until the individual has moved on its own outside the Project area where it would not be directly or indirectly impacted by Project activities. Project activities shall not resume until authorized by the qualified biologist.

- Biological construction monitoring of the Project site shall be conducted by a qualified biologist during all construction activities. The qualified biologist shall have the authority to stop the work of the construction crews if activities have the potential to directly or indirectly impact blunt-nosed leopard lizard. Monthly biological construction monitoring reports shall be provided to CDFW. All detections of blunt-nosed leopard lizards during construction monitoring shall be reported to CDFW by the qualified biologist within 48 hours, including detection location relative to the Project site and actions taken for avoidance.
- If blunt-nosed leopard lizard is detected on the Project site or buffer area surrounding the Project site during the protocol survey, DWR shall implement the following actions:
  - The location of the detected individual(s) shall be mapped and a minimum buffer of 50 feet around the location shall be delineated, which may be larger if determined necessary by the qualified biologist to encompass the occupied habitat of each individual.
  - A blunt-nosed leopard lizard avoidance plan shall be written and implemented. The avoidance plan shall include the following measures:
    - The occupied habitat area shall be delineated in the field with flagging and signage as off-limits to construction personnel and activities. All flagging and signage shall be actively maintained.
    - The occupied habitat shall not be impacted by permanent or temporary Project activities. No construction or vehicular activities shall be allowed within the delineated occupied habitat area.
    - Biological construction monitoring of the Project site shall be conducted by a qualified biologist during all construction activities. The qualified biologist shall have the authority to stop the work of the construction crews if activities have the potential to directly or indirectly impact blunt-nosed leopard lizard. Monthly biological construction monitoring reports shall be provided to CDFW. All detections of blunt-nosed leopard lizard during construction monitoring shall be reported to CDFW by the qualified biologist within 24 hours, including detection location relative to the Project site and actions taken for avoidance.
    - If blunt-nosed leopard lizard is detected on the Project site outside of the delineated occupied habitat area during Project activities, the qualified biologist shall direct that Project activities cease and allow the individual to leave the Project area unobstructed on its own. No Project activities shall be allowed until the individual has moved on its own outside the Project area where it would not be directly or indirectly impacted by Project activities. Project activities shall not resume until authorized by the monitoring qualified biologist.

MM-BIO-4 **Biological Monitor.** A biological monitor shall be present while ground-disturbing activities are occurring. The biological monitor shall aid crews in implementing Project avoidance and mitigation measures to avoid impacts to special-status species. The biological monitor is empowered to order cessation of activities if an immediate threat of "take" is identified, if take avoidance and/or mitigation measures are violated, or if a special-status species is located within the construction area. The biological monitor may stop work until the species has moved out of the area of disturbance.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – 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?	☐	☒	☐	☐

Introduction

Cultural resources encompass the tangible and intangible remains of our past and may include prehistoric and historic archaeological sites, built environment resources, structures, objects, cultural landscapes, and human remains.

Tribal cultural resources are addressed in Chapter 3.18, *Tribal Cultural Resources*.

Cultural resources also include "historical resources," which are:

(1) Resources listed in or determined eligible for listing in the California Register of Historical Resources (CRHR);

(2) Resources included in a local register of historical resources, or ones that have been identified as significant in an historical resource survey; and

(3) Resources that are deemed by a lead agency to be historically or culturally significant, with regards to California's past (CEQA Guidelines Section 15064.5 (a)).

In general, to be considered "historically significant," a resource must meet one or more of the following criteria, enumerated in PRC 5024.1 as follows:

> (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(2) Is associated with lives of persons important in California's past;

(3) 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; and

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

This section relies on information and findings presented in the "Cultural Resources Inventory Report for the San Joaquin Field Division Culvert Replacement Project, Kern County, California" (Heffner et al. 2023) prepared for the Project, included as Appendix C to this document. All sections below are drawn from this document unless otherwise cited.

Regulatory Setting

State laws and regulations providing the definitions, protections, and management of cultural resources relevant to this proposed Project include:

California Environmental Quality Act, Pub. Resources Code, sections 21083.2 and 21084.1

California Environmental Quality Act, CEQA Guidelines section 15064.5

California Public Resources Code sections 5020.1, 5024 et seq. and 5097.98

California Health and Safety Code sections 7050.5(b)and 7050.5(c)

In addition to State laws and regulations governing the identification and treatment of cultural resources, Kern County's General Plan provides policies for the treatment of cultural resources by implementing measures to: (1) coordinate with California State University, Bakersfield's Archaeology Inventory Center; and (2) address archaeological and historical resources for discretionary projects in accordance with CEQA (County of Kern, 2009).

Environmental Setting

The Project is within the Southern San Joaquin Valley, an area "separated from the northern part of the Central Valley by a prominent Late Pleistocene alluvial fan formed by the Kings River and Los Gatos Creek" (Jones and Klar 2007:147). All drainages in this region empty into shallow basins formed by the ancient Tulare, Buena Vista, and Kern Lakes (Jones and Klar 2007:147). During seasonal flooding, these shallow basins can quickly fill with water, leading to the emergence of wetland plants including coarse grasses, tules, and cattails, which were (and still are) valued by California Tribes as sources of food, fiber (for clothes and basketry), and for building material. The climate is characterized by hot, dry summers and mild winters with very little precipitation.

Prehistory

The first known occupation in the southern San Joaquin Valley marked by tools and weapons characteristic of the Fluted-Point Tradition is believed to be at least 11,000 years old (Moratto 1984:81-82). The Fluted Point Tradition is generally succeeded in western North America by the Western Pluvial Lake Tradition (WPLT), dating to between 11,000 and 8,000 years before present B. P. (Moratto 1984:91). A gap in the archaeological record between 7,000 B.P. and 4,000 B.P. may indicate a shift in settlement and subsistence due to climactic change (Hartzell

1992:314-333; Jackson et al 1998:4.1.2). After 4,000 B.P., the archaeological record once again becomes much more complex indicating a resurgence of use. However, occupation appears to decline after 1,000 B.P., once again reflecting a possible climatic change (Hartzell 1992:314-333; Jackson et al 1998:4.1.2).

History

The first Spaniards arrived in the San Joaquin Valley in 1773, led by don Pedro Fages (Johnson et al. 1993). The first Euro-American settlers arrived in the county around the 1850s, following the discovery of gold at Keyesville, located about 60 miles northeast of Bakersfield. By 1855, nearly 6,000 men were reportedly working the river gold diggings along the Upper Kern River with (JRP 2002).

The booming oil industry in the late 19th and early 20th centuries led to the growth of various roadway stops and communities along what was known as the "Ridge Route" between Los Angeles and Bakersfield (Ridge Route Communities Museum and Historical Society 2017; Ridge Route Preservation Organization 2023).

In 1959, the California State Legislature enacted the Burns-Porter Act which provided $1.75 billion in initial funding for the State Water Project (SWP). Construction on the first facilities begins in 1961. Construction of Ira J. Chrisman Pumping Plant and the A.D. Edmonston Pumping Plant begins shortly after and was completed in 1973 (DWR, n.d.).

Cultural Resources Inventory Methods

Cultural resources inventory efforts conducted for the Project included a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, California Historical Resources Information System (CHRIS) records search, archival research, tribal consultation, and pedestrian field survey.

For information on tribal consultation and outreach, please see Chapter 3.18 *Tribal Cultural Resources.*

Cultural Resources Inventory Results

DWR's In-house Cultural Resources Database indicates P-15-015820 (CA-KER-8698H), the California Aqueduct (CAAQ), is located 900 feet southwest of the Project footprint. The CAAQ is the backbone of the SWP. The San Joaquin Field Division Operations and Maintenance (SJFD O&M) Center went into operation in 1973 during completion of the first phase of the SWP. A formal evaluation of the SJFD O&M center is not yet complete; however, for the purposes of the current Project the SJFD O&M Center is being treated as an historical resource.

Records Search Results

DWR staff requested a CHRIS records search from the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield on January 31, 2023. The results of the CHRIS records search were returned to DWR on February 14, 2023. Only the CAAQ (P-15-015820) was identified by the SSJVIC within the Project footprint or within 0.25 miles of the Project footprint. One report was identified within the Project footprint: Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California, by SWCA Environmental Consultants (2006).

Historical Maps and Imagery

Historic USGS topographical maps of the region indicate a road passing near the Project footprint in 1914. The road appears to follow the same alignment of Sabodan Rd. Maps from 1934 and 1955 show the same road alignment, with no other development in the area. In 1973, the SWP facilities are displayed in their current configuration.

NAHC Sacred Lands File Search

DWR contacted the Native American Heritage Commission (NAHC) for a search of the Sacred Lands File (SLF) on February 6, 2023. The results were returned to DWR on February 23, 2023. They were negative for sacred lands within or near the Project footprint. The results also included contact information for 13 individuals representing 7 Tribes that may have knowledge of resources of tribal importance within or near the Project area. Additional tribal consultation information is discussed in Chapter 3.18, Tribal Cultural Resources.

Pedestrian Survey

An intensive pedestrian survey of the entire Project footprint was conducted on May 8, 2023, by DWR Archaeologists. The culvert floor was paved over with shotcrete completely obscuring the soil below. Along the crest of the culvert and the access routes, visibility ranged from fair (50%) to poor (10-20%). The staging area is in a graded lot with compacted aggregate base. The pedestrian survey did not encounter any evidence of archaeological or historical resources.

Buried Site Sensitivity

The Project footprint Is located approximately 1,000 yards west of Tacuya Creek. Historic topographical maps from 1914 and 1932 indicate two smaller seasonal creeks within 0.5 miles. Soil in the Project footprint consists of sandy loam to gravelly sandy loam from the Guijarral-Klipstein complex (United States Department of Agriculture [USDA] Soil Survey 2023). The soil is relatively older than other deposits in the San Joaquin Valley. The Project site is considered to have a moderate potential for intact buried archaeological resources and a moderate potential for intact historical archaeological deposits.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less than Significant with Mitigation Incorporated. The proposed Project as designed would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the CEQA guidelines. The two resources in proximity to the Project site include the CAAQ (P-15-015820) and the SJFD O&M Center facilities which are being treated as potential historical resources for the purposes of CEQA.

The California Aqueduct

The proposed Project is located 900 feet northwest of the CAAQ and will not be impacted by the proposed work. The CAAQ has been determined eligible for the National Register of Historic Places under Criterion A and C. It received concurrence from the California State Historic Preservation Officer on July 3, 2012.

The San Joaquin Field Division Operations and Maintenance Center

The SJFD O&M Center is over 50 years old, going into operation in 1973 during completion of the first phase of the SWP. An evaluation of the O&M Center is pending and it is being considered an historical resource for the purposes of the current Project.

The Project footprint lies adjacent to the main entrance of the O&M Center. Work will be restricted to the entrance gate and paved road and would not impact any potentially significant features. The work will avoid all the facilities and structures of the original O&M Center.

Unanticipated Discovery of Historical Resources

Although no archaeological resources have been identified within the vicinity of the Project site, there is the potential for uncovering previously unknown archaeological deposits during proposed Project construction. If Project construction activities were to affect previously unknown archaeological resources that qualify as historical resources (as defined in CEQA Guidelines Section 15064.5), a significant impact could result. Implementation of the protection measures included in mitigation measures MM-CUL-1 and MM-CUL-3 would reduce those impacts to less than significant.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated. The proposed Project is not anticipated to impact any archaeological resource pursuant to CEQA Guidelines Section 15064.5.

Although the proposed Project is not anticipated to impact any archaeological resources, the proposed Project would involve ground-disturbing activities that may extend into undisturbed soil. It is possible that such activities could unearth, expose, or disturb subsurface archaeological resources, that have not been identified on the surface. Because previously unrecorded archaeological deposits could be present in the Project site, and they could be found to qualify as archaeological resources pursuant to CEQA Guidelines Section 15064.5, impacts of the proposed Project on archaeological resources could be potentially significant.

Such potentially significant impacts would be reduced to less than significant with mitigation incorporated by implementing mitigation measures MM-CUL-1 to MM-CUL-3.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation Incorporated. No known locations of human remains are located within the Project site. Should human remains be unexpectedly encountered during construction, incorporation of MM-CUL-1 through MM-CUL-3 would ensure that any potential impacts to previously undiscovered human remains would be reduced to less than significant.

Mitigation Measures

MM-CUL-1 Should any unexpected cultural resources be exposed during project activities, all work would temporarily stop in the immediate vicinity (e.g., 100 feet) of the find until it can be evaluated by a qualified archaeologist and an appropriate plan of action can be determined in consultation with DWR.

If the resource is associated with Native American contexts or is a potential Tribal Cultural Resource, the appropriate consulting tribal entity/entities will be contacted and consulted with to produce an appropriate plan of action.

MM-CUL-2 Should human remains be discovered during the course of project activities, all work will stop immediately in the vicinity (e.g., 100 feet) of the finds until they can be verified. The coroner will be contacted in accordance with Health and Safety Code section 7050.5(b). Protocol and requirements outlined in Health and Safety Code sections 7050.5(b) and 7050.5(c) as well as Public Resources Code section 5097.98 will be followed.

MM-CUL-3 Prior to project construction, a qualified archaeologist, defined as one meeting the Society for California Archaeology's Professional Qualifications Standards for Principal Investigator, shall develop a Cultural Resources Awareness and Sensitivity Training Program for all construction and field workers involved in project ground-disturbing activities. The program shall include a presentation that covers, at a minimum, the types of cultural resources common to the area, regulatory protections for cultural resources, and the protocol for unanticipated discovery of archaeological resources (see mitigation measures MM-CUL-1 and MM-CUL-2). Personnel working in areas of project ground-disturbing activities shall receive the training prior to working in these areas.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy – 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?	☐	☐	☒	☐

Setting

Pacific Gas & Electric Company (PG&E) is the utility provider in the Project area. PG&E provides electric services to 5.6 million customers, including 108,000 circuit miles of electric distribution lines and 18,000 circuit miles of interconnected transmission lines over a 70,000-square-mile service area in Northern and Central California (PG&E 2023). PG&E receives electric power from a variety of sources. According to the California Public Utilities Commission's 2021 California Renewables Portfolio Standard Annual Report, 35% of PG&E's power came from eligible renewable energy sources in 2019, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2021). Therefore, PG&E exceeded the state's Renewables Portfolio Standard goal of 33% renewable energy delivered by 2020.

The California Public Utilities Commission regulates natural gas utility service for customers who receive natural gas from PG&E. The California Public Utilities Commission also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage (CPUC 2021). PG&E provides natural gas service to most of Northern California, including the areas surrounding the Project site.

There are more than 36 million registered vehicles in California, and those vehicles consume an estimated 16 billion gallons of fuel each year (CEC 2020; DMV 2021). Petroleum currently accounts for approximately 92% of California's transportation energy consumption (CEC 2020). However, technological advances, market trends, consumer behavior, and government policies could result in significant changes in fuel consumption by type and in total. At the federal and state levels, various policies, rules, and regulations have been enacted to improve vehicle fuel efficiency, promote the development and use of alternative fuels, reduce transportation-source air pollutants and GHG emissions, and reduce VMT.

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-Significant Impact. Implementation of the Project would result in the demand for electricity at the Project site, and gasoline and diesel consumption in the Project area during construction. The one-time construction energy demand is evaluated below.

Electricity

The electricity demand at any given time would vary throughout Project construction based on the activities being performed, and would cease upon completion of construction. When not in use, electric equipment would be powered off to avoid unnecessary energy consumption. The electricity used for construction activities would be temporary and minimal; it would be within the supply and infrastructure service capabilities of PG&E, and it would not require additional local or regional capacity. The electricity demand during construction would be temporary and minimal.

Natural Gas

Natural gas is not anticipated to be required during Project construction activities because construction of new buildings and facilities typically do not consume natural gas. Peak energy demand specifically applies to electricity; nonetheless, if any natural gas is needed, it would be sufficiently served by existing supply from PG&E, and would not require additional local or regional capacity. Any minor amounts of natural gas that may be consumed as a result of construction would be temporary and negligible and would not have an adverse effect.[3]

Petroleum

Off-road equipment used during construction of the Project would primarily rely on diesel fuel, as would vendor trucks involved in delivery of materials to the individual parcels; haul trucks exporting demolition material; and haul trucks importing or exporting soil, tree debris, and other materials to and from the Project

[3] Although no natural gas is anticipated to be used during construction because construction equipment is typically diesel-fueled, the possibility of natural gas use is acknowledged in the event that a natural-gas-fueled piece of equipment is used. However, as noted previously, all equipment was assumed to be diesel-fueled in CalEEMod.

site. In addition, construction workers would travel to and from the Project site throughout the duration of construction. It was assumed in this analysis that construction workers would travel in gasoline-powered light-duty vehicles.

The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks, as well as estimated gasoline fuel usage from worker vehicles for construction of the Project, is shown in Table 6. Appendix A lists the assumed equipment usage and vehicle trips.

Table 6. Total Project Construction Petroleum Demand

Year	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
2024	2,663	224	544	134

Source: Appendix A.

In summary, construction associated with development of the Project is estimated to consume approximately 134 gallons of gasoline and 3,431 gallons of diesel fuel.

Notably, the Project would be subject to California Air Resources Board's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, and equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to the California Air Resources Board (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control Technology requirements. Overall, the Project would not be unusual compared to overall local and regional demand for energy resources, and would not involve characteristics that require equipment that would be less energy efficient than at comparable construction sites in the region or state.

Therefore, because energy use during construction would be temporary and would not be wasteful or inefficient, impacts would be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. As stated in Section 3.6(a), energy usage at the Project site would be relatively small and would not result in permanent long-term energy consumption. The Project would not conflict with a state or local plan for renewable energy or energy efficiency plan; would not entail an inefficient, wasteful, or unnecessary consumption of energy; and would not result in any irreversible or irretrievable commitments of energy. Thus, impacts would be less than significant.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Setting

The Project site is in a seismically active area of California, in an area where several of the faults and fault zones are considered active by the California Division of Mines and Geology. The purpose of the Alquist–Priolo Earthquake Fault Zoning Act is to regulate development near active faults to mitigate the hazards of surface fault rupture. The

Project site is not within an Alquist–Priolo Earthquake Fault zone; therefore, the Project would not be subject to the Alquist–Priolo Earthquake Fault Zoning Act. The closest fault to the Project site is the Wheeler Ridge Fault, approximately 0.5 miles southwest of the Project site (CDOC 2023c).

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

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact. The Project would involve the replacement of an existing drainage culvert, which the construction or operation of would not directly or indirectly increase or exacerbate the potential for fault rupture. The Project would contain no habitable structures or other structural development intended for human occupancy. Compliance with applicable seismic design requirements would reduce the potential risk to both people and structures with respect to strong seismic ground shaking. Therefore, the Project would not directly or indirectly cause potential adverse effects involving rupture of a known earthquake fault, and impacts would be less than significant.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. According to the Kern County General Plan's Safety Element, Kern County is in a seismically active area of California and may be subject to moderate to severe ground shaking at any time (County of Kern 2009a). As stated above, construction or operation of the Project would not directly or indirectly increase or exacerbate the potential for fault rupture. The Project would contain no habitable structures or other structural development intended for human occupancy. Therefore, the Project would not directly or indirectly cause potential injury, loss, or death due to strong seismic ground shaking, and impacts would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. As stated previously, the Project site is in a seismically active area of California, and is, therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. When saturated, loose to medium dense sandy soils can be prone to liquefaction during a ground-shaking event, thereby causing the soils to act like a liquid and compromising their integrity. The Project would involve replacement of the existing drainage culvert on site and would not result in placement of habitable structures that would put people or property at risk due to liquefaction or seismic-related ground failure. Thus, the Project would not result in direct or indirect impacts related to ground failure, including liquefaction. Therefore, impacts would be less than significant.

iv) Landslides?

No Impact. Landslides typically occur on moderate to steep slopes that are affected by such physical factors as slope height, slope steepness, shear strength, and orientation of weak layers in the underlying geologic units. The Project site and surroundings are generally flat, with soils stabilized by development and landscaping. The Project would not result in the creation of moderate to steep slopes that may become

susceptible to landslides. In addition, the Project would not result in placement of habitable structures that would put people or property at risk due to landslides. Therefore, no impact would occur.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. Demolition of the existing culvert would require trenching and excavation of earth material, existing piping, and the existing foundation, and would require use of an excavator and/or backhoe. Approximately 150 cubic yards of material would be exported from the Project site. The entrance road and drainage channel slopes would require grading to match the existing slope outside of the work area. Total grading would equal approximately 1,350 square feet. Excavations in the road section would be backfilled and the roadway would be repaved. Approximately 150 cubic yards of material would be imported for use on site. During these construction activities, soil disturbance could potentially result in erosion and loss of topsoil. However, because the Project would involve the alteration of a jurisdictional waterway, the Project would be required to obtain a Nationwide Permit under Section 404 of the Clean Water Act, a Clean Water Act Section 401 Water Quality Certification, and a Section 1600 Streambed Alteration Agreement from the California Department of Fish and Wildlife. Each of these permits requires, as terms and conditions of their issuance, implementation of best management practices (BMPs) and other site-specific measures intended to protect on-site soils and vegetation, prevent erosion and stormwater runoff, and protect water quality. Compliance with these standards and measures would ensure a less-than-significant impact related to erosion and loss of topsoil during construction.

Operation of the replacement drainage culvert would ensure improved drainage flows and protect against flooding and damage during and following storm events. Therefore, there would be no long-term changes in sediment transport, bank erosion, or scour conditions in the channel upstream of the culvert or at the culvert site under the Project. Thus, no erosion or loss of topsoil is anticipated during construction or operation of the Project, and impacts would be less than significant.

c) Would the project 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?

Less-than-Significant Impact. See Section 3.7(a.iii) and Section 3.7(a.iv). As discussed in Section 3.7(a.iv), the Project site is not in an area susceptible to landslides. Further, although located in a seismically active region, activities proposed at the Project site would involve replacement of an existing drainage culvert. Therefore, due to limited construction at the site, the Project would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact. Expansive soils are characterized by shrink/swell properties that, over time, can lead to cyclical volumetric changes that can damage structures such as building foundations and roadways. The Project would not involve construction of any habitable structures or other built elements that would be considered susceptible to adverse effects from expansive soils. In addition, the Project is designed for site-specific soil conditions. Therefore, the potential impact related to expansive soils would be less than significant.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The Project would not result in construction of septic tanks or alternative wastewater disposal systems. No impacts would occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant Impact with Mitigation. The Project site is mapped as being underlain by Holocene (less than 11,700 years ago) surficial sediments (map units Qa and Qg), according to published surficial geological mapping at a 1:24,000 scale (Appendix C). These surficial sediments are generally composed of unconsolidated gravels, sands and clays. The Holocene surficial sediments have a low paleontological resource sensitivity; however, older Pleistocene sediments may be found at depth and therefore paleontological sensitivity increases with depth below the surface.

The Pleistocene Tulare Formation is mapped approximately one mile to the south of the Project location. This formation has high paleontological sensitivity and could be found at depth beneath the Project site or could be found as reworked sediments. Paleontological resources have been recovered from the Tulare Formation and correlative early Holocene/Pleistocene sedimentary deposits elsewhere in Kern County (Appendix C).

A records search conducted by the Natural History Museum of Los Angeles County (NHMLA) returned negative results within the Project site but has several localities nearby from the same sedimentary deposits as those within the Project site.

The geotechnical report (2023) for the Project site indicated that recent (Holocene) Quaternary alluvium was encountered to a depth of 16.5 feet at the borehole located at the San Joaquin Field Division O&M Center (SJFD-B1). These deposits are too young to contain paleontological resources. Given the limited excavation related to the Project (e.g., approximately 10 feet of excavation) and the low sensitivity of the sedimentary deposits that will be impacted, impacts to paleontological resources are not anticipated.

In the event that intact paleontological resources are inadvertently discovered on the Project site, ground-disturbing activities associated with construction of the Project, such as grading during site preparation and trenching, have the potential to destroy unique paleontological resources or sites. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of MM-GEO-1, which requires the retention of a qualified paleontologist in the event that paleontological resources are discovered to evaluate and recover the fossils, as appropriate, impacts would be reduced to less than significant. Impacts of the Project would be less than significant with mitigation incorporated during construction.

Mitigation Measure

MM-GEO-1 Prior to the start of construction, DWR shall conduct a WEAP (worker environmental awareness training) for the construction crew members informing them of the potential to inadvertently encounter paleontological resources. In the unlikely event that paleontological resources (i.e., fossils) are exposed during construction activities, all construction work occurring within 50 feet of

the find shall immediately stop and the lead agency representative contacted. A qualified vertebrate paleontologist, meeting the Society of Vertebrate Paleontology standards, shall be assigned to review the unanticipated find to determine the significance. If the discovery proves potentially significant under CEQA as determined by the qualified vertebrate paleontologist, and the area cannot be feasibly avoided, additional work, such as preparation of a Paleontological Resources Impact Mitigation Program and paleontological monitoring shall be warranted.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – 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?	☐	☐	☒	☐

Setting

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called greenhouse gases or GHGs. The greenhouse effect traps heat in the troposphere through the following threefold process: (1) short-wave radiation emitted by the Sun is absorbed by the Earth; (2) the Earth emits a portion of this energy in the form of long-wave radiation; and (3) GHGs in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and back toward the Earth. This trapping of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Principal GHGs include carbon dioxide (CO_2), methane, nitrous oxide, ozone, and water vapor. Some GHGs—such as CO_2, methane, and nitrous oxide—occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and methane are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely byproducts of fossil-fuel combustion, whereas methane results mostly from off-gassing associated with agricultural practices and landfills. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride, which are associated with certain industrial products and processes (CAT 2006). The Intergovernmental Panel on Climate Change developed the Global Warming Potential concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The Global Warming Potential of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, Global Warming Potential–weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e).

Regarding impacts from GHGs, the California Air Pollution Control Officers Association considers GHG impacts to be exclusively a cumulative impact (CAPCOA 2018); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. This analysis uses both a quantitative and a qualitative approach.

DWR Greenhouse Gas Reduction Plan

As the first phase of DWR's Climate Action Plan, DWR adopted a Greenhouse Gas Emissions Reduction Plan in 2012 (2012 GHG Plan) to guide decision-making related to energy use and GHG emissions (DWR 2012). Consistent with commitments made in the 2012 GHG Plan, DWR prepared the Greenhouse Gas Emissions Reduction Plan Update 2020 (Update 2020) (DWR 2020) to review the GHG reductions achieved through implementation of the 2012 GHG Plan, and to update strategies for further reductions consistent with legislative changes adopted since adoption of the 2012 GHG Plan (DWR 2020). Through DWR's work on its Climate Action Plan, including the 2012 GHG Plan and Update 2020, DWR has found that most of DWR's GHG emissions are associated with energy purchased to move water through SWP facilities. The 2012 GHG Plan and Update 2020 also identified that construction and maintenance projects contribute to DWR's total GHG emissions inventory (DWR 2020).

In the 2012 GHG Plan, DWR established a near-term goal of reducing its GHG emissions to 50% below 1990 emissions level by 2020 (DWR 2012). DWR achieved this goal in 2015. Under Update 2020, DWR established a mid-term goal of reducing GHG emissions to at least 60% below the 1990 level by 2030, and a long-term goal of supplying 100% of its electricity load with zero-carbon resources and achieve carbon neutrality by 2045. Achievement of these goals would ensure that DWR complies with GHG reduction targets established by the State of California. Specifically, DWR's mid-term goal exceeds the statewide emissions reduction target of 40% below the 1990 level by 2030, which was established in Senate Bill 32 (adopted in 2016), and DWR's long-term goal is consistent with the emissions reduction goals and policies established in Senate Bill 100 (adopted in 2018) and Executive Order B-55-18. Further, Update 2020 states that "by achieving carbon neutrality by 2045, DWR will also exceed the statewide goal of reducing emissions by at least 80% below the 1990 level by 2050, which was established in Executive Order S-3-05 (2005)" (DWR 2020).

The mid-term and long-term goals primarily relate to DWR operational activities, and Update 2020 includes specific implementation measures to help achieve these goals. Update 2020 also identifies GHG emissions reductions applicable to construction and maintenance efforts. Update 2020 also analyzes forecasted GHG emissions and GHG emissions reductions associated with most future DWR projects and activities, including emissions generated as a result of typical construction activities. Update 2020 defines construction projects as "construction, maintenance, or refurbishment work performed on DWR's facilities by an outside contractor" (DWR 2020).

Based on analysis conducted for the 2012 GHG Plan, earthwork projects constitute approximately 25% of DWR's projects and more than 50% of emissions from construction activities. Pipeline and storage basin projects are estimated to contribute 10% and 11%, respectively, to DWR's construction emissions and involve substantial amounts of work with large earthwork equipment (DWR 2012). Update 2020 assumed that these percentages remained the same and that modest increases in the efficiency of earthwork equipment since 1990 have likely reduced the actual emissions from DWR construction activities, although the actual rate of reduction is not quantifiable with available data (DWR 2020).

Prior to adopting the 2012 GHG Plan, DWR prepared a CEQA IS that supported adoption of a Negative Declaration. In support of Update 2020, DWR prepared an addendum to the Negative Declaration pursuant to CEQA Guidelines

Sections 15162(b) and 15164(b). The addendum evaluated the changes that Update 2020 would make to the 2012 GHG Plan and changes in surrounding circumstances (such as updates in legislative and regulatory requirements, as well as changes in market conditions), and concluded that these changes would not cause any new significant environmental impacts that would require preparation of a subsequent Negative Declaration or an Environmental Impact Report (DWR 2020). DWR relies on this prior CEQA analysis of the 2012 GHG Plan and Update 2020 in evaluating the potential GHG emissions impacts of subsequent DWR projects, including the proposed Project.

Thresholds of Significance

DWR Update 2020

The following steps must be completed to determine whether a subsequent project is consistent with Update 2020 and the cumulative impact analysis of DWR GHG emissions (DWR 2020):

1. Identify, quantify, and analyze the GHG emissions from the proposed project and alternatives using a method consistent with that described in DWR internal guidance, "Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes," as such guidance document may be revised.
2. Determine that construction emissions levels do not exceed the Extraordinary Construction Project threshold of either 25,000 MT CO_2e for the entire construction phase of the project or 12,500 MT CO_2e in any single year of construction.
3. Incorporate into the design or implementation plan for the project all project-level GHG emissions reduction measures listed in Chapter VI or explain why measures that have not been incorporated do not apply to the project.
4. Determine that the project does not conflict with DWR's ability to implement any of the specific project GHG emissions reduction measures listed in Chapter VI.
5. If implementation of the proposed project would result in additional energy demands on the SWP system of 15 GWh/year or greater, the project must obtain a written confirmation from the DWR SWP Power and Risk Office stating that the Renewable Power Procurement Plan will be updated to accommodate the additional load resulting from the proposed project at such time as the proposed project is ultimately implemented.

Additionally, Update 2020 found that typical DWR construction operations in an average year emit a total of 25,000 MT CO_2e. Based on this, Update 2020 concluded that any project that would emit this amount of GHG emissions throughout the entirety of its construction and/or would emit 12,500 MT CO_2e in a single year would exceed the emissions estimates reflected in Update 2020, and thus would "represent construction activities exceeding the typical level of construction activity performed by DWR and, therefore, exceeding the level of cumulative effects analysis for construction-related emissions reflected in Update 2020" (DWR 2020).

DWR Standard Contract Specifications

DWR requires contractors to follow standard specifications during project construction to protect environmental resources. These include meeting all state and federal statutes, rules, regulations, and policies enacted to protect environmental resources and ensure that any significant environmental impacts of projects are identified and adequately mitigated. Contractors must implement these provisions by developing and submitting an Air Quality

Control Plan, a Traffic and Noise Abatement Plan, and a Fire Prevention and Control Plan; by performing construction equipment maintenance in accordance with manufacturer's recommendations, ensuring the proper use of mufflers and filters, and defining and implementing maintenance schedules for each piece of construction equipment; and by implementing the following best available control technology measures: (1) install high-pressure injectors, (2) use renewable diesel fuel, (3) use Caterpillar pre-chamber diesel engines or equivalent, (4) replace fossil-fuel-powered equipment with electric equipment, (5) replace gasoline- or diesel-powered vehicle with electric vehicles, (6) replace gasoline-powered equipment with catalytic converters, and (7) reduce construction activities during Stage 2 alerts issued by local air pollution control districts where required (DWR 2020).

Update 2020 Best Management Practices

In addition to the Standard Contract Specifications, Update 2020 identifies 15 BMPs that must be implemented during construction to reduce fuel consumption for construction equipment and transportation of construction materials, ensure use of renewable diesel that has zero GHG emissions, reduce the amount of landfill material, and reduce emissions from the production of cement. Update 2020 found that implementation of these BMPs is estimated to reduce annual GHG emissions by 15,090 MT CO_2e by the year 2030 compared to the estimated emissions from 1990, resulting in estimated annual emissions from construction of 13,110 MT CO_2e (DWR 2020). The required BMPs are as follows:

BMP 1 Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether the specifications for the use of equipment with repowered engines, electric drive trains, or other high-efficiency technologies are appropriate and feasible for the project or specific elements of the project.

BMP 2 Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

BMP 3 Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 4 Evaluate the feasibility and efficacy of producing concrete on site and specify that batch plants be set up on site or as close to the site as possible.

BMP 5 Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.

BMP 6 Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

BMP 7 Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State Airborne Toxics Control Measure [13 CCR Section 2485]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

BMP 8 Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's

recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.

BMP 9 Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on site and every two weeks for equipment that remains on site. Check vehicles used for hauling materials off site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

BMP 10 Develop a project-specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.

BMP 11 Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 12 For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay[4] certified truck will be used to the maximum extent feasible.

BMP 13 Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.

BMP 14 Develop a project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.

BMP 15 Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. Construction of the Project would result in GHG emissions primarily associated with the use of off-road construction equipment, vendor and haul trucks, and worker vehicles. Construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the Project-specific emissions threshold of 0.50 MT CO_2e per service population per year. Therefore, the determination of significance is addressed in the operational emissions discussion below. A detailed depiction of the construction schedule—including information regarding

[4] The U.S. Environmental Protection Agency has developed the SmartWay truck and trailer certification program to set voluntary standards for trucks and trailers that exhibit the highest fuel efficiency and emissions reductions. These tractors and trailers are outfitted at point of sale or retrofitted with equipment that significantly reduces fuel use and emissions, including idle reduction technologies, improved aerodynamics, automatic tire inflation systems, advanced lubricants, advanced powertrain technologies, and low rolling resistance tires (https://www.epa.gov/smartway).

phasing, equipment used during each phase, trucks, and worker vehicles—is included in Appendix A. The estimated Project-generated GHG emissions from construction activities are shown in Table 7.

Table 7. Estimated Annual Construction Greenhouse Gas Emissions

Year	CO_2	CH_4	N_2O	R	CO_2e
	Metric Tons				
2024	58.20	<0.005	<0.005	0.02	58.90

Source: See Appendix A for complete results.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; R = refrigerants; CO_2e = carbon dioxide equivalent; <0.005 = reported value is less than 0.005.

The estimated GHG emissions are substantially below the maximum emission levels identified in Update 2020 of 25,000 MT CO_2e in total and/or 12,500 MT CO_2e annually. DWR anticipates retaining a contractor for Project implementation; the contractor would be required to meet DWR's Standard Contract Specifications and implement all of the construction BMPs identified in Update 2020. The Project would not conflict with DWR's ability to implement any of the GHG emissions reduction measures listed in Update 2020 Chapter VI, and would not result in any additional energy demands on the SWP system. Therefore, the Project's GHG emissions would be consistent with the assumptions and requirements in Update 2020 and would result in a less-than-significant impact.

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. Project activities would not result in a substantial increase in GHG emissions. As discussed in Section 3.8(a), the Project would not conflict with Update 2020, which is DWR's GHG reduction plan, because the estimated GHG emissions would remain substantially below the maximum emission levels identified in Update 2020. In addition, the Project contractor would be required to meet DWR's Standard Contract Specifications and to implement all Update 2020 construction BMPs. The Project would not conflict with DWR's ability to implement any of the operational GHG emissions reduction measures identified in Update 2020, and the Project would not result in any additional energy demands on the SWP system. Therefore, the Project's GHG emissions would be consistent with the assumptions and requirements in Update 2020 and would result in a less-than-significant impact.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site that 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?	☐	☐	☒	☐

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. Construction and implementation of the Project would not require extensive or ongoing use of acutely hazardous materials or substances. Project activities would involve limited transport, storage, use, and disposal of hazardous materials, including fueling and servicing construction equipment on site, and transporting fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous, and the use, storage, handling, and disposal of these materials are regulated by the California Department of Toxic Substances Control, U.S. Environmental Protection Agency, California Environmental Protection Agency, and Occupational Safety and Health Administration.

Once construction is complete, no hazardous materials would be located within the Project site. Should maintenance of the Project require the use of hazardous materials or heavy equipment that contains

petroleum fuels, oils, or lubricants, similar precautions would take place as during construction. Use, transportation, and disposal of hazardous materials during routine O&M activities would be done in accordance with the manufacturer's recommendations and federal, state, and local laws and regulations. Quantities would be relatively small (such as fuel tanks within heavy equipment). Therefore, the Project would not create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

b) Would the project 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?

Less-than-Significant Impact. As discussed in Section 3.9(a), hazardous materials that would be used for the culvert replacement and other Project activities are not considered acutely hazardous and are used routinely for both construction and renovation projects. Further, these materials would be transported, stored, and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Construction staff would be trained in spill and release response, as applicable. For these reasons, construction of the Project is not anticipated to create a significant hazard to the public or environment due to upset and accident conditions. Should maintenance of the Project require the use of hazardous materials or heavy equipment that contains petroleum fuels, oils, or lubricants, similar precautions would take place as during construction. Potential quantities of hazardous materials would be relatively small (such as a fuel tank within heavy equipment), and therefore the risk of release would be low. Additionally, the Project site is not located on or adjacent to a hazardous material site as described in Government Code Section 65962.5 (DTSC 2023; SWRCB 2023); thus, there would be no accidental encounter of hazardous sites. Therefore, the Project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions, and impacts would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no schools within 0.25 miles of the Project site. No impacts would occur.

d) Would the project be located on a site that 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?

No Impact. The Project site is not on or adjacent to a hazardous material site as described in Government Code Section 65962.5. According to the California Department of Toxic Substances Control's EnviroStor database, no sites or facilities are within 1 mile of or adjacent to the Project site (DTSC 2023). Additionally, a review of GeoTracker did not identify any sites or facilities within 1 mile of or adjacent to the Project site (SWRCB 2023). Therefore, no hazardous materials are expected to be present, and no impact would occur.

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?

No Impact. The Project site is not within 2 miles of a public or public use airport, nor is it located within an airport use plan area. Therefore, no safety hazard or excess noise risk would result, and no impact would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. The Project site is within Kern County. Construction of the Project is anticipated to last for approximately 4 months. During construction, South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through traffic. To ensure employees of the SJFD O&M Center and emergency vehicles have access to and from the site, a temporary traffic management plan would be prepared, and an alternate access route would be provided. Therefore, there would be no interference or impairment of any emergency response or emergency evacuation plans, and impacts would be less than significant.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less-than-Significant Impact. The Project site is within a Moderate Fire Hazard Severity Zone in a State Responsibility Area (CAL FIRE 2022). The Project would not substantially change any existing conditions at the Project site that could exacerbate existing fire risk or expose people or structures to significant risk related to wildland fires. Thus, culvert replacement would not create a substantial risk of fire ignition. Additionally, equipment and materials would be stored at a staging area on site and would not impact daily traffic that could impede evacuation efforts of local communities. Therefore, the Project would result in less-than-significant impacts.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 off site;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; 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?	☐	☐	☒	☐

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less-than-Significant Impact. The Project is not anticipated to violate any water quality standards or waste discharge requirements during construction or operation. Approximately 0.002 acres of aquatic resources within the Project area are anticipated to meet criteria to be aquatic resources under the regulatory jurisdiction of the United States Army Corp of Engineers (USACE), State Water Resources Control Board, and CDFW. The ephemeral channel on the Project site is assumed to contain non-wetlands waters of the U.S. and the State. The portion of the features up to the Ordinary High Water Mark (OHWM) would be under the jurisdiction of the RWQCB, while CDFW would have jurisdiction to the top of the bank (see Figures 7 and 8). The jurisdictional determinations for aquatic resources delineated within the Project area are preliminary until verified by the regulatory agencies. Waters of the U.S. are subject to USACE regulation and Project impacts are expected to require Nationwide Permits (NWP) 3 (for maintenance) and 14 (for new impacts) pursuant to Section 404 of the Clean Water Act. Issuance of the NWPs requires issuance of a Clean Water Act Section 401 Water Quality Certification by the RWQCB. Impacts to waters of the State subject to CDFW jurisdiction would require a Streambed Alteration Agreement under Section 1600 of the California Fish and Game Code.

The Project would result in minor grading (1,350 square feet) of the road and drainage channel slopes to match the existing slope outside of the work area. Construction activities associated with implementation of the Project could result in temporary construction-related impacts on water quality from erosion and sedimentation, as well as storage of construction-related hazardous materials (e.g., fuels) on site. Implementation of the Project would include obtaining required NWPs from the USACE, a Water Quality Certification from the RWQCB, and a Streamed Alternation Agreement from CDFW and complying with terms and conditions of each agency approval to reduce or prevent substantial impacts to jurisdictional waters. Terms and conditions of agency approvals would include construction and post-construction best management practices such as erosion and sediment control, spill prevention, and site stabilization following completion of construction activities. This would ensure that construction activities associated with the Project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water or groundwater quality. Further, Therefore, impacts during construction would be less than significant.

Once construction is complete, the Project site would be restored to its previous existing conditions and would not result in significant impacts to water quality. O&M activities would involve annual inspections and cleaning out sediment or materials, as necessary. The Project is anticipated to reduce required maintenance on the culvert because the improved design would allow for better water flow and reduced erosion. Therefore, impacts during operations would be less than significant.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. The Project site is within the San Joaquin Valley–White Wolf Groundwater Basin, identified by the State Water Resources Control Board as a medium-priority basin (DWR 2023). The Project would not entail temporary or permanent use of groundwater, and, thus, would not deplete groundwater within the Project vicinity. The replacement culvert would improve drainage at the facility and would not impede groundwater recharge. In addition, the Project would not introduce occupants to the site, and therefore no water supplies would be needed. Thus, the Project would not result in the use of groundwater supplies. Therefore, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Impacts would be less than significant.

c) Would the project 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?

Less-than-Significant Impact. Construction activities at the Project site would result in ground alteration during construction that could create the potential for erosion to occur. However, ground alteration would be very minimal and would be limited to grading extending approximately 35 feet upstream of the box culvert and 50 feet downstream of the box culvert to match the existing slope outside of the work area. However, the purpose of the Project is to improve drainage. The existing culvert is approximately 50% obstructed due to the accumulation of sediment, and therefore restricts stormwater flows during large rain events. Upon completion, the Project would allow for better water flow and reduced erosion. Therefore,

once construction is complete, drainage conditions would improve, and the potential for erosion would be reduced. Impacts would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

Less-than-Significant Impact. As discussed above, the Project would result in minimal ground alteration during the demolition of the existing drainage culvert and construction of the replacement drainage culvert. However, as previously described, the purpose of the Project is to improve drainage. The existing culvert is approximately 50% obstructed due to the accumulation of sediment, and therefore restricts stormwater flows during large rain events. The Project would involve removing the existing culvert structure and constructing a new concrete box culvert and reinforced concrete headwall structures, totaling 0.299 acres. The Project would not introduce additional impervious ground surface that could result in an increased rate or amount of runoff. Once completed, the Project would ensure improved drainage flows, would protect against flooding of and damage to the entrance road, and would ensure that access to the SJFD O&M Center is maintained during and following storm events. Once construction is complete, the drainage conditions would be improved compared to its existing conditions. Therefore, the Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site. Impacts would be less than significant.

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?

Less-than-Significant Impact. As discussed above, the Project would result in minimal ground alteration during demolition of the existing drainage culvert and construction of the replacement drainage culvert. The purpose of the Project is to improve drainage. The existing culvert is approximately 50% obstructed due to the accumulation of sediment, and therefore restricts stormwater flows during large rain events. The Project is anticipated to reduce required maintenance on the culvert because the improved design would allow for better water flow and reduced erosion, and would require fewer maintenance visits to clean out sediment build-up or to address erosion issues on the main drainage or tributary drainage. Once completed, the Project would ensure improved drainage flows, protect against flooding, and reduce the amount of polluted runoff. Therefore, the Project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

iv) Impede or redirect flood flows?

No Impact. As discussed above, the Project would result in minimal ground alteration during construction. The Project would include improvements within the upstream flow channel southeast of the existing box culvert, and within the downstream flow channel northwest of the existing box culvert. The Project would include improvement to the flow channels, but it would not impede or redirect the flows in any way. The existing culvert is approximately 50% obstructed due to the accumulation of sediment, and restricts stormwater flows during large rain events; therefore, replacement of this drainage culvert would improve flood flows and no impact would occur.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Less-than-Significant Impact. The Flood Insurance Rate Maps produced by the Federal Emergency Management Agency indicate areas prone to flood hazards due to major storm events, including 100-year and 500-year flood zones. According to the Flood Insurance Rate Maps, a portion of the Project site is in an area with a 1% Annual Chance Flood Hazard, Zone A (FEMA 2021). The Project would comply with the standards outlined in Chapter 19.70, Floodplain (FP) Combining District, of the Kern County Zoning Ordinance (County of Kern 2023). The Project site is approximately 52 miles from the Pacific Ocean. Therefore, no potential for tsunamis is present on site. The closest lake to the Project site is Kern Lake, approximately 8 miles north of the site. This distance from Kern Lake precludes any possible seiche-induced flooding at the Project site. Additionally, the purpose of the Project is to improve drainage and would restrict stormwater flows and flooding occurrences during large rain events. Upon completion, the Project would protect against flooding; therefore, the Project would not risk release of pollutants due to inundation in a flood hazard, tsunami, or seiche zone. Impacts would be less than significant.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. As discussed in Section 3.10(b), The Project site is within the San Juaquin Valley–White Wolf Groundwater Basin, identified by the State Water Resources Control Board as a medium-priority basin (DWR 2023). The Sustainable Groundwater Management Act requires local water agencies to sustainably manage groundwater resources. The White Wolf Groundwater Sustainability Agency was created to develop a Groundwater Sustainability Plan for the White Wolf Subbasin. The Groundwater Sustainability Plan for the White Wolf Subbasin was adopted in January 2022 and aims to achieve sustainable groundwater management within 20 years (White Wolf GSA 2021).

As discussed above, the Project would involve replacement of an existing, impaired drainage culvert, and would not impede groundwater recharge. In addition, the Project would not introduce occupants to the site, and therefore no water supplies would be needed. Thus, the Project would not result in the use of groundwater supplies that would result in conflicts with a sustainable groundwater management plan. In addition, the Project would comply with regional and local regulations related to water quality, and would not obstruct existing water quality control plans. Impacts would be less than significant.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

a) Would the project physically divide an established community?

No Impact. The Project site is at the SJFD O&M Center in southern Kern County and is not within an established community. The Project would involve replacement of an existing drainage culvert on site and includes no components that would serve as a physical division of an established community. No impact would occur.

b) Would the project 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?

No Impact. The Project site is owned and operated by DWR and is designated as Non-Jurisdictional Land (1.1 state or federal land) by the Kern County General Plan Land Use Map – Central Kern County (County of Kern 2010). All Project activities would occur within DWR property. The Project site is not included in the Kern County Zoning Map because, as state-owned land, the property is not subject to local zoning requirements (see Figure 3, Land Use and Zoning Designations). Implementation of the Project would not alter or change the existing land use or water conveyance operations of DWR, and would not directly cause or indirectly contribute to changes in land use or other environmental changes outside of DWR property. The Project site is not within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan area. Therefore, the Project would not be in conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Thus, the Project would not conflict with any land use policies or regulations, and no impacts would occur.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – 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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

a) Would the project 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?

No Impact. No known mineral resources, mineral recovery sites, or aggregate resource zones are on the Project site. The Project site is not within an area of known regionally significant aggregate resources in the Bakersfield Production-Consumption region (SMGB 2011). Approximately 300 feet east of the Project site is the Wheeler Ridge Oil Field and the Wheeler Ridge Sand and Gravel Mine, but the Project would be entirely within the SJFD O&M Center and would have no impact on the nearby mine. Furthermore, the Project would not involve activities that would impact areas of known mineral resources or mineral recovery sites. The Project would result in no impact to mineral resources.

b) Would the project 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?

No Impact. As stated in Section 3.12(a), there are no known mineral resources at the Project site. The Project would not result in a loss of availability of locally important mineral resources recovery sites in the Bakersfield Production-Consumption region. Significant mineral deposits are not known to be present at the DWR facility at the Project site, and the site is not identified as containing important minerals by the applicable general plan. Because there are no known mineral resources underlying the Project site, implementation of the Project would not result in a loss of availability of any known mineral resource. The Project would result in no loss of availability of any locally important mineral resources delineated on a local general plan or other land use plan; therefore, the Project would have no impact.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – 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?	☐	☐	☐	☒

Setting

Noise

Noise is defined as unwanted sound. Sound may be described in terms of level or amplitude (measured in decibels [dB]), frequency or pitch (measured in hertz or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the amplitude of sound is the decibel. Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel (dBA) scale performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear. Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise, on a community. These descriptors include the energy-equivalent sound level over a given period (L_{eq}), the statistical sound level (L_{xx}, where "xx" is a cumulative percentage of time within the measurement period for which the indicated level is exceeded), the day/night average sound level (L_{dn}), and the Community Noise Equivalent Level (CNEL). Table 8 provides examples of A-weighted noise levels from common sounds. In general, human sound perception is such that a change in sound level of 3 dB is barely noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving of the sound level.

Table 8. Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
—	110	Rock band
Jet flyover at 300 meters (1,000 feet)	100	—
Gas lawn mower at 1 meter (3 feet)	90	—
Diesel truck at 15 meters (50 feet), at 80 kilometers per hour (50 mph)	80	Food blender at 1 meter (3 feet) Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime gas lawn mower at 30 meters (100 feet)	70	Vacuum cleaner at 3 meters (10 feet)
Commercial area Heavy traffic at 90 meters (300 feet)	60	Normal speech at 1 meter (3 feet)
Quiet urban daytime	50	Large business office Dishwasher, next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library
Quiet rural night time	20	Bedroom at night, concert hall (background)
—	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans 2013.
Notes: dBA = A-weighted decibel; — = no example provided.

L_{eq} is a sound energy level averaged over a specified period (typically no less than 15 minutes for environmental studies). L_{eq} is a single numerical value that represents the amount of variable sound energy received by a receptor during a time interval. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that occurred in that hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time-varying effects of noise on sensitive receptors.

Unlike the L_{eq} metrics, L_{dn} and CNEL metrics always represent 24-hour periods, usually on an annualized basis. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). "Time weighted" refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m.–7:00 p.m.) receives no penalty. Noise during the evening (7:00 p.m.–10:00 p.m.) is penalized by adding 5 dB, and nighttime (10:00 p.m.–7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m.–10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5 dB to 1 dB, and, as such, are often treated as equivalent to one another.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual

for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains; buses on rough roads; and construction activities, such as blasting, piledriving, and heavy earthmoving equipment.

Several methods are used to quantify vibration. Peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second (ips). The root mean square amplitude is most frequently used to describe the effect of vibration on the human body and is defined as the average of the squared amplitude of the signal. Decibel notation is commonly used to measure root mean square. The decibel notation acts to compress the range of numbers required to describe vibration.

High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. In addition, high levels of vibration can damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes). Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from traffic is rarely perceptible.

Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. According to Kern County's General Plan Noise Element, residences, schools, convalescent and acute care hospitals, churches, and parks and recreational areas would typically be considered noise sensitive (County of Kern 2009b). The Project site is in a rural, largely undeveloped area; the nearest identified noise-sensitive receiver (an isolated residence) is approximately 5,000 feet northeast of the Project site. This sensitive receiver represents the nearest sensitive land use with the potential to be impacted by construction of the Project. Other noise-sensitive receptors are located farther away from the Project site and would be less affected by on-site noise.

Existing Noise Conditions

The existing noise environment in a project area can be characterized by the area's general level of development, because the level of development and ambient noise levels tend to be closely correlated. Areas that are not urbanized are relatively quiet, and areas that are more urbanized are noisier as a result of roadway traffic, industrial activities, and other human activities.

Table 9 summarizes typical ambient noise levels based on level of development. Given the rural nature of the Project area, ambient noise levels are expected to be in the range of 40 to 50 dBA L_{dn}.

Table 9. Population Density and Associated Ambient Noise Levels

Level of Development	dBA, L_{dn}
Rural	40–50
Small town or quiet suburban residential	50
Normal suburban residential	55
Urban residential	60
Noisy urban residential	65
Very noisy urban residential	70
Downtown, major metropolis	75–80
Area adjoining freeway or near major airport	80–90

Source: Hoover and Keith 2000.
dBA = A-weighted decibel; L_{dn} = day/night average sound level

Applicable Noise Regulations and Standards

Federal

There are no federal noise regulations applicable to the Project. However, various federal agencies have established rules and guidelines addressing noise and vibration. For example, in its Transit Noise and Vibration Impact Assessment Manual (FTA 2018), the Federal Transit Administration (FTA) offers guidance on the estimation of construction noise levels from a construction site. It also provides suggested thresholds of no more than 80 dBA L_{eq} (over an 8-hour daytime period) as received at a residential land use. Since the County does not provide a quantified construction noise limit, this analysis adopted the 80 dBA L_{eq8h} FTA guidance for quantitative construction noise impact assessment.

With respect to vibration, the FTA Transit Noise and Vibration Impact Assessment Manual provides guidance for the assessment of vibration impacts on people (i.e., potential annoyance), building damage risk, and disruption of vibration-sensitive processes. Vibration impact criteria suggested by the FTA vary both with the frequency of vibration event occurrence and the sensitivity of the building or receiver that may be exposed to groundborne vibration. By way of example, a modern commercial building constructed from reinforced concrete or steel would have a vibration impact threshold of 0.5 ips PPV, and a non-engineered timber or masonry structure more akin to a typical single-family or multifamily residence may have a more stringent 0.2 ips PPV vibration impact criteria against which a project's attributed vibration due to construction could be assessed for the nearest such receptors in the surrounding community (FTA 2018).

State

Government Code Section 65302(g)

California Government Code Section 65302(g) requires the preparation of a Noise Element in a community general plan that identifies and appraises the noise problems for a community. Noise Elements must recognize the guidelines adopted by the Office of Noise Control in the State Department of Health Services, and quantify, to the extent practicable, current and projected noise levels for major noise sources such as highways and freeways, primary arterials and major local streets, rail lines, airports, and industrial plants.

California General Plan Guidelines

The California General Plan Guidelines, published by the Governor's Office of Planning and Research, provides guidance for the acceptability of land use types within areas of specific noise exposure. The General Plan Guidelines are advisory in nature. Local jurisdictions have the responsibility to set specific noise standards based on local conditions (OPR 2017).

Local

Kern County General Plan Noise Element

The Kern County General Plan Noise Element (Chapter 3) (County of Kern 2009b) identifies noise-sensitive land uses and noise sources; defines areas of noise impact; and establishes goals, policies, and programs to ensure that Kern County residents are protected from excessive noise and to develop an implementation program that could effectively mitigate potential noise problems. Policy 5 of the Noise Element establishes a maximum exterior noise exposure level of 65 dBA L_{dn} (or CNEL) for noise-sensitive uses, including residences, schools, hospitals, parks, and churches. Policy 5 states that new development of residential or other noise-sensitive land uses is not permitted in noise-impacted areas unless effective mitigation measures are incorporated into the specific design of such projects to reduce noise levels to 65 dBA L_{dn} (or CNEL) or less within outdoor activity areas, and 45 dBA L_{dn} (or CNEL) or less within interior living spaces.

Kern County Code of Ordinances

Section 8.36.020 of the Kern County Code of Ordinances establishes construction noise control standards that would apply to any Project construction activity. Construction activity noise restrictions are as follows:

> 8.36.020 – Prohibited sounds. It is unlawful for any person to do, or cause to be done, any of the following acts within the unincorporated areas of the county:
>
> > H. To create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:
> >
> > 1. The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
> > 2. Emergency work is exempt from this section.

a) Would the project result in 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?

Short-Term Construction Noise

Less-than-Significant Impact. Noise generated by Project construction would include noise from a combination of heavy equipment, including an excavator, dozer, grader, roller, concrete mixers, dump trucks, and other equipment that, when combined, can reach relatively high levels. The number and mix of

construction equipment would likely vary during the following phases: demolition, grading, construction, and paving. No blasting or piledriving is anticipated as part of the Project.

Using specific construction equipment assumptions similar to those used for the air quality analysis (see Section 3.3), a noise analysis was performed using a model emulating the Roadway Construction Noise Model that was developed by the Federal Highway Administration (FHWA 2008). Input variables for the Roadway Construction Noise Model consist of the receiver/land use types, the equipment type (e.g., backhoe, crane, truck), number of equipment pieces, duty cycle for each piece of equipment (i.e., percentage of each time period the equipment typically is in operation and operating at full load or power level), and distance between the construction noise source and the sensitive receiver. The Roadway Construction Noise Model has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty-cycle values were adopted for this noise analysis.

Table 10 provides a summary of the predicted construction noise exposure levels by each phase at the nearest noise-sensitive receptor, located approximately 5,000 feet northeast of the Project site. Construction noise levels at other receivers farther away from the site would be less, due primarily to natural distance-dependent attenuation factors such as geometric divergence, air absorption, ground surface absorption, and potential path-occluding structures and topography. The input and output data are provided in Appendix D.

Table 10. Construction Noise Model Results Summary

Construction Phase	Construction Noise at Nearest Residence* (L_{eq} [dBA])
Demolition	35
Grading	38
Construction	36
Paving	34

Source: Appendix D.
Notes: dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level.
* Approximately 5,000 feet away.

As shown in Table 10, typical construction noise levels at the nearest noise-sensitive land use (a residence to the northeast) are estimated to range from approximately 34 dBA L_{eq} during the paving phase to approximately 38 dBA L_{eq} during the grading phase. Table 10 and Appendix D worksheets show construction noise level predictions at distances between the noise-sensitive receptor position and the anticipated nearest boundary associated with a construction phase. These noise levels would be well below the FTA-suggested threshold of 80 dBA L_{eq8h} for construction noise (FTA 2018).

As discussed previously, Kern County Code of Ordinances Section 8.36.020 does not permit construction noise that would create a noise disturbance between 9:00 p.m. and 6:00 a.m. on weekdays, and 9:00 p.m. and 8:00 a.m. on weekends that is audible at a distance of 150 feet from the construction site if the construction site is within 1,000 feet of an occupied residential dwelling. Although the Project site is not within 1,000 feet of an occupied residential dwelling, the Project's construction hours are anticipated to adhere to the hours specified above. In any case, the estimated noise levels would be well below the FTA's advisory noise standard of 80 dBA L_{eq8h}. Therefore, noise from Project construction would be less than significant.

Long-Term Operational Noise

No Impact. During operation, the Project would convey existing storm flows and would not include any pumps, motors, or other noise-producing mechanical equipment. As such, there would be no impact related to a permanent increase in ambient noise levels.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact. The main concern associated with groundborne vibration is annoyance; however, in extreme cases, vibration can cause damage to buildings, particularly those that are old or otherwise fragile. Some common sources of groundborne vibration are trains and construction activities such as blasting, piledriving, and heavy earthmoving equipment. No blasting or piledriving is anticipated as part of the Project; thus, the primary source of groundborne vibration from the Project is heavy earthmoving equipment during construction.

Groundborne vibration information related to construction/heavy equipment activities has been collected by the California Department of Transportation (Caltrans). Information from Caltrans indicates that continuous/intermittent vibrations (such as from construction activity) with approximately 0.1 ips PPV may be characterized as "strongly perceptible" (Caltrans 2020). The heavier pieces of construction equipment, such as large bulldozers or hoe rams, would register up to approximately 0.089 ips PPV at a distance of 25 feet per FTA guidance (FTA 2018).

Groundborne vibration is typically attenuated over relatively short distances. At the nearest existing noise/vibration-sensitive use distance to the nearest construction boundary (approximately 5,000 feet) and with the anticipated construction equipment, the vibration level would be approximately 0.00003 ips PPV, and therefore would be well below the Caltrans guidance standard of 0.1 ips PPV. There would not be significant groundborne vibration impacts associated with annoyance. Vibration from construction equipment (an intermittent or continuous type of vibration) as a result of the Project would not result in structural building damage, which typically occurs at vibration levels of 0.2 ips PPV or greater for buildings of non-engineered timber and masonry buildings. Thus, impacts related to construction groundborne vibration would be less than significant.

During operation, the Project would not include any pumps, motors, or other mechanical equipment that would produce vibrations. As such, there would be no impact related to operations groundborne vibration.

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?

No Impact. No private airstrips exist in the vicinity of the Project site. The Project site is not within 2 miles of a public airport or public use airport, nor is it within the boundaries of any airport land use plan area. The nearest airport is the Bakersfield Municipal Airport, which is approximately 20.5 miles north of the Project site. As such, the Project would not result in excessive noise for people residing or working in the Project area. There would be no impact.

3.14 Population and Housing

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

a) 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)?

No Impact. Construction of the Project would result in a small number of temporary construction jobs, which would be filled by the regional job market. Operation of the Project would not result in the need for any additional employees. Therefore, the Project would not result in direct population growth through introduction of new jobs, homes, or businesses. The Project would not increase or expand water utilities in a way that could indirectly induce growth. The Project would not result in the extension of roads or other infrastructure, which could indirectly induce population growth. Therefore, no impacts would occur.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. All Project activities would occur within DWR property, and the Project site does not contain any residences. The Project would not result in displacement of any existing housing. Furthermore, the purpose of the Project is to improve drainage and protect against flooding. The Project would not result in impacts to housing or necessitate the construction of replacement housing. Therefore, the Project would not displace any people, or result in the need for replacement housing. No impact would occur.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

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:

Fire protection?

No Impact. The Project would not involve the construction of any new land uses that could increase permanent or temporary population in the area, and thus would not increase demand for fire protection or emergency response services for residential, commercial, or industrial areas. No impacts related to fire protection services would occur as a result of the Project.

Police protection?

No Impact. The Project would not involve construction of any new land uses that could increase permanent or temporary population in the area. Therefore, the Project would not result in a higher level of human activity that could increase demand for law enforcement or emergency response services. Construction equipment and vehicles would be staged on site, and Project activities would not impede traffic flow on local roadways. Traffic associated with the Project would not increase law enforcement response times to nearby properties. Therefore, no impacts related to police protection services would occur as a result of the Project.

Schools?

No Impact. The Project would not involve creating new housing or a large number of employment opportunities. Therefore, implementation of the Project would not generate new students or increase the demand on local school systems, and no impact to school services would occur.

Parks?

No Impact. The Project would not involve creating new recreational areas or parks. It also would not increase population in the area and thus would not increase demand for parks and recreation facilities. The Project would have no impact on parks and recreation.

Other public facilities?

No Impact. No other public facilities exist in the Project area that would be affected by Project activities. The Project would not involve construction of any new land uses or infrastructure, and would not result in increased population in the Project region. Thus, implementation of the Project would not create demands for use or maintenance of other public facilities. There would be no impact to other public facilities.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
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?	☐	☐	☐	☒

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?

No Impact. As discussed in Section 3.15, Public Services, there are no recreation facilities on the Project site or in the vicinity. The Project would not entail construction of any new land uses that could increase permanent or temporary population in the area, and thus would not increase use of any existing neighborhood parks, regional parks, or other recreational facilities. Therefore, the Project would not result in the substantial physical deterioration of a recreational facility. As such, there would be no impact to recreational facilities.

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?

No Impact. The Project site does not contain recreational facilities, nor would the Project require the construction or expansion of recreational facilities. No impacts would occur.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – 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 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?	☐	☐	☒	☐

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-than-Significant Impact. The Project site is in a rural, unincorporated area within Kern County. Programs, plans, ordinances, and polices regarding the circulation systems in Kern County are not applicable to the unincorporated areas or roadways surrounding the Project site. Circulation of the Project site includes site access via South Sabodan Street and various paved paths connecting the SJFD O&M Center facilities. There are no transit systems or bicycle or pedestrian paths at the Project site. Construction is anticipated to last approximately 4 months and would take place in the late spring through early fall of 2024. During demolition and construction efforts, construction traffic would include trucks delivering equipment and materials to be staged on site, trucks importing materials to the Project site, and construction workers commuting to and from the site. South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through traffic. To ensure access to employees of the SJFD O&M Center, a temporary traffic plan would be prepared, and an alternate access route would be provided. Therefore, the Project would not conflict with the existing or planned circulation system, including transit, roadway, bicycle, and pedestrian modes of travel. After construction, the Project is anticipated to reduce required maintenance on the culvert because the improved design would allow for better water flow and reduced erosion, and would therefore require fewer maintenance visits to clean out sediment build-up or

to address erosion issues on the main drainage or tributary drainage. Therefore, the Project would not generate additional trips over existing conditions. Impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less-than-Significant Impact. CEQA Guidelines Section 15064.3(b) focuses on VMT, adopted pursuant to Senate Bill 743, for determining the significance of transportation impacts. The provisions were implemented statewide on July 1, 2020. CEQA Guidelines Section 15064.3(b) is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. The Project is a construction project that would generate temporary construction-related traffic and nominal O&M traffic.

Per the CEQA thresholds for VMT, the minimum threshold for analysis of land use projects is 110 daily trips (OPR 2018). The Project would not develop a new (permanent) land use, but would temporarily generate short-term construction and nominal operational trips that would not equal 110 daily trips.

As described previously, construction of the Project would result in a temporary increase in traffic as a result of construction-related workforce traffic and material deliveries, but the Project would not generate a significant number of daily or peak-hour trips. Further, once construction is completed, construction-related traffic would cease and VMT levels would return to pre-Project conditions. In addition, roadways surrounding the Project site are used for employee access to the existing DWR facility, and the Project would not interfere with public transportation routes.

Therefore, the Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b). Impacts would be less than significant.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. Construction activities would be limited to the Project site, which contains an existing drainage culvert and the proposed staging area, which currently consists of a flat, gravel-covered area in the southern portion of the SJFD O&M Center. South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through traffic. Access to the Project site would temporarily be via an alternate access route. The Project would not involve the construction of any new permanent roads or modification to existing roads; thus, it would not create any hazards due to a geometric design feature. Implementation of the Project would require transport of heavy equipment and materials to the SJFD O&M Center at the start of the construction season. However, transport of this equipment and materials would not change or reconstruct existing roadways, and thus would not create any impediments to existing emergency access in the area. Therefore, no impact would occur.

d) Would the project result in inadequate emergency access?

Less-than-Significant Impact. As described above, South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through traffic. To ensure access to employees of the SJFD O&M Center, a temporary traffic plan would be prepared, and an alternate access route would be provided, which would be accessible to emergency response vehicles. Therefore, there would be no interference or impairment of emergency access, and impacts would be less than significant.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision © of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision© of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

Introduction

Tribal Cultural Resources (TCRs) are defined under PRC § 21074 as sites, features, places, geographically defined cultural landscapes, sacred places, or objects with cultural value to a California Native American Tribe. In order to qualify as a TCR under this definition, the resource must be listed or eligible for listing in the California Register of Historical Resources (CRHR) or be determined to meet CRHR criteria by the agency after considering the significance of the resource to the Tribe.

Cultural resources are addressed in Chapter 3.5, *Cultural Resources*.

This Chapter draws from information and findings presented in the "Cultural Resources Inventory Report for the San Joaquin Field Division Culvert Replacement Project, Kern County, California" (Heffner et al. 2023) unless otherwise cited.

Regulatory Setting

State laws and regulations providing the definitions, protections, and management of cultural resources relevant to this proposed Project include:

California Public Resources Code, Section 21074 (AB 52)

California Public Resources Code sections 5020.1, 5024.1, 5097.94, and 5097.98

California Health and Safety Code section 7050.5(b) and 7050.5(c)

In addition to State laws and regulations governing the identification and treatment of cultural resources, Kern County's General Plan provides policies for the treatment of cultural resources by implementing measures to: (1) coordinate with California State University, Bakersfield's Archaeology Inventory Center; and (2) address archaeological and historical resources for discretionary projects in accordance with CEQA (County of Kern 2009).

Environmental Setting

The Project is within the Southern San Joaquin Valley, an area "separated from the northern part of the Central Valley by a prominent Late Pleistocene alluvial fan formed by the Kings River and Los Gatos Creek" (Jones and Klar 2007:147). All drainages in this region empty into shallow basins formed by the ancient Tulare, Buena Vista, and Kern Lakes (Jones and Klar 2007:147). During seasonal flooding, these shallow basins can quickly fill with water, leading to the emergence of wetland plants including coarse grasses, tules, and cattails, which were (and still are) valued by California tribes as sources of food, fiber (for clothes and basketry), and for building material. The climate is characterized by hot, dry summers and mild winters with very little precipitation.

Prehistory

The first known occupation in the southern San Joaquin Valley marked by tools and weapons characteristic of the Fluted-Point Tradition is believed to be at least 11,000 years old (Moratto 1984:81-82). The Fluted Point Tradition is generally succeeded in western North America by the Western Pluvial Lake Tradition (WPLT), dating to between 11,000 and 8,000 years before present (B.P.) (Moratto 1984:91). A gap in the archaeological record between 7,000 B.P. and 4,000 B.P. may indicate a shift in settlement and subsistence due to climactic change (Hartzell 1992:314-333; Jackson et al 1998:4.1.2). After 4,000 B.P., the archaeological record once again becomes much more complex indicating a resurgence of use. However, occupation appears to decline after 1,000 B.P., once again reflecting a possible climatic change (Hartzell 1992:314-333; Jackson et al 1998:4.1.2).

Ethnography

At the time of European contact, the region surrounding the Project area would have been at the southern extent of Southern Valley Yokut tribal territory. Southern Valley Yokut territory encompassed Tulare, Buena Vista, and Kern Lakes, their connecting sloughs, and the lower portions of the Kings, Kaweah, Tule, and Kern rivers (Wallace 1978:448). Settlements were typically situated in close proximity to the major rivers and their tributaries (Kroeber 1925). On the western side of San Joaquin Valley, populations were much sparser and concentrated in the foothills along minor waterways. The focus on fishing is also seen in the material culture consisting of net sinkers and harpoons, which may have been employed while on rafts constructed from tule reed bundles (Wallace 1978). Traditional villages were located on top of low mounds on or near riverbanks. Southern Valley Yokut dwellings were

constructed of tule reed woven mats placed over a pole frame oval or round structure. They were usually 25 to 40 feet in diameter and would belong to a single family (Wallace 1978).

In 1934, the Santa Rosa Rancheria of Tachi Yokuts was established near Lemoore, CA. A small gaming hall was established on the reservation in 1983, but the real economic turning point came in 1994 when the Tribe took over management of the gaming facility. Increased revenue from the expanded casino has provided economic opportunities for the Tribe's youth and is fueling the realization of Tribe's goals of "reestablishing our cultural identity, returning to economic self-sufficiency, and rebuilding our reservation" (Santa Rosa Tachi Yokut 2023).

Tribal Cultural Resources Inventory Methods

Cultural resources inventory efforts conducted for the Project included a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, California Historical Resources Information System (CHRIS) records search, archival research, Tribal consultation, and pedestrian field survey.

NAHC Sacred Lands File Search

DWR contacted the NAHC for a search of the SLF on February 6, 2023. The results were returned to DWR on February 23, 2023. They were negative for sacred lands within or near the Project footprint. The results also included contact information for 13 individuals representing seven Tribes that may have knowledge of resources of tribal importance within or near the Project area.

Tribal Consultation

DWR sent letters containing a summary description of the Project including maps and an invitation to consult to all those listed on the NAHC contact list and reached out to three additional tribes that had previously requested project notifications from DWR. In total, DWR sent invitations to consult to five Tribes that are on the Department's AB-52 contact list and another five Tribes under DWR's Tribal Engagement Policy. Letters were sent via certified mail on April 5, 2023. Copies of the letters and maps were also transmitted via email. Follow-up phone calls were made on April 21 for those Tribes that had not yet responded to the letter or email. Details are provided in Table 11, and letters are provided in Appendix E, Tribal Consultation.

Table 11. Tribal Consultation Efforts

Tribe	AB-52 List	Response
Big Pine Paiute Tribe of the Owens Valley	Yes	No response to letter or email, follow up phone call on 4/21 reached Sally Manning who said the Project was too small and not on the Tribes radar.
Chumash Council of Bakersfield	No	No response to letter, email undeliverable, phone number disconnected.
Coastal Band of the Chumash Nation	No	No response to letter or email, unable to leave voicemail due to full inbox.
Fernandeno Tataviam Band of Mission Indians	Yes	Email response from Sarah Brunzel on 4/13. No further consultation needed as Project is outside of traditional tribal territories.
Kitanemuk & Yowlumne Tejon Indians	No	No response to letter, email, or voice mail messages.

Table 11. Tribal Consultation Efforts

Tribe	AB-52 List	Response
Yuhaaviatam of San Manuel Nation	Yes	No response to letter, email, voicemails and messages with admin staff on 4/21
Santa Rosa Rancheria Tachi Yokut Tribe	Yes	No response to email or letter. Spoke with Samantha McCarty on 4/21, said would relay message to Shana Powers, no further response received.
Santa Ynez Band of Chumash Indians	No	Email response on 4/13/23 from Crystal Mendoza stated that no further consultation needed.
Tejon Indian Tribe	Yes	No response to initial letters or email. Spoke with admin staff Julie Gonzales on 4/21 who advised copy of letter and email be sent to Candice Garza. No response following transmittals to Ms. Garza
Tule River Indian Tribe	No	No response to letter or email. Phone rings but no voicemail available

As outlined above, no Tribes expressed concerns about the Project, a few responded saying the Project area was outside their traditional tribal territory.

Record Search Results

DWR staff requested a CHRIS records search from the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield on January 31, 2023. Results were returned to DWR on February 14, 2023. Other than the California Aqueduct (P-15-015820), no recorded cultural resources were identified by the SSJVIC within the Project footprint or within 0.25 miles of the Project footprint.

Pedestrian Survey

An intensive pedestrian survey of the entire Project footprint was conducted on May 8, 2023, by DWR Archaeologists. The culvert floor was paved over with shotcrete completely obscuring the soil below. Along the crest of the culvert and the access routes, visibility ranged from fair (50%) to poor (10-20%). The staging area is in a graded lot with compacted aggregate base. The pedestrian survey did not encounter any evidence of archaeological or historical resources.

Buried Site Sensitivity

The buried site sensitivity for the Project footprint was assessed using methodology developed by Meyer et al. 2010 for assessing buried site sensitivity in the Buena Vista Basin. A general assessment for buried site sensitively can be based on two factors: environmental parameters (distance to water and the degree of slope) and landform age. Areas located within 500 meters of a water source and a less than 10-degree slope are rated as having the highest potential for buried sensitivity (Meyer, 2010).

The Project footprint is located approximately 1,000 meters west of Tacuya Creek. Historic topographical maps from 1914 and 1932 indicate two smaller seasonal creeks within 800 meters. This distance is considered moderate according to Meyer. The general slope of the Project footprint and the surrounding landscape is estimated at 2-5%. Soil consists of sandy loam to gravelly sandy loam from the Guijarral-Klipstein complex (USDA Soil Survey

2023). The soil is relatively older than other deposits in the San Joaquin Valley. Generally, the soil ranges from approximately 15,000 to 400 years before present. The Project site is considered to have a moderate potential for buried archaeological resources.

Tribal Cultural Resources

Record searches and archival research, an NAHC SLF search, a pedestrian survey and outreach to Tribes, did not result in the identification of any TCRs within the Project area.

a) 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:

i) 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)?

Less than Significant with Mitigation Incorporated. Record searches and archival research, an NAHC search of the SLF, pedestrian survey, and tribal outreach conducted for the proposed Project, did not result in the identification of any TCRs in or adjacent to the Project site.

Although no TCRs have been identified within the vicinity of the Project site, there is the potential for identifying previously unknown TCRs during proposed Project construction. If Project construction activities were to affect previously unknown TCRs in a manner that would damage their cultural value, a significant impact could result. Implementation of the protection measures included in mitigation measures MM-CUL-1 and MM-CUL-3 (refer to the Cultural Resources section) would reduce potential impacts to less than significant.

ii) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less than significant with Mitigation Incorporated. Record searches and archival research, an NAHC search of the SLF, pedestrian survey, and tribal outreach conducted for the proposed Project, did not result in the identification of any TCRs in or adjacent to the Project site.

Although no TCRs have been identified within the vicinity of the Project site, there is the potential for identifying previously unknown TCRs during proposed Project construction. If Project construction activities were to affect previously unknown TCRs in a manner that would damage their cultural value, a significant impact could result. Implementation of the protection measures included in Mitigation Measures MM-CUL-1 and MM-CUL-3 (refer to the Cultural Resources section) would reduce potential impacts to less than significant.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – 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?	☐	☐	☒	☐

a) ***Would the project 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?***

Less-than-Significant Impact with Mitigation Incorporated. The Project would involve replacement of the existing arch corrugated metal pipe culvert with a new concrete box culvert, improvements to the upstream and downstream flow channels, and improvement of the connection to an existing drainage swale. The existing drainage culvert crosses under South Sabodan Street and is approximately 50% full of sediment, which restricts stormwater flow during large rain events. Implementation of the replaced drainage culvert would allow for better water flow and reduced erosion. Significant environmental effects associated with construction of the Project have been analyzed throughout this IS/MND. As discussed throughout, the Project would result in potential impacts associated with biological resources, cultural resources, paleontological resources, and tribal cultural resources. As discussed in Sections 3.4, 3.5, 3.7, and 3.18,

impacts associated with biological resources, cultural resources, paleontological resources, and tribal cultural resources would all be reduced to less-than-significant levels with implementation of mitigation. Therefore, with implementation of mitigation, construction of the Project would not cause significant environmental effects. The impact would be less than significant with mitigation incorporated.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

No Impact. The Project would involve replacement of the existing drainage culvert on site and would not generate a demand for potable water. Therefore, the Project would not generate any new or increased demand for water or expanded entitlements. No impact would occur.

c) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. The Project would not generate wastewater; therefore, it would not require or result in construction of a new or expansion of an existing wastewater treatment facility. No impact would occur.

d) Would the project 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?

Less-than-Significant Impact. Construction of the proposed box culvert would require trenching across the road and removal of the existing piping. Once the existing earthen material and piping are removed, the foundation material would be excavated. Approximately 150 cubic yards of material would be exported from the Project site. Construction waste would be limited to trash generated by construction crews plus minimal earthen material and piping removal. All construction-related solid waste would be disposed of at a landfill approved for the disposal of construction and demolition recycling and waste. Operations would be the same as existing conditions and would not require service of a landfill on a long-term basis. Therefore, the amount of construction-related waste generated by the proposed Project and sent to a local landfill would be minimal; impacts would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less-than-Significant Impact. As discussed in Section 3.19(d), minimal amounts of solid waste would be generated as a result of construction of the Project. However, all construction waste would be disposed of in compliance with applicable laws and regulations. Therefore, the Project would comply with federal, state, and local statutes and regulations, and impacts would be less than significant.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – 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?	☐	☐	☐	☒

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. South Sabodan Street, which provides access to the SJFD O&M Center, would be closed to through traffic. To ensure access to employees of the SJFD O&M Center, a temporary traffic management plan would be prepared, and an alternate access route would be provided. Once operational, no additional employee site visits to the Project site would be required. Kern County's Emergency Operations Plan establishes emergency management organization. South Sabodan Street, which would be the only affected access route to the Project site, is not a part of any emergency plans or routes within Kern County (County of Kern 2022). Therefore, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-than-Significant Impact. The Project would be located in a Moderate State Responsibility Area Fire Hazard Severity Zone. A High Fire Hazard Severity Zone occurs approximately 0.7 miles south of the Project site, at the base of the Tehachapi Mountains (CAL FIRE 2022). The Project site is relatively flat and is

located on the SJFD O&M Center site, adjacent to the Wheeler Ridge Oil Field, Wheeler Ridge Sand and Gravel Mine, agriculture land, and vacant land. During construction, the use of heavy equipment could cause sparks that could be a source of fire ignition. Construction personnel would comply with standard DWR measures for job site fire safety, which require the implementation of fire-safe practices and the provision of basic fire suppression equipment onsite at all times during construction. Thus, construction of the Project would not result in an exacerbated fire risk. Further, the Project does not include any residential or commercial land uses that would introduce human populations or activities to the Project area that could exacerbate wildfire risk. Therefore, the Project would result in less-than-significant impacts associated with exposing individuals to pollutant concentrations or uncontrolled spread of a wildfire.

c) Would the project 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?

Less-than-Significant Impact. No permanent installation of infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, would be introduced under the Project that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Impacts would be less than significant.

d) Would the project 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?

No Impact. The Project site at the SJFD O&M Center is predominantly flat. The nearby Tehachapi Mountains consist of steep slopes with high fire hazard, but they are not immediately adjacent to the Project site. Once implementation of the replaced drainage culvert is complete, the Project would not increase the potential for the SJFD O&M Center to be affected by wildfire because the Project would allow the current use of the culvert as a drainage area to continue. Further, the Project would not alter or allow the potential for post-fire hazards, such as flooding, landslides, slope instability, or drainage changes, to occur in the Project vicinity. In fact, the improved design would allow for better water flow and reduced erosion, thereby reducing potential for post-fire hazards related to drainage. Thus, the Project would have no impact.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
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?	☐	☒	☐	☐

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?

Less-than-Significant Impact with Mitigation Incorporated. As discussed in Section 3.4, Biological Resources, implementation of the Project could have the potential to impact the habitat of fish or wildlife species or rare or endangered species, specifically, nesting birds, California glossy snake, blunt-nosed leopard lizard, San Joaquin whipsnake, and loggerhead shrike. However, as discussed in Section 3.4, with the incorporation of MM-BIO-1 through MM-BIO-4, impacts to these species would be reduced to less than significant.

As discussed in Section 3.5, Cultural Resources, and 3.18, Tribal Cultural Resources, the Project *would* have the potential to impact important examples of major periods of California history or prehistory. However, as

discussed in Section 3.5, with the incorporation of MM-CUL-1 through MM-CUL-3, impacts would be reduced to less than significant.

With implementation of mitigation measures identified in this IS/MND, the Project would not have the potential to substantially degrade the quality of the environment, and impacts would be less than significant.

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)?

Less-than-Significant Impact with Mitigation Incorporated. As indicated in the analysis presented throughout section 3 of this MND, The Project would not result in significant and unavoidable impacts to any issue area. Further, mitigation would reduce any potential impact to below a level of significance.

Cumulative projects in the Project vicinity include the O&M Policy CP_60, Physical Security Upgrades Project, which would occur at several DWR facilities, including The SJFD O&M Center. The proposed projects, as with potential cumulative projects, would incorporate mitigation measures to reduce impacts, as applicable, particularly during construction. Upon completion of construction, the proposed projects would have no potential to contribute to a cumulative impact. Impacts would be less than significant with incorporation of mitigation measures.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact with Mitigation Incorporated. As described in the analysis throughout this IS/MND, implementation of the Project would not result in substantial adverse effects to the environment; thus, the Project would not cause substantial adverse effects on human beings, either directly or indirectly.

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4.2 List of Preparers

California Department of Water Resources

Add in names here.

Dudek

Add in names here.

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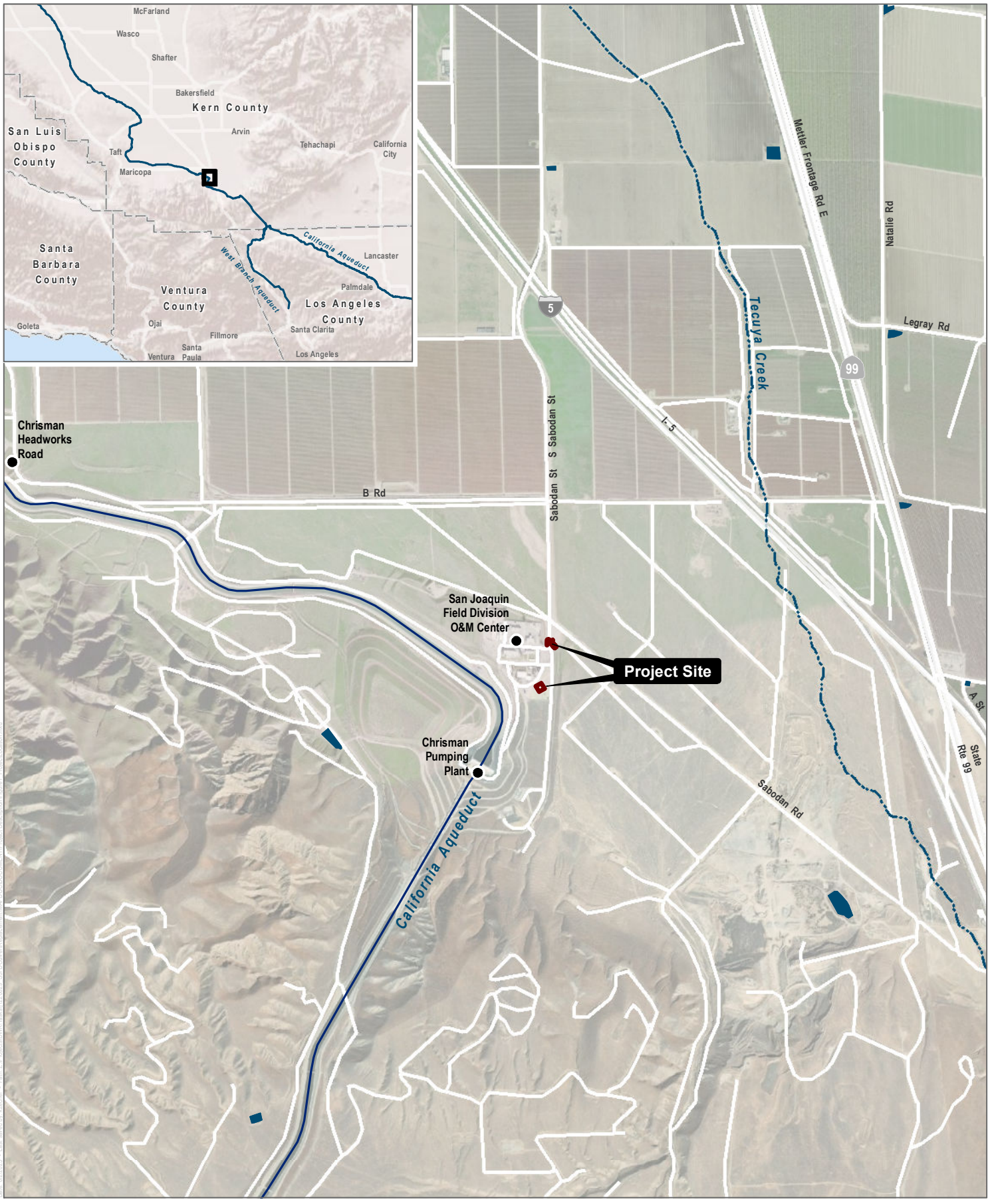

BASEMAP SOURCE: DWR 04/17/2023

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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BASEMAP SOURCE: DWR 04/17/2023

DUDEK

0 125 250 Feet

FIGURE 2

Proposed Project Site

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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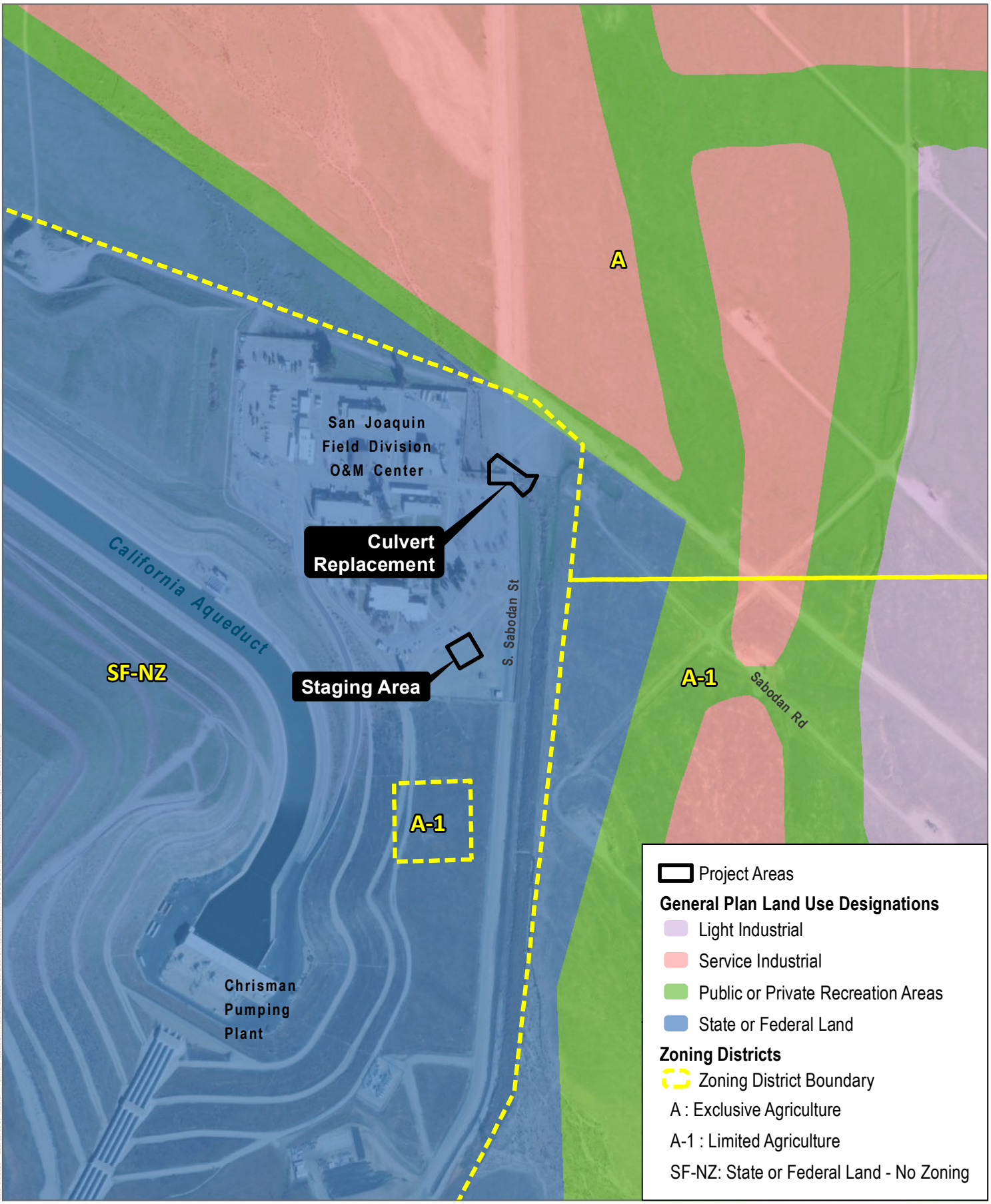

BASEMAP SOURCE: DWR 04/17/2023, Kern County Land Use and Zoning 2022

DUDEK

0 250 500 Feet

FIGURE 3

Land Use and Zoning Designations

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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SOURCE: DWR 04/17/2023

DUDEK

0 45 90 Feet

FIGURE 4

Proposed Project Components

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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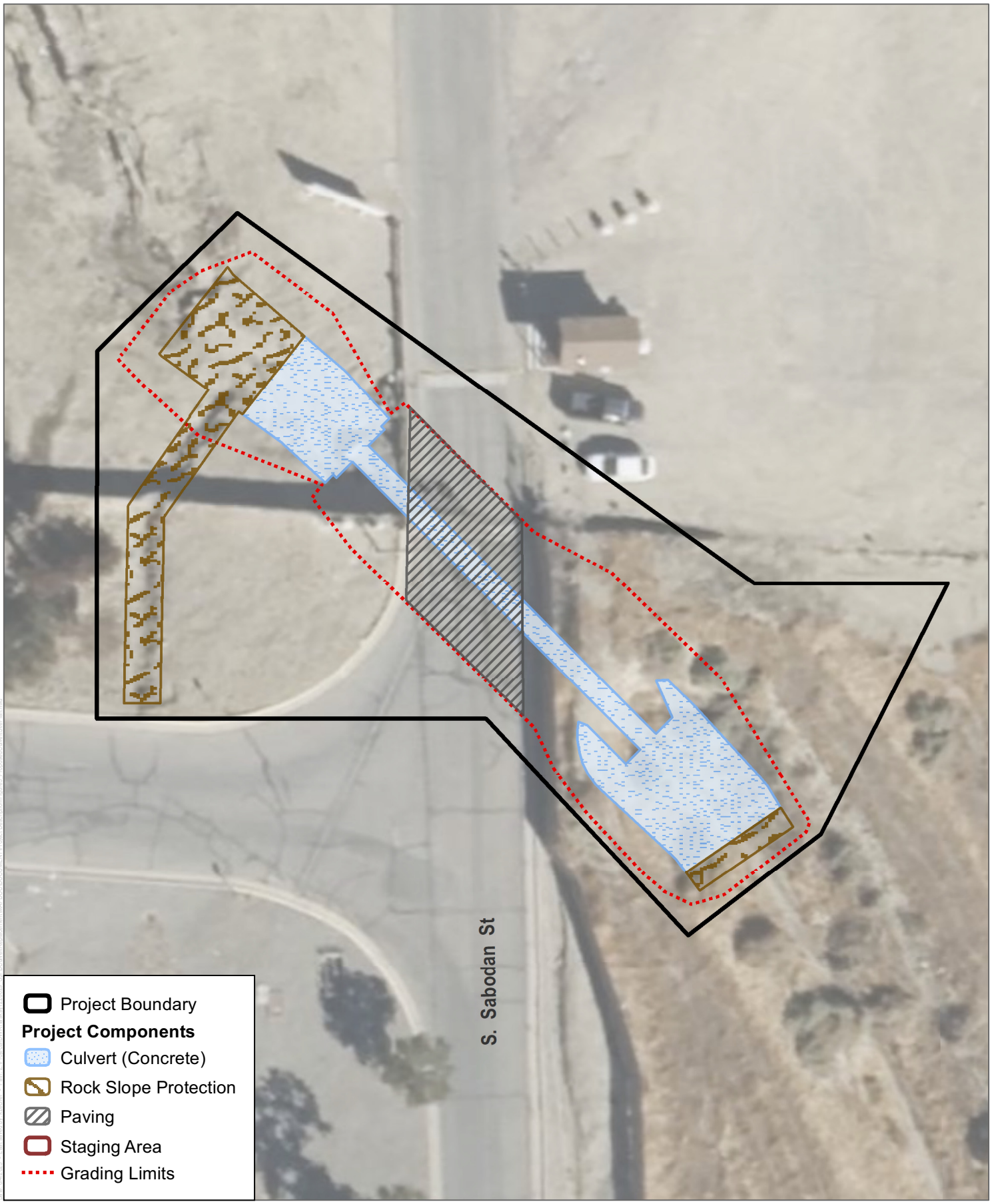

SOURCE: DWR 04/17/2023

DUDEK

0 12.5 25 Feet

FIGURE 5

Proposed Culvert Site Plan

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

INTENTIONALLY LEFT BLANK

BASEMAP SOURCE: DWR 04/17/2023

DUDEK

0 15 30 Feet

FIGURE 6

Proposed Staging Area

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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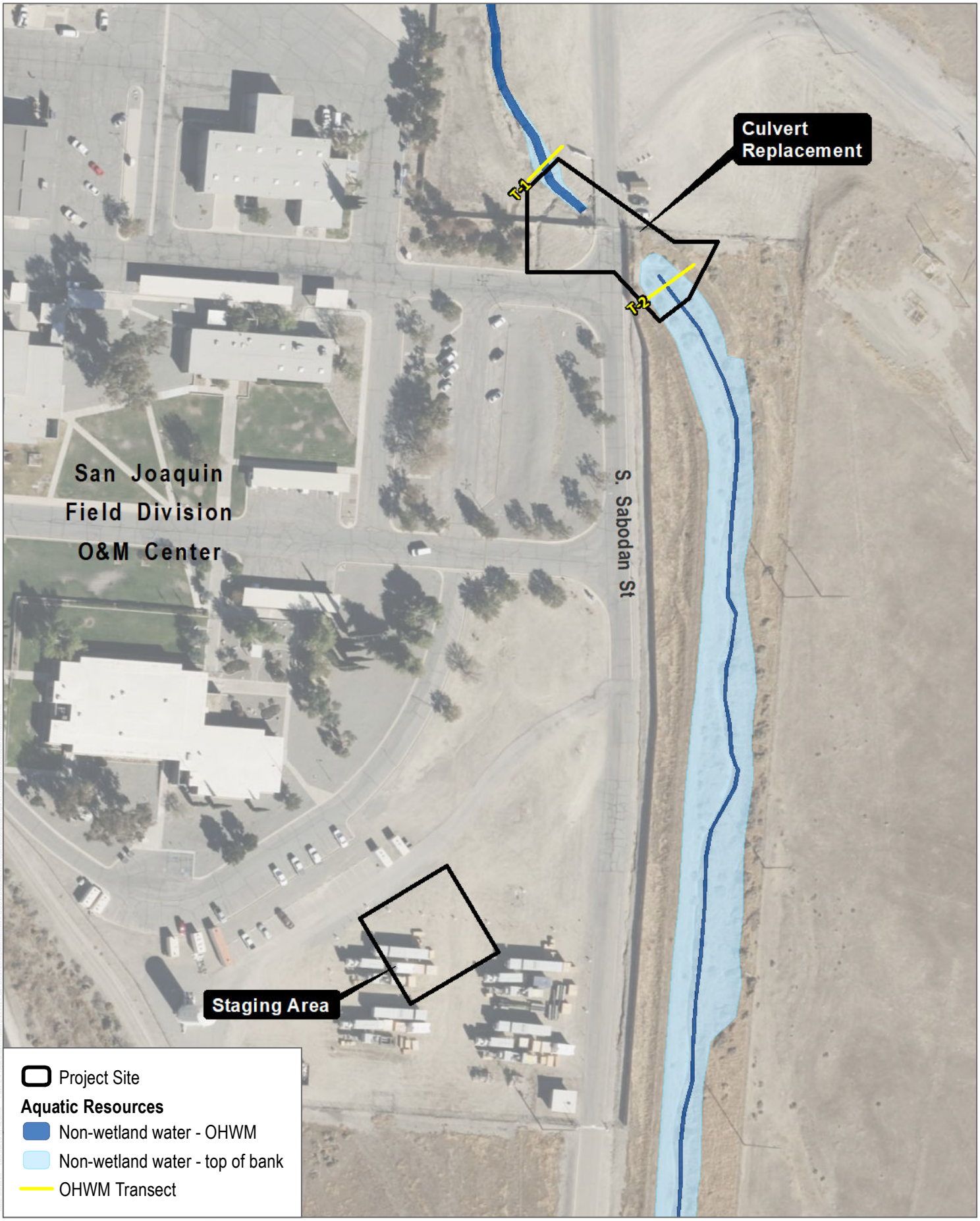

SOURCE: DWR 04/17/2023

DUDEK

0 62.5 125 Feet

FIGURE 7

Aquatic Resources Delineation

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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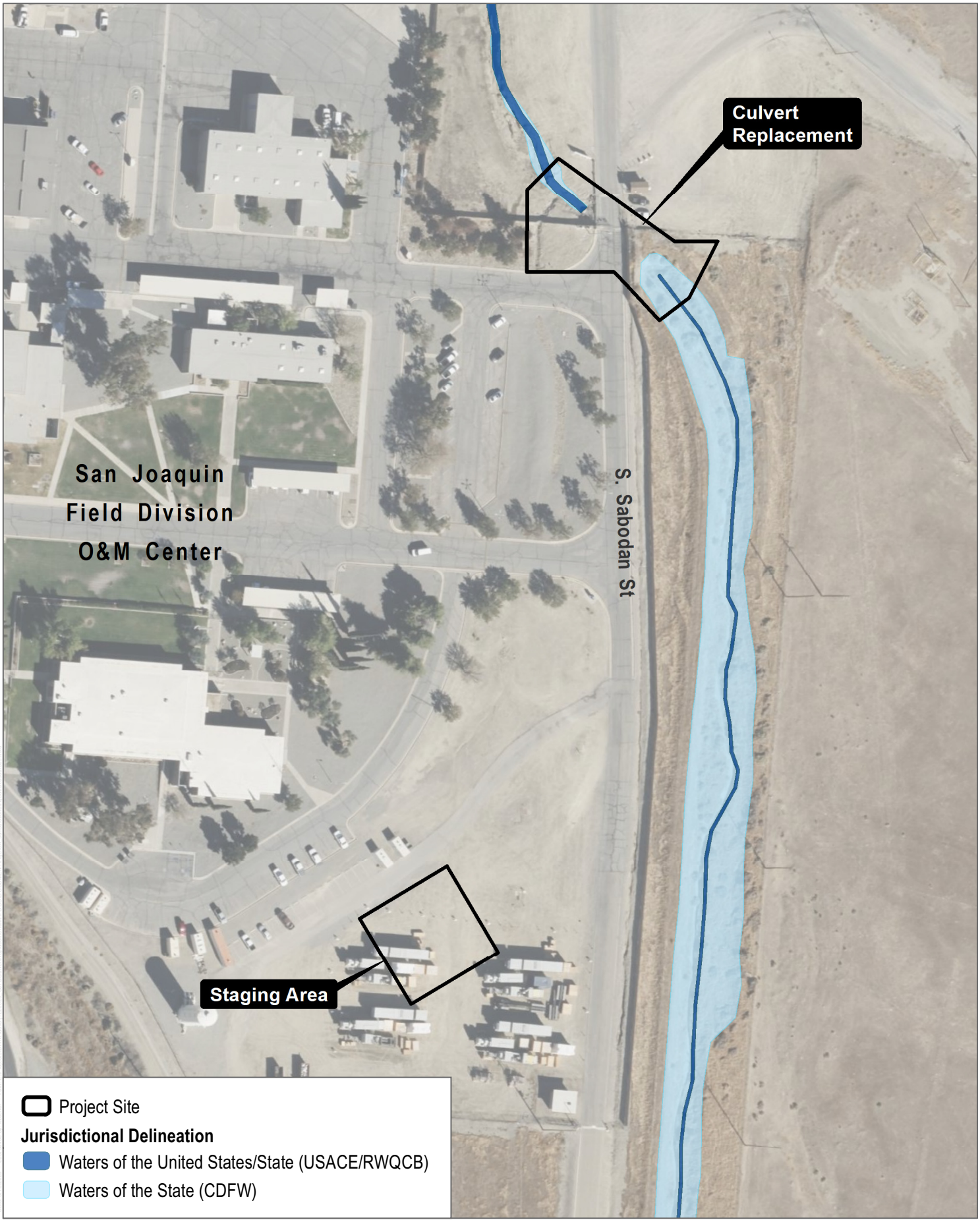

SOURCE: DWR 04/17/2023

DUDEK

0 62.5 125 Feet

FIGURE 8

Jurisdictional Aquatic Resources

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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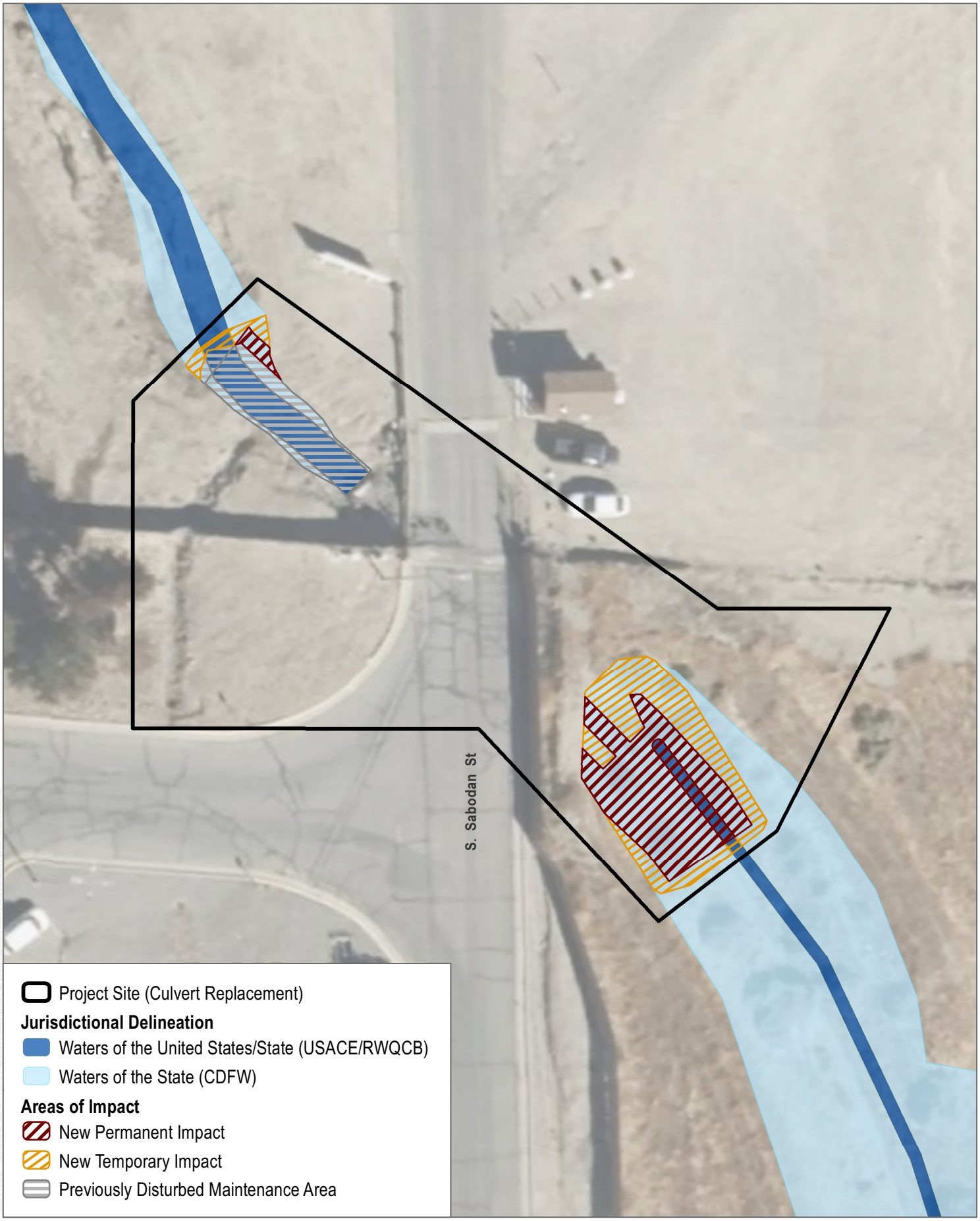

SOURCE: DWR 04/17/2023

DUDEK

0 15 30 Feet

FIGURE 9

Areas of Impact

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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Appendix A

Air Quality, Greenhouse Gas, and Health Risk Assessment Calculations

SJFD Culvert Replacement Project Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SJFD Culvert Replacement Project
Construction Start Date	4/2/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	6.30
Precipitation (days)	5.20
Location	35.05022179001443, -118.97630880423486
County	Kern-San Joaquin
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2900
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.11

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	0.30	User Defined Unit	0.30	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	1.65	15.1	16.7	0.03	0.70	0.62	1.31	0.64	0.13	0.77	—	3,884	3,884	0.13	0.16	3.11	3,939
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.15	1.43	1.49	< 0.005	0.06	0.04	0.11	0.06	0.01	0.07	—	351	351	0.01	0.01	0.11	356
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.03	0.26	0.27	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	58.2	58.2	< 0.005	< 0.005	0.02	58.9

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	1.65	15.1	16.7	0.03	0.70	0.62	1.31	0.64	0.13	0.77	—	3,884	3,884	0.13	0.16	3.11	3,939
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.18	0.15	1.43	1.49	< 0.005	0.06	0.04	0.11	0.06	0.01	0.07	—	351	351	0.01	0.01	0.11	356
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.03	0.26	0.27	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	58.2	58.2	< 0.005	< 0.005	0.02	58.9

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.39	13.7	13.6	0.02	0.59	—	0.59	0.55	—	0.55	—	2,157	2,157	0.09	0.02	—	2,164
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.34	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.2	53.2	< 0.005	< 0.005	—	53.4
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.81	8.81	< 0.005	< 0.005	—	8.84
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.49	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	82.7	82.7	< 0.005	< 0.005	0.32	84.0
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	66.9	66.9	< 0.005	0.01	0.18	69.9
Hauling	0.01	< 0.005	0.18	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	155	155	< 0.005	0.02	0.38	162
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.65	1.65	< 0.005	< 0.005	< 0.005	1.72
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.81	3.81	< 0.005	< 0.005	< 0.005	4.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.31
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.29
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.63	0.63	< 0.005	< 0.005	< 0.005	0.66

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	6.83	7.99	0.01	0.34	—	0.34	0.31	—	0.31	—	1,192	1,192	0.05	0.01	—	1,196
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.19	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.7	32.7	< 0.005	< 0.005	—	32.8
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.41	5.41	< 0.005	< 0.005	—	5.42
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.49	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	82.7	82.7	< 0.005	< 0.005	0.32	84.0
Vendor	0.01	< 0.005	0.16	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	134	134	< 0.005	0.02	0.36	140
Hauling	0.01	< 0.005	0.18	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	155	155	< 0.005	0.02	0.38	162
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.06	2.06	< 0.005	< 0.005	< 0.005	2.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.66	3.66	< 0.005	< 0.005	< 0.005	3.83
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.24	4.24	< 0.005	< 0.005	< 0.005	4.45
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.34	0.34	< 0.005	< 0.005	< 0.005	0.35
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.63
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.70	0.70	< 0.005	< 0.005	< 0.005	0.74

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.86	0.72	7.17	7.23	0.01	0.34	—	0.34	0.31	—	0.31	—	1,602	1,602	0.06	0.01	—	1,607
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.71	0.71	< 0.005	0.03	—	0.03	0.03	—	0.03	—	158	158	0.01	< 0.005	—	159
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.2	26.2	< 0.005	< 0.005	—	26.2
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.66	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	110	110	< 0.005	< 0.005	0.43	112
Vendor	0.02	0.01	0.55	0.18	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	468	468	< 0.005	0.07	1.27	490
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	141	141	< 0.005	0.02	0.34	148
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.91	9.91	< 0.005	< 0.005	0.02	10.1
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.2	46.2	< 0.005	0.01	0.05	48.2
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.01	14.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.66
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.64	7.64	< 0.005	< 0.005	0.01	7.99

Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.30	2.30	< 0.005	< 0.005	< 0.005	2.41

3.7. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.51	3.60	4.47	0.01	0.19	—	0.19	0.17	—	0.17	—	620	620	0.03	0.01	—	622
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.12	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	17.0	17.0	< 0.005	< 0.005	—	17.0
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.81	2.81	< 0.005	< 0.005	—	2.82
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.33	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	55.2	55.2	< 0.005	< 0.005	0.21	56.0
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	66.9	66.9	< 0.005	0.01	0.18	69.9
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.38	1.38	< 0.005	< 0.005	< 0.005	1.40
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.83	1.83	< 0.005	< 0.005	< 0.005	1.91
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.32
Hauling	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	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	4/2/2024	4/12/2024	5.00	9.00	—
Grading	Grading	4/15/2024	4/26/2024	5.00	10.0	—
Building Construction	Building Construction	4/26/2024	6/14/2024	5.00	36.0	—
Paving	Paving	6/17/2024	6/28/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Demolition	Other Material Handling Equipment	Diesel	Average	1.00	8.00	93.0	0.40
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Grading	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29

Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Building Construction	Other Construction Equipment	Diesel	Average	1.00	8.00	82.0	0.42
Paving	Pavers	Diesel	Average	1.00	4.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Paving Equipment	Diesel	Average	1.00	4.00	89.0	0.36
Paving	Sweepers/Scrubbers	Diesel	Average	1.00	8.00	36.0	0.46

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	6.00	17.3	LDA,LDT1,LDT2
Demolition	Vendor	2.00	10.6	HHDT,MHDT
Demolition	Hauling	2.00	22.0	HHDT
Demolition	Onsite truck	0.00	0.00	HHDT
Grading	—	—	—	—
Grading	Worker	6.00	17.3	LDA,LDT1,LDT2
Grading	Vendor	4.00	10.6	HHDT,MHDT
Grading	Hauling	2.00	22.0	HHDT
Grading	Onsite truck	0.00	0.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	8.00	17.3	LDA,LDT1,LDT2
Building Construction	Vendor	14.0	10.6	HHDT,MHDT
Building Construction	Hauling	2.00	20.0	HHDT
Building Construction	Onsite truck	0.00	0.00	HHDT

Paving	—	—	—	—
Paving	Worker	4.00	17.3	LDA,LDT1,LDT2
Paving	Vendor	2.00	10.6	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	1.00	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	48.0	—
Grading	0.00	0.00	5.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.7	annual days of extreme heat
Extreme Precipitation	0.35	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	13.2	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	82.7
AQ-PM	9.53
AQ-DPM	5.96
Drinking Water	92.8
Lead Risk Housing	28.0
Pesticides	84.7
Toxic Releases	7.96
Traffic	37.5
Effect Indicators	—
CleanUp Sites	68.9
Groundwater	54.5
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	0.00
Solid Waste	96.0
Sensitive Population	—
Asthma	18.2
Cardio-vascular	43.6
Low Birth Weights	16.6
Socioeconomic Factor Indicators	—
Education	55.8
Housing	46.5
Linguistic	24.8
Poverty	54.9
Unemployment	94.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	39.44565636
Employed	10.67624791
Median HI	23.54677274
Education	—
Bachelor's or higher	41.42178878
High school enrollment	100
Preschool enrollment	55.10073143
Transportation	—
Auto Access	34.87745413
Active commuting	41.3832927
Social	—
2-parent households	31.55395868
Voting	76.58154754
Neighborhood	—
Alcohol availability	85.61529578
Park access	23.67509303
Retail density	1.950468369
Supermarket access	12.61388426
Tree canopy	92.87822405
Housing	—
Homeownership	67.43231105
Housing habitability	73.87398948
Low-inc homeowner severe housing cost burden	42.48684717
Low-inc renter severe housing cost burden	73.93814962
Uncrowded housing	48.36391634

Health Outcomes	—
Insured adults	44.70678814
Arthritis	0.0
Asthma ER Admissions	94.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	50.7
Cognitively Disabled	46.5
Physically Disabled	12.2
Heart Attack ER Admissions	82.8
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	56.0
SLR Inundation Area	0.0

Children	78.7
Elderly	29.9
English Speaking	65.5
Foreign-born	11.4
Outdoor Workers	13.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	97.4
Traffic Density	32.8
Traffic Access	0.0
Other Indices	—
Hardship	58.1
Other Decision Support	—
2016 Voting	70.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	47.0
Healthy Places Index Score for Project Location (b)	36.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	The Project would involve removing the existing culvert structure and constructing a new concrete box culvert and reinforced concrete headwall structures, totaling 0.299-acres.
Construction: Construction Phases	The earliest start would be 4/1/2024 and construction would need to complete by 10/1/2024. Activity would occur over 3 months.
Construction: Off-Road Equipment	Updated equipment per data request.
Construction: Trips and VMT	Updated per data request.

Appendix B

Biological Resources

DRAFT

Biological Constraints Analysis
San Joaquin Field Division Culvert Replacement Project

Prepared for:

California Department of Water Resources

Operations and Maintenance

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APPENDICES

Acronyms and Abbreviations

Acronym	Definition
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
DWR	California Department of Water Resources
HCP	Habitat Conservation Plan
O&M	operations and maintenance
OHWM	ordinary high-water mark
project	California Department of Water Resources San Joaquin Field Division Culvert Replacement Project
SJFD	San Joaquin Field Division
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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1 Introduction

Dudek has prepared this Biological Constraints Analysis on behalf of the California Department of Water Resources (DWR) San Joaquin Field Division (SJFD) Culvert Replacement Project (project), located in Kern County, California, northwest of Wheeler Ridge (Figure 1, Project Location). DWR SJFD proposes replacement of an existing 72-inch-diameter by 102-foot-long culvert running below South Sabodan Street and the existing vehicle gate at the SJFD Operations and Maintenance (O&M) Center entrance. This report presents existing conditions and an evaluation of potential impacts to biological resources, including aquatic resources, as a result of the proposed project activities.

Dudek biologist Russel Sweet performed a field survey of the project site and a 250-foot buffer around proposed activity areas (collectively referred to as the study area) on March 16, 2023, to identify and characterize biological resources within and adjacent to the project site, with particular focus on the potential of the site to support special-status plant and wildlife species and other sensitive resources, such as riparian habitat and jurisdictional aquatic resources (i.e., wetlands and other waters of the United States and/or state).

1.1 Project Location

The project site is approximately 0.32 acres located along Sabodan Street in unincorporated Kern County, California, approximately 1 mile west of Interstate 5 (Figure 1). The site is situated in Township 11 North, Range 20 West, Sections 23 and 26 of the U.S. Geological Survey Mettler, California 7.5-minute quadrangle (USGS 2022a). The approximate center of the project site corresponds to 35.020681°north and -118.975758° west (decimal degrees).

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2 Methods

2.1 Preliminary Site Evaluation

Prior to conducting the surveys, Dudek staff performed a review of pertinent online and literature sources in December 2022. This review consisted of the following online databases and reports:

- U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation Trust Resource Report (USFWS 2023a)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2023a)
- California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants (CNPS 2023).

The USFWS Information, Planning, and Conservation report was based on a query for the project site. The CNDDB and CNPS databases were queried for the nine U.S. Geological Survey 7.5-minute quadrangles containing and immediately surrounding the project site (Conner, Weed Patch, Arvin, Coal Oil Canyon, Mettler, Tejon Hills, Pleito Hills, Grapevine, and Pastoria Creek) (USGS 2022a).

Following a review of the above resources, Dudek biologists determined the potential for special-status plant and wildlife species to occur on site. Determinations were based on a review of habitat types, soils, and elevation preferences, as well as the known geographic range and nearest occurrence records of each species. Results from species-focused and protocol-level surveys for the SJFD Habitat Conservation Plan (HCP) were used to make final determinations.

For this report, special-status plant and wildlife species are defined as those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates as threatened or endangered for listing under the California Endangered Species Act; (3) a state fully protected species; (4) a CDFW Species of Special Concern; or (5) a species listed in the CNPS Inventory of Rare and Endangered Plants with a California Rare Plant Rank (CRPR) of 1 or 2.

2.2 Field Surveys

2.2.1 San Joaquin Field Division Habitat Conservation Plan Fieldwork

Project-specific resources were identified, including field data collected in support of the SJFD HCP, which has a plan area that overlaps the study area. Data from these efforts conducted in 2021 and 2022 include vegetation mapping, jurisdictional delineations, multi-species burrow assessments, focused plant surveys, and focused wildlife surveys. Wildlife surveys consisted of non-protocol-level surveys for blunt-nosed leopard lizard (*Gambelia sila*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), and San Joaquin kit fox (*Vulpes macrotis mutica*); small mammal trapping; special-status bat surveys; and a wildlife movement assessment. Methods for these surveys are detailed in the Baseline Biology Report for the San Joaquin Field Division Habitat Conservation Plan (DWR 2022).

2.2.2 Reconnaissance Level Survey

Dudek biologist/botanist Russell Sweet performed a field survey of the study area on March 16, 2023. The field survey included documenting any vegetation communities or land cover types present, a preliminary evaluation of potentially jurisdictional aquatic resources, and assessing the potential for special-status species to occur within the project site and adjacent areas.

The survey was conducted on foot to visually cover the entire project site. Field notes and aerial imagery on Esri Field Maps were used to map vegetation communities and potential aquatic resources, and record any special-status or sensitive biological resources while in the field. Wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded in a field notebook. All plant species encountered during the field survey were identified to the lowest taxonomic group possible to determine rarity and were recorded directly into a field notebook.

2.3 Aquatic Resources Delineation

A jurisdictional aquatic resources delineation was conducted in April 2021 during the SJFD HCP efforts, and a subsequent survey was conducted by Dudek biologist Russell Sweet on March 16, 2023, to map the extent of aquatic resources within or adjacent to the project site that are potentially subject to regulation under federal Clean Water Act Sections 401 and 404, California Fish and Game Code Section 1600, or under the provisions of the Porter–Cologne Water Quality Act. The field delineation was conducted in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987), the Regional Supplement to the Wetland Delineation Manual: Arid West Region (USACE 2008a), and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region (USACE 2008b).

Prior to conducting fieldwork, Dudek biologists reviewed the following available resources to identify portions of the project site with a probability for containing potential jurisdictional aquatic resources:

- Google Earth current and historical aerial imagery (Google Earth Pro 2022)
- Natural Resources Conservation Service Web Soil Survey (USDA 2022a)
- Natural Resources Conservation Service List of Hydric Soils (USDA 2022b)
- USFWS National Wetlands Inventory Mapper (USFWS 2023b)
- U.S. Geological Survey Historical Topographical map data (USGS 2022b)
- U.S. Geological Survey National Hydrography Dataset (USGS 2022c)

During the delineation, the Dudek biologist mapped the ordinary high-water mark (OHWM), top of bank, and extent of riparian canopy (i.e., edge of dripline) within the project site. The Dudek biologist took data at a representative stream transect to assess channel hydrology and geomorphology. Aquatic resource boundaries were recorded in the field using a Trimble R1 GPS unit with sub-meter accuracy. Results of the aquatic resources delineation are incorporated into this evaluation.

3 Results

3.1 Topography and Soils

The project site is relatively flat, with an approximate elevation of 780 to 800 feet above mean sea level. One soil type is mapped within the project site: Guijarral-Klipstein complex, 2% to 5% slopes (USDA 2022a) (see Figure 2, Soils). Both the Guijarral and Klipstein soil series consist of very deep well-drained soils found on alluvial fans. The soil type mapped on site is not identified as a hydric soil, which is commonly associated with wetlands and other aquatic resources (USDA 2022b).

3.2 Land Use

The project site is on South Sabodan Street in Kern County, California, north of the California Aqueduct at the DWR O&M Center property (Figure 1). Most of the project site and surrounding areas are developed, with the exception of small patches of non-native annual grassland along the boundaries of the project site. The surrounding area is mixed salt scrub, disturbed areas, and agricultural parcels.

3.3 Hydrologic Setting

The project site is within the Tecuya Creek–Frontal Kern Lake Bed subwatershed (Hydrologic Unit Code 1803000311) within the greater Middle Kern–Upper Tehachapi–Grapevine (Hydrologic Unit Code 18030003). USFWS's National Wetlands Inventory identifies a riverine feature within the project site that runs through the existing culverts (USFWS 2023b) (Figure 3, Hydrologic Setting). The National Wetlands Inventory dataset is based on coarse aerial mapping.

3.4 Jurisdictional Aquatic Resources

Based on the data collected during the field delineation, Dudek biologists determined that approximately 0.002 acres of aquatic resources occur on the project site (see Table 1 and Figure 4, On-Site Biological Resources). The jurisdictional determinations for aquatic resources delineated on the project site are preliminary until verified by the USACE Sacramento District.

Table 1. Summary of Aquatic Resources on the Project Site

Feature ID	Cowardin Code	Agency Jurisdiction	Acres	Linear Feet
Non-Wetland Waters				
Ephemeral Channel	R6	RWQCB/CDFW	0.002	23.36

Note: RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife

There is one ephemeral channel (NWW-ICR-24) comprising approximately 23.36 linear feet (0.002 acres) within the project site. Hydrology of this channel is dependent on inputs during rain events and runoff from the surrounding uplands, and contains flowing water during, and for a short duration after, precipitation events. The channel flows in a northern direction toward B Road; however, the incised channel peters out and appears to sheet flow from the

end of the channel to the road. The channel itself had no vegetation; surrounding upland species included great brome (*Bromus diandrus*), allscale (*Atriplex polycarpa*), and compact brome (*Bromus madritensis*). Evidence of an OHWM included a sharp break in slope, natural line impressed on the bank, changes in the character of soil, shelving, wracking, sediment sorting, scour, deposition, bed and bank, and change in plant cover. Representative site photographs are presented in Appendix A.

3.5 Vegetation Communities and Land Cover Types

Three terrestrial land cover types were mapped on the 0.32-acre project site: disturbed habitat (86%), non-native annual grassland (8%), and *Atriplex polycarpa* alliance (5%) (Figure 5, Vegetation Communities and Land Covers). The vegetation communities and land covers listed here were adapted from the Manual of California Vegetation, Online Edition (CNPS 2023). There are two natural vegetation communities within or adjacent to the project site, but none are considered sensitive by CDFW (see Appendix A).

3.5.1 Disturbed Habitat

Disturbed habitat refers to areas where soils have been recently or repeatedly disturbed by grading, compaction, or clearing of vegetation. Structures are typically not present within disturbed habitats, and these areas provide relatively low value for most plant and wildlife species. When vegetated, disturbed habitat supports predominantly non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance. Disturbed habitat is not a listed vegetation community under the California Natural Community List (CDFW 2023b), but it has been used in this report because it best describes what was observed in the field. As such, this land cover is not globally or state ranked, and it is not considered a sensitive natural community. This land cover type includes the northeast area of the project site.

3.5.2 Non-Native Annual Grassland (40.000.00)

Non-native annual grasslands general habitat is a land cover type that represents the majority of the project site along the north culvert opening. The herbaceous level is dominated by non-native species, including wild oats (*Avena* spp.), bromes (*Bromus* spp.), and barleys (*Hordeum* spp.). Non-native grasslands were not mapped to the alliance or association level because all alliances and associations are not considered sensitive because they are dominated by non-native species.

3.5.3 Allscale Scrub Alliance (36.340.00)

Allscale scrub alliance is dominated by allscale (*Atriplex polycarpa*), with additional other shrubs including cheesebush (*Ambrosia salsola*), fourwing saltbush (*Atriplex canescens*), alkali goldenbush (*Isocoma acradenia*), and bladderpod (*Peritoma arborea*). Some emergent trees may be present at low cover, including honey mesquite (*Prosopis glandulosa*). Shrub cover is open to continuous, with seasonal herbaceous cover. This alliance occurs in a variety of contexts, including in washes; playa lake beds and shores; alluvial fans; rolling hills; and edges of large, low-gradient washes. Soils are typically rich, alkaline, sandy, or sandy clay loam (CNPS 2023). The allscale scrub alliance is ranked by CDFW (2023b) as a G4S4 alliance. This ranking indicates that both globally and within California, the alliance is apparently secure (CDFW 2023b; NatureServe 2022).

3.6 Special-Status Plant Species

Results of USFWS, CNDDB, and CNPS database searches revealed 32 special-status plant species that are known to occur in the project site region (see Appendix B and Appendix C; Figure 6, California Natural Diversity Database (CNDDB)). All but two of these plant species were removed from further consideration due to lack of suitable habitat within or adjacent to the project site due to the site being outside of the species' known geographic or elevation range and/or the species not being identified during the field survey. In addition, the project site lacks undisturbed areas with unique habitat features preferred by special-status plant species, such as heavy clay soils, exposed serpentine or other rare soil types, and rocky openings or slopes within natural chaparral or woodland habitat. During the spring and fall 2022 rare plant surveys for the SJFD HCP, rare plants were identified and mapped in the project vicinity. Based on existing conditions and the SJFD HCP data, kern mallow (*Eremalche parryi* ssp. *kernensis*) has low potential to occur and San Joaquin bluecurls (*Trichostema ovatum*) has high potential to occur within the study area (DWR 2022).

Kern Mallow

Kern mallow is a federally protected, CRPR 1B.2 plant with low potential to occur. The nearest documented occurrence is approximately 1.5 miles southwest of the project site (CDFW 2023a). Grassland habitat on dry and sandy soils are present on site. During the spring 2022 protocol-level rare plant survey, Dudek botanists observed one plant along the northern boundary of the O&M Center property, approximately 0.25 miles from the proposed culvert replacement site.

San Joaquin Bluecurls

San Joaquin bluecurls is a CRPR 4.2 plant known to occur within the project site. Grassland habitat is present on site. During the spring 2022 rare plant surveys, Dudek botanists observed this plant along the north and eastern boundaries of the O&M Center property, including at the approximate location of the proposed culvert replacement.

3.7 Special-Status Wildlife Species

Results of the USFWS and CNDDB searches revealed 27 special-status wildlife species that are known to occur in the project site region (Appendix B and Appendix D). Based on Dudek's habitat suitability analysis, survey findings from SJFD HCP fieldwork, and biological surveys conducted for DWR projects on site and in the vicinity, three special-status wildlife species are known to occur or have a moderate to high potential to occur, and the remaining wildlife species have low potential or are not expected to occur in the study area. Special-status species that are known to occur or have moderate to high potential to occur are described further below.

California Glossy Snake

California glossy snake (*Arizona elegans occidentalis*) is a CDFW species of special concern found in grassland and rocky wash habitat with loose soils. There are eight documented occurrences within approximately 10 miles north, west, and south of the project site (CDFW 2023a). California glossy snake has moderate potential to occur on the project site.

Blunt-Nose Leopard Lizard

Blunt-nose leopard lizard (*Gambelia* sila) is a federally and state protected species under the Endangered Species Acts. It is found in sparsely vegetation alkali and desert scrub habitats, including semi-arid grasslands, alkali flats, and washes. There are 17 documented occurrences within approximately 10 miles south of the project site (CDFW 2023a). This species has moderate potential to occur, and protocol-level surveys are needed to confirm presence or absence.

San Joaquin Whipsnake

San Joaquin whipsnake (*Masticophis flagellum ruddocki*) is a CDFW species of special concern found in open, treeless grassland and saltbush habitat. There are two documented occurrences within approximately 10 miles south and northeast of the project site (CDFW 2023a). San Joaquin whipsnake has high potential to occur on the project site. Dudek biologists observed this species along the eastern boundary of the O&M Center property, approximately 300 feet from the proposed culvert replacement site. Additional observations north and south of the project site along the California Aqueduct have been recorded by Dudek biologists in 2021 and 2022.

San Joaquin Kit Fox

San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally and state protected species under the Endangered Species Acts. It is found in large tracts of relatively level terrain in the San Joaquin Valley and vicinity, particularly in well-drained habitats with scattered shrubs and grass and forb-dominated habitats. Marginally suitable habitat for the species is present along the project boundary There are five documented occurrences within five miles of the project site (CDFW 2023a). San Joaquin kit fox has a moderate potential to occur on the project site. During species-focused San Joaquin kit fox camera trap surveys in 2021, none were found. Dudek biologists observed no suitable burrows during the burrow habitat assessment surveys and confirmed March 2023 with an additional site visit.

Nesting and Migratory Birds

Shrubs, bare ground, abandoned equipment, and built structures in or adjacent to the project site and surrounding areas provide suitable nesting habitat for several local and migratory bird species. Native birds of prey are protected by California Fish and Game Code Section 3503.5, and migratory bird species are protected by the federal Migratory Bird Treaty Act. Multiple common and migratory birds were observed during field surveys conducted March 2023, including northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), common raven (*Corvus corax*), Say's phoebe (*Sayornis saya*), and white-crowned sparrow (*Zonotrichia leucophrys*). No active nests or nesting behaviors were observed on site, but a focused survey for nesting birds was not conducted during the field survey.

4 Conclusions and Recommendations

4.1 Jurisdictional Aquatic Resources

Approximately 23.36 linear feet of aquatic resources is present on the project site (discussed in Section 3.4). The ephemeral channel is anticipated to meet the criteria for jurisdictional aquatic resources subject to regulation by CDFW and the Regional Water Quality Control Board, but not USACE. The channel appears to have no connection to a traditional navigable water, so it is not expected to be jurisdictional under USACE. Thus, the project may require a Streambed Alteration Agreement and Waste Discharge Requirements issued by CDFW and the Regional Water Quality Control Board, respectively. The project would need to comply with the conditions of the aquatic resource permits, which normally include erosion control best management practices, water quality monitoring, pre- and post-project agency notifications, preconstruction surveys, environmental awareness training, and other measures to protect aquatic resources.

4.2 Special-Status Species

4.2.1 Plants

No plant species with federal or state listing status pursuant to the federal or California Endangered Species Act, or with a CRPR status of 1 or 2 have a potential to occur on or adjacent to the project site. San Joaquin bluecurls is present in the vicinity of the project site, but is not considered special status.

4.2.2 Wildlife

California Glossy Snake

During ground-disturbing activities, a biologist must be present to monitor for California glossy snake presence. The biologist may stop work if a California glossy snake is found and until it has moved out of the area of disturbance.

Blunt-Nosed Leopard Lizard

Protocol-level blunt-nosed leopard lizard surveys are required prior to the start of construction. Per CDFW protocol, surveys must be conducted when the air temperature is 77°F to 95°F, sustained winds are 10 miles per hour or less, and cloud cover is less than 90%. After the air temperature is recorded at the beginning of a survey, the temperature would be recorded periodically during surveys to ensure that the maximum temperature (95°F) is not exceeded. Surveys would be conducted entirely between 8:00 a.m. and 2:00 p.m.

San Joaquin Whipsnake

During ground-disturbing activities a biologist must be present to monitor for San Joaquin whipsnake. The biologist may stop work if a San Joaquin whipsnake is found and until it has moved out of the area of disturbance.

San Joaquin Kit Fox

During ground-disturbing activities a biologist must be present to monitor for San Joaquin kit fox. The biologist may stop work if a San Joaquin kit fox is found and until it has moved out of the area of disturbance.

Native and Migratory Nesting Birds

The proposed project would involve ground disturbance and removal of vegetation, which has the potential to impact native and migratory birds, should they be nesting in or adjacent to the project site prior to project construction. Nesting birds are protected by the Migratory Bird Treaty Act and California Fish and Game Code. Preconstruction nesting bird surveys must be conducted within 5 days prior to commencement of construction activities (including ground disturbance or vegetation removal) if project activities must commence during the nesting bird season (February 1 through September 15). If any active bird nests are detected during surveys, establishment of appropriate disturbance avoidance buffers that are a minimum of 100 feet surrounding an active nest, but varies depending on species and site-specific circumstances, would be required. Construction activities would not be permitted within any established nest buffer until the nest is determined by qualified personnel to be inactive.

5 References

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BASEMAP SOURCE: DWR 04/17/2023

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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SOURCE: DWR 04/17/2023; USDA

DUDEK

0 125 250 Feet

FIGURE 2

Soils

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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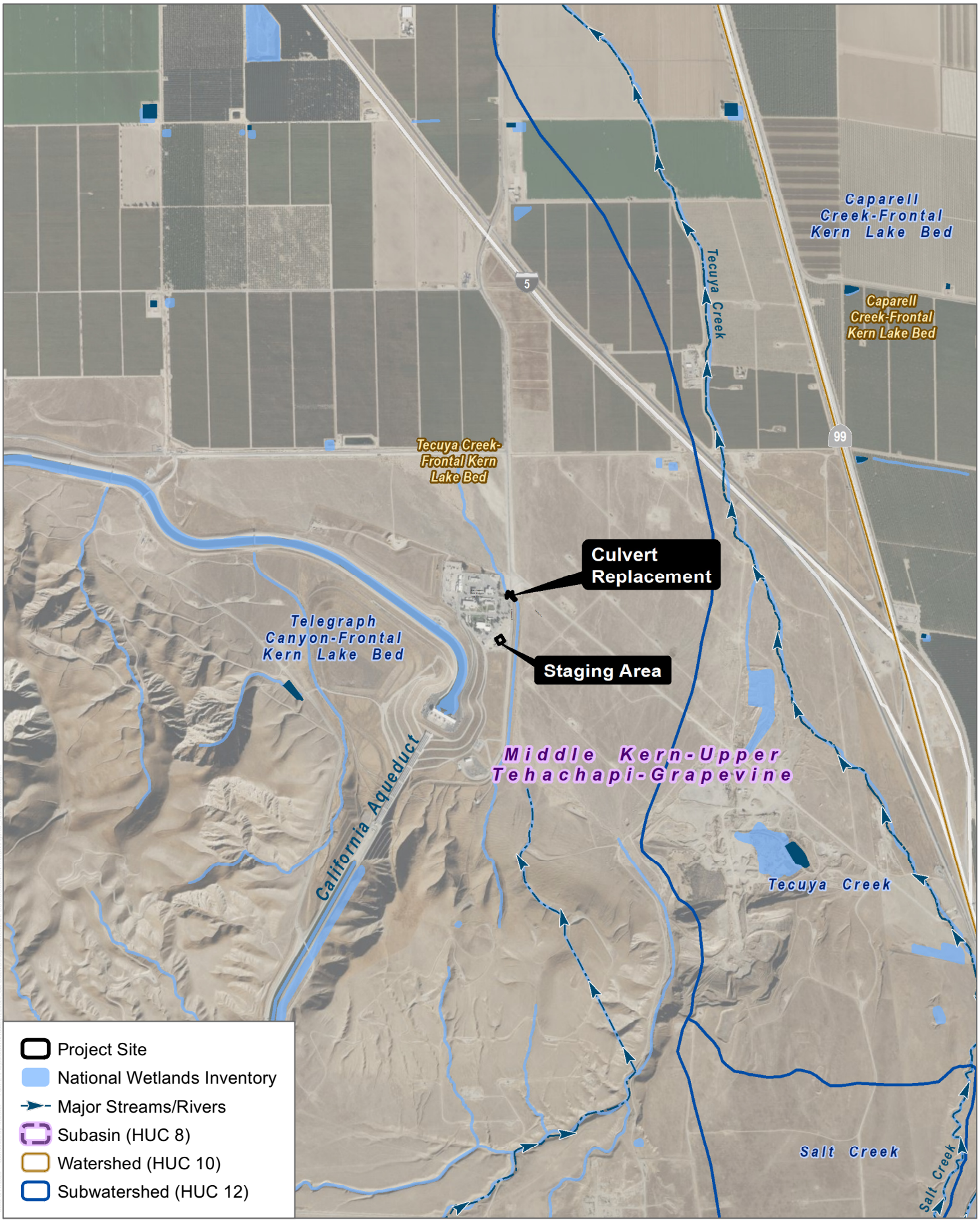

SOURCE: DWR 04/17/2023; USGS 2022; USFWS 2022

DUDEK

0 1,000 2,000 Feet

FIGURE 3

Hydrologic Setting

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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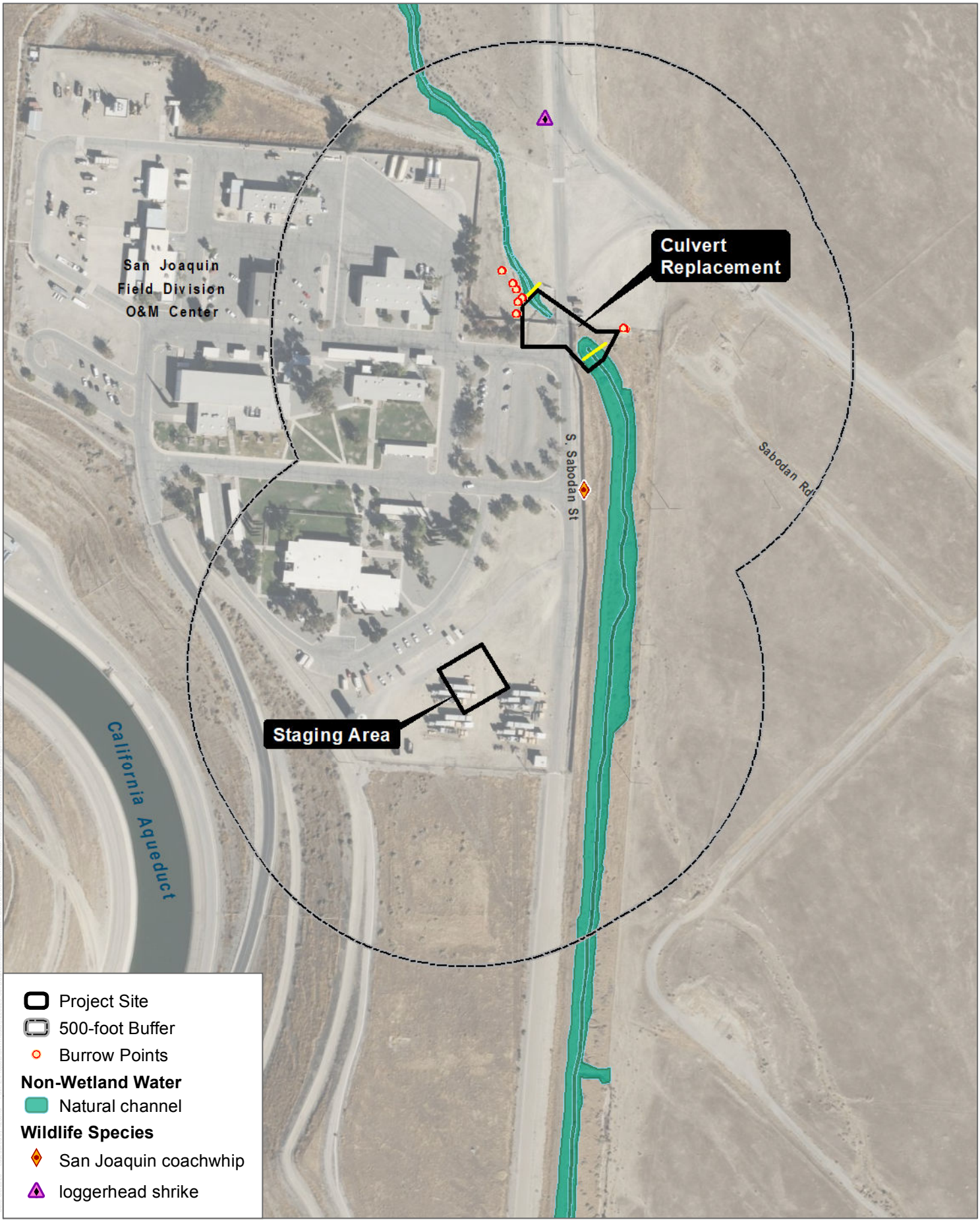

SOURCE: Bing, DWR 04/27/2023

DUDEK

0 125 250 Feet

FIGURE 4

On-site Biological Resources

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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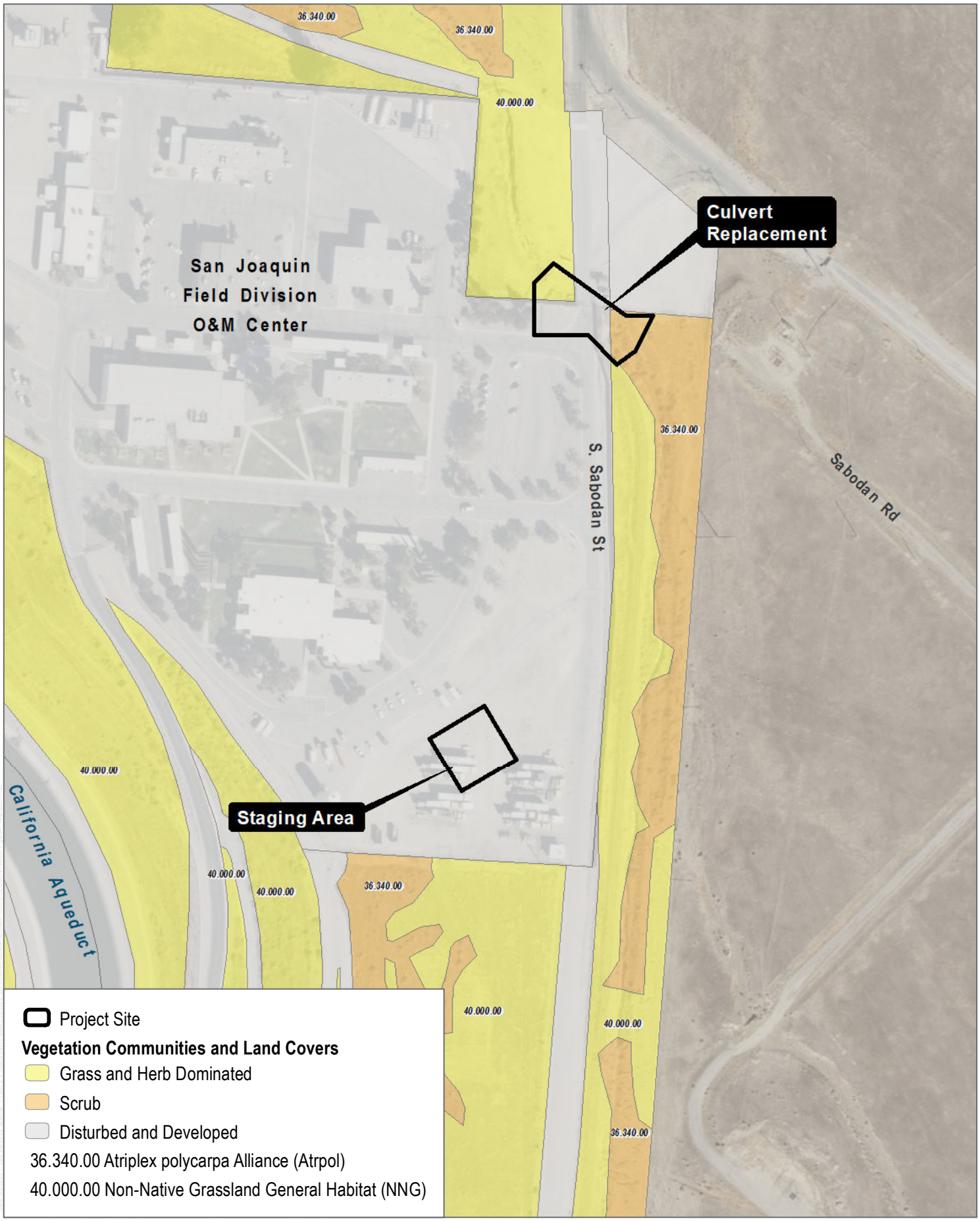

SOURCE: DWR 04/17/2023

DUDEK

0 100 200 Feet

FIGURE 5

Vegetation Communities and Land Covers

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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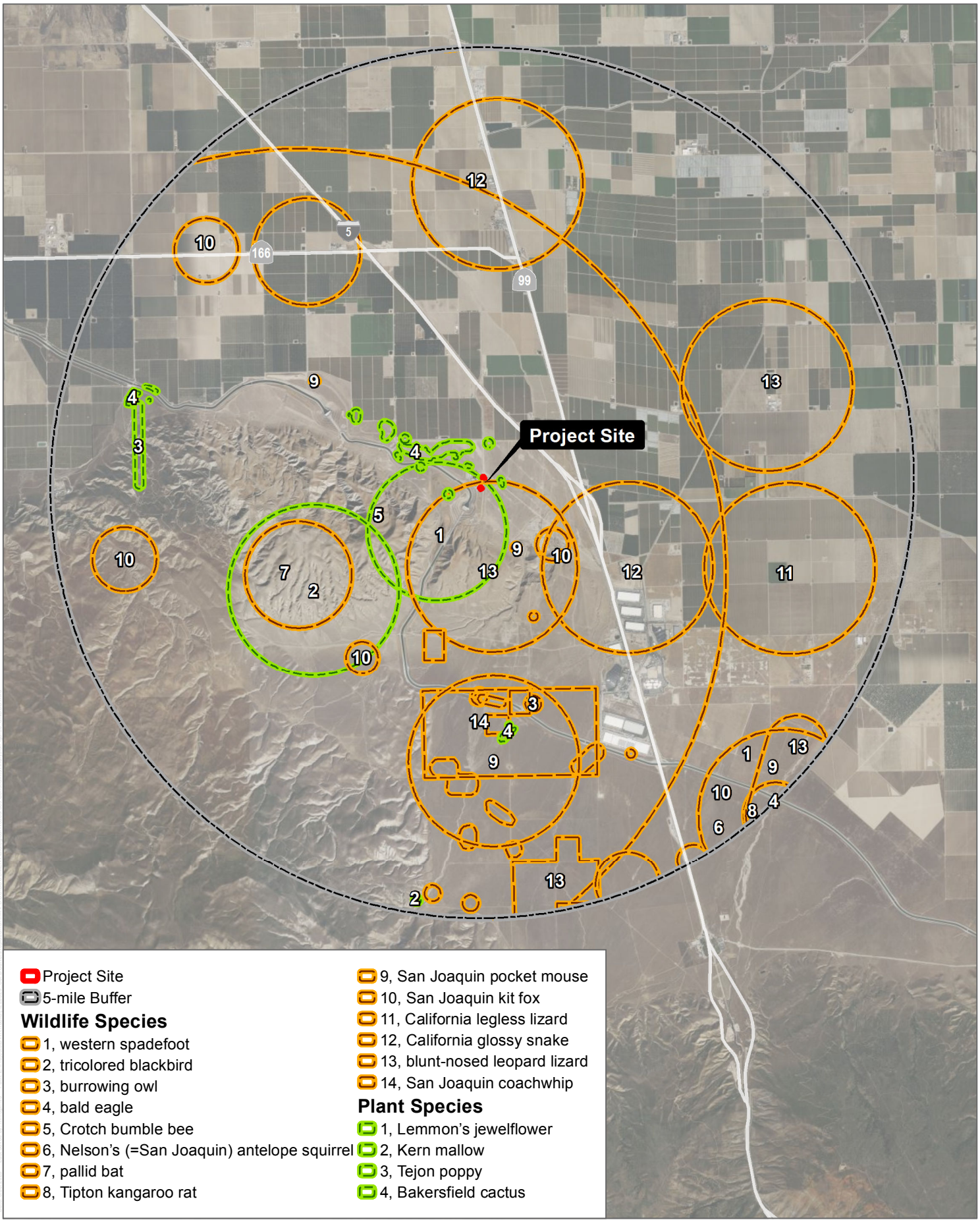

SOURCE: DWR 03/29/2023; CDFW 2023

DUDEK

FIGURE 6

California Natural Diversity Database (CNDDB)

San Joaquin Field Division Operation and Maintenance Center Drainage Culvert Replacement Project

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Appendix A

Photo Log

Photo 1. View of staging area from the south side.

Photo 2. View of staging area from the north side.

Photo 3. View of channel southeast of the road.

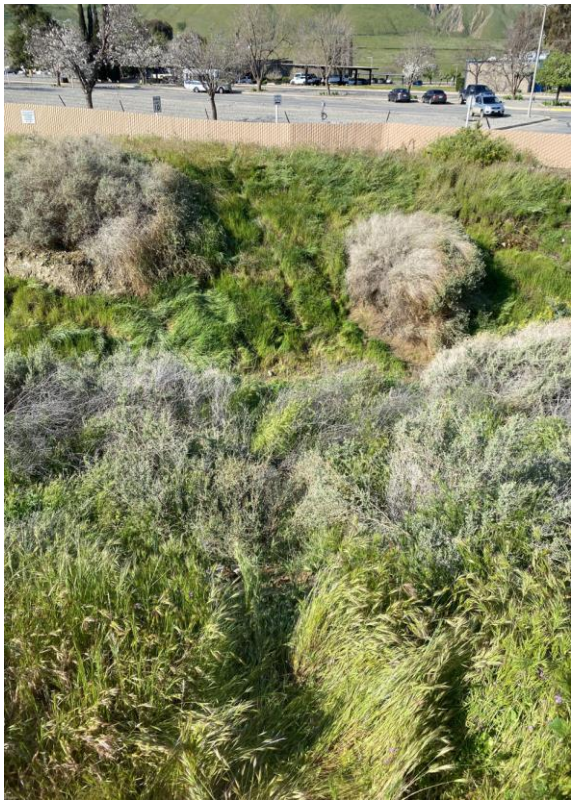

Photo 4. View of channel and adjacent non-native grassland southeast of the road.

Photo 5. View of channel northwest of the road.

Photo 6. View of existing culvert.

Photo 7. View of channel flowing north.

Photo 8. View of channel flowing north.

Appendix B

Species Compendium

Plant Species

Eudicots

ASTERACEAE – SUNFLOWER FAMILY

Erigeron canadensis—Canadian horseweed

Isocoma acradenia—alkali goldenbush

BORAGINACEAE – BORAGE FAMILY

Plagiobothrys nothofulvus—popcorn flower

BRASSICACEAE – MUSTARD FAMILY

* *Hirschfeldia incana*—short-pod mustard

CHENOPODIACEAE – GOOSEFOOT FAMILY

Atriplex polycarpa—allscale

CLEOMACEA – CLEOME FAMILY

Peritoma arborea—bladderpod

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys*—longbeak stork's bill
* *Erodium cicutarium*—redstem stork's bill

MALVACEAE – MALLOW FAMILY

* *Malva parviflora*—cheeseweed mallow

OROBANCHACEAE – BROOM-RAPE FAMILY

Castilleja exserta—exserted Indian paintbrush

Monocots

POACEAE – GRASS FAMILY

* *Bromus rubens*—red brome
* *Hordeum murinum*—mouse barley
* *Schismus arabicus*—Arabian schismus

Wildlife Species – Vertebrates

Reptiles

PHRYNOSOMATIDAE – IGUANID LIZARDS

Uta stansburiana—common side-blotched lizard

Birds

ICTERIDAE – BLACKBIRDS

Sturnella neglecta—western meadowlark

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis saya—Say's phoebe

CORVIDAE – JAYS AND CROWS

Corvus corax—common raven

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

PASSERELLIDAE – NEW WORLD SPARROWS

Zonotrichia leucophrys—white-crowned sparrow

* Signifies introduced (non-native) species.

Appendix C

Plant Potential to Occur

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, playas; lake margins, alkaline/annual herb/May–Oct/197–2,785	Not expected to occur. The nearest documented occurrences are approximately 11 miles north and south of the project site (CDFW 2022). No meadows, seeps, or playa habitat is present. The soils are slightly alkaline (Calflora 2022), but most of the site is developed with non-native grassland and bare ground. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Atriplex cordulata var. *cordulata*	heartscale	None/None/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy); saline or alkaline/annual herb/Apr–Oct/0–1,835	Not expected to occur. The nearest documented occurrence is approximately 11 miles northwest of the project site (CDFW 2022). No meadows or seeps habitat is present, but there is marginal chenopod scrub and valley and foothill grassland habitat near the project boundary. The soils are slightly alkaline and non-saline (Calflora 2022), but most of the site is developed with non-native grassland and bare ground. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Atriplex coronata var. *vallicola*	Lost Hills crownscale	None/None/1B.2	Chenopod scrub, valley and foothill grassland, vernal pools; alkaline/annual herb/Apr–Sep/ 164–2,080	Not expected to occur. The nearest documented occurrence is approximately 10 miles southeast of the project site (CDFW 2022). There is no vernal pool habitat present, but there is marginal chenopod scrub and valley and foothill grassland and slightly alkaline soils (Calflora 2022). This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Atriplex tularensis	Bakersfield smallscale	None/SE/1A	Chenopod scrub/annual herb/June–Oct/295–655	Not expected to occur. The site is outside of the species' known elevation range.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None/None/1B.2	Chaparral, lower montane coniferous forest, meadows and seeps; mesic/perennial bulbiferous herb/Apr–July/2,325–7,840	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Calochortus striatus	alkali mariposa lily	None/None/1B.2	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps; alkaline, mesic/ perennial bulbiferous herb/ Apr–June/230–5,230	Not expected to occur. There are no documented occurrences within 20 miles of the project site (CDFW 2022). Chaparral, Mojavean desert scrub, and meadow and seep habitat are not present. Marginal chenopod scrub and alkaline soils are on the project site (Calflora 2022). This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Caulanthus californicus	California jewelflower	FE/SE/1B.1	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland; sandy/annual herb/Feb–May/200–3,280	Not expected to occur. The nearest documented occurrence is approximately 13 miles northeast of the project site (CDFW 2022). The site lacks pinyon and juniper woodland, but chenopod scrub and annual grassland habitat is marginally present. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Caulanthus lemmonii	Lemmon's jewelflower	None/None/1B.2	Pinyon and juniper woodland, valley and foothill grassland/annual herb/Feb–May/262–5,180	Not expected to occur. The nearest documented occurrence is approximately 0.5 miles south of the project site (CDFW 2022). The site lacks pinyon and juniper woodland, but valley and foothill grassland habitat is marginally present. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Chloropyron molle ssp. *hispidum*	hispid bird's-beak	None/None/1B.1	Meadows and seeps, playas, valley and foothill grassland; alkaline/ annual herb (hemiparasitic)/ June–Sep/3–510	Not expected to occur. The site is outside of the species' known elevation range.
Cryptantha tumulosa	New York Mountains cryptantha	None/None/4.3	Mojavean desert scrub, pinyon and juniper woodland; gravelly or clay, granitic or carbonate/perennial herb/Apr–June/3,000–6,985	Not expected to occur. The site is outside of the species' known elevation range.
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	None/None/4.3	Chaparral, Mojavean desert scrub, pinyon and juniper woodland/ perennial herb/May–June/ 3,280–8,530	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Diplacus pictus	calico monkeyflower	None/None/1B.2	Broadleafed upland forest, cismontane woodland; granitic, disturbed areas/annual herb/ Mar–May/328–4,690	Not expected to occur. The nearest documented occurrence is approximately 8 miles southeast of the project site (CDFW 2022). The site lacks broadleafed upland forest and cismontane woodland habitat. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Eremalche parryi ssp. *kernensis*	Kern mallow	FE/None/1B.2	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland; on dry, open sandy to clay soils/annual herb/ Jan, Mar, Apr, May(Feb)/ 230–4,230	Low potential to occur. The nearest documented occurrence is approximately 1.5 miles southwest of the project site (CDFW 2022). Grassland habitat on dry and sandy soils is present. During the spring 2022 protocol-level rare plant survey, Dudek botanists observed this plant along the northern boundary of the Operations and Maintenance Center, approximately 0.25 miles from the project site.
Eriastrum hooveri	Hoover's eriastrum	None/None/4.2	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland; sometimes gravelly/annual herb/ (Feb)Mar–July/164–3,000	Not expected to occur. The nearest documented occurrence is approximately 12.5 miles northeast of the project site (CDFW 2022). Grassland habitat with gravelly soils is present but marginal. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Eriogonum gossypinum	cottony buckwheat	None/None/4.2	Chenopod scrub, valley and foothill grassland; clay/annual herb/ Mar–Sep/328–1,800	Not expected to occur. There are no occurrences within 10 miles of the project site (CCH 2023). Chenopod scrub and valley and foothill grassland habitat are present but marginal. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Erythranthe inconspicua	small-flowered monkeyflower	None/None/4.3	Chaparral, cismontane woodland, lower montane coniferous forest; mesic/annual herb/May–June/ 899–2,490	Not expected to occur. There are no occurrences within 10 miles of the project site (CCH 2023). The site lacks chaparral, cismontane woodland, and lower montane coniferous forest habitat. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Eschscholzia lemmonii ssp. *kernensis*	Tejon poppy	None/None/1B.1	Chenopod scrub, valley and foothill grassland/annual herb/ (Feb)Mar–May/525–3,280	Not expected to occur. The nearest documented occurrence is approximately 4 miles west of the project site (CDFW 2022). Chenopod scrub and valley and foothill

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				grassland habitat are present but marginal. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Fritillaria agrestis	stinkbells	None/None/4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland; clay, sometimes serpentinite/perennial bulbiferous herb/Mar–June/ 33–5,100	Not expected to occur. There are no documented occurrences within 20 miles of the project site (CDFW 2022). Grassland habitat is present and the site lacks serpentinite soils (Calflora 2022).
Gilia latiflora ssp. *cuyamensis*	Cuyama gilia	None/None/4.3	Pinyon and juniper woodland (sandy)/annual herb/Apr–June/ 1,950–6,560	Not expected to occur. The site is outside of the species' known elevation range.
Layia heterotricha	pale-yellow layia	None/None/1B.1	Cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland; alkaline or clay/annual herb/Mar–June/984–5,590	Not expected to occur. The site is outside of the species' known elevation range.
Layia leucopappa	Comanche Point layia	None/None/1B.1	Chenopod scrub, valley and foothill grassland/annual herb/ (Feb)Mar–Apr/328–1,145	Not expected to occur. The nearest documented occurrence is 7 miles northwest of the project site from 1988 (CDFW 2022). Chenopod scrub and valley and foothill grassland habitat are present but marginal. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Layia munzii	Munz's tidy-tips	None/None/1B.2	Chenopod scrub, valley and foothill grassland (alkaline clay)/ annual herb/Mar–Apr/ 492–2,295	Not expected to occur. The nearest documented occurrence is 14 miles northeast of the project site from 1935 (CDFW 2022). Chenopod scrub and valley and foothill grassland habitat are present but marginal. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Microseris sylvatica	sylvan microseris	None/None/4.2	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, valley and foothill grassland (serpentinite)/	Not expected to occur. The nearest documented occurrence is 13 miles northeast of the project site (CDFW 2022). Grassland habitat is present, but the site lacks serpentinite soils (Calflora 2022).

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
			perennial herb/Mar–June/ 148–4,920	
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2	Chenopod scrub, valley and foothill grassland (sandy)/annual herb/ Feb–May/197–2,620	Not expected to occur. The nearest documented occurrence is approximately 13 miles northeast of the project site (CDFW 2022). Chenopod scrub and annual grassland habitat are marginally present. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Navarretia setiloba	Piute Mountains navarretia	None/None/1B.1	Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland; clay or gravelly loam/annual herb/Apr–July/ 935–6,885	Not expected to occur. The site is outside of the species' known elevation range.
Nemophila parviflora var. *quercifolia*	oak-leaved nemophila	None/None/4.3	Cismontane woodland, lower montane coniferous forest/annual herb/May–June/2,295–7,215	Not expected to occur. The site is outside of the species' known elevation range.
Opuntia basilaris var. *treleasei*	Bakersfield cactus	FE/SE/1B.1	Chenopod scrub, cismontane woodland, valley and foothill grassland; sandy or gravelly/ perennial stem succulent/ Apr–May/328–4,755	Not expected to occur. The nearest documented occurrence is approximately 1 mile west and south of the project site (CDFW 2022). Grassland habitat on sandy and gravelly soils is present. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Perideridia pringlei	adobe yampah	None/None/4.3	Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland; serpentinite, often clay/perennial herb/ Apr–June(July)/984–5,905	Not expected to occur. The site is outside of the species' known elevation range.
Pseudobahia peirsonii	San Joaquin adobe sunburst	FT/SE/1B.1	Cismontane woodland, valley and foothill grassland; adobe clay/ annual herb/Feb–Apr/295–2,620	Not expected to occur. The nearest documented occurrence is approximately 13 miles northeast of the project site (CDFW 2022). The site lacks cismontane woodland, but annual grassland habitat is marginally

Scientific Name	Common Name	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
				present. Adobe clays soils are not present (Calflora 2022). This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Puccinellia simplex	California alkali grass	None/None/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools; alkaline, vernally mesic; sinks, flats, and lake margins/annual herb/Mar–May/ 7–3,050	Not expected to occur. The nearest documented occurrence is approximately 12 miles northeast of the project site, recorded in 1987 and potentially extirpated (CDFW 2022). Appropriate habitat is limited to annual grassland near the boundaries of the project site. This species was not observed within the project site during protocol-level rare plant surveys in 2022.
Ribes menziesii var. *ixoderme*	aromatic canyon gooseberry	None/None/1B.2	Chaparral, cismontane woodland/perennial deciduous shrub/Apr/2,000–3,805	Not expected to occur. The site is outside of the species' known elevation range.
Trichostema ovatum	San Joaquin bluecurls	None/None/4.2	Chenopod scrub, valley and foothill grassland/annual herb/(Apr–June)July–Oct/213–1,045	Known to occur. Grassland habitat is present. During the spring 2022 protocol-level rare plant survey, Dudek botanists observed this plant along the top of bank of the culverted feature and along the boundaries of the Operations and Maintenance Center.

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
CRPR: 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
4: Plants of Limited Distribution – A Watch List
Threat Rank
0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

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Appendix D

Wildlife Potential to Occur

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Amphibians				
Batrachoseps stebbinsi	Tehachapi slender salamander	BCC/ST	North-facing talus slopes in moist canyons supporting oak and mixed woodlands and/or yuccas in arid and semi-arid locations	Not expected to occur. The project site is not within the species range.
Spea hammondii	western spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Low potential to occur. There are two California Natural Diversity Database (CNDDB) occurrences within 2 miles of the project site, with one overlapping the project site (CDFW 2023). May use suitable grassland on site, as well asagricultural lands located adjacent to the project site.
Reptiles				
Anniella pulchra	California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	Low potential to occur. There is one documented occurrence within five miles of the project site (CDFW 2023).
Arizona elegans occidentalis	California glossy snake	None/SSC	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil	Moderate potential to occur. Suitable grassland habitat is present within the project site. There are two documented occurrences within five miles of the project site (CDFW 2023). Arid scrub and grassland habitat are present but marginal along the project boundaries.
Emys marmorata	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No suitable permanent or intermittent streams or open water on site. No CNDDB occurrence records within five miles of project site (CDFW 2023).
Gambelia sila	blunt-nosed leopard lizard	FE/FP, SE	Sparsely vegetated alkali and desert scrubs, including semi-arid grasslands, alkali flats, and washes	Moderate to high potential to occur. There are four documented occurrences within five miles of the project site (CDFW 2023). Desert scrub and semi-arid grassland habitat are present but marginal along the project boundary.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Masticophis flagellum ruddocki	San Joaquin whipsnake	None/SSC	Open, dry, treeless areas, including grassland and saltbush scrub	High potential to occur. There are two documented occurrences within approximately 10 miles south and northeast of the project site, but none within five miles (CDFW 2023). Open grassland habitat is present but marginal along the project boundary. Direct observation occurred on April 1, 2021, by Dudek biologists along eastern boundary of the Operations and Maintenance Center, approximately 300 feet from the culvert proposed for replacement.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains, including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. There are no documented occurrences within five miles of project site, closest occurrence is approximately 11 miles south of the project site (CDFW 2023). Open grassland habitat is present but marginal along the project boundary.
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	None/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	Not expected to occur. No suitable nesting habitat present.
Asio otus (nesting)	long-eared owl	None/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected to occur. No suitable riparian, live oak, or coniferous forest habitat for nesting on site or within 2 miles. No CNDDB occurrence records within five miles (CDFW 2023).
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Low potential to occur. There is one documented occurrence within five miles of the project site (CDFW 2023). No burrows associated with nesting were observed during the survey; however, the grassland and open space on site are capable of supporting foraging burrowing owls.
Buteo swainsoni (nesting)	Swainson's hawk	None/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and	Low to occur. The nearest CNDDB documented occurrence is approximately 11 miles north of the project site (CDFW 2023). Dudek biologists observed two individuals foraging 1.75 miles

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
			agricultural areas such as wheat and alfalfa fields and pasture	northwest of the project site in 2021. There are no trees on the project site for nesting; however, several trees within the Chrisman Pumping Plant property provide suitable nesting habitat.
Circus hudsonius (nesting)	northern harrier	BCC/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Low potential to occur. Not expected to nest.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. No suitable riparian habitat present.
Gymnogyps californianus	California condor	FE/FP, SE	Nests in rock formations, deep caves, and occasionally in cavities in giant sequoia trees (*Sequoiadendron giganteus*); forages in relatively open habitats where large animal carcasses can be detected	Not expected to occur. Habitat on site is relatively disturbed and no suitable cavities/rock formations present for nesting. No CNDDB occurrences within five miles of the site (CDFW 2023).
Haliaeetus leucocephalus (nesting and wintering)	bald eagle	FPD/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Known to occur in the area. A bald eagle was observed in January 2021 foraging near the western portion of the Chrisman Pumping Plant property. Not expected to nest on or within 2 miles of the Chrisman Pumping Plant property. Four CNDDB occurrences within five miles of the site (CDFW 2023)
Lanius ludovicianus (nesting)	loggerhead shrike	None/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Known to occur. Suitable nesting and foraging habitat present on the upstream side of the culvert within the project site. Observed near the Chrisman Pumping Plant Operations and Maintenance Center in 2017 and along B Road in 2021.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Progne subis (nesting)	purple martin	None/SSC	Nests and forages in woodland habitats, including riparian, coniferous, and valley foothill and montane woodlands; in the Sacramento region often nests in weep holes under elevated freeways	Not expected to occur. No suitable nesting habitat present on the Chrisman Pumping Plant property or within 2-mile buffer of project site. May pass through the project site during migration.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. No suitable riparian habitat on the Chrisman Pumping Plant property or within 2 miles.
Fishes				
Hypomesus transpacificus	Delta smelt	FT/SE	Sacramento–San Joaquin Delta; seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay	Not expected to occur. The project site is not within the species' range.
Mammals				
Ammospermophilus nelsoni	Nelson's antelope squirrel	BCC/ST	Arid annual grassland and shrubland with saltbushes (*Atriplex* spp.), California jointfir (*Ephedra californica*), bladderpod (*Physaria* spp.), goldenbushes (Astereae), snakeweed (*Gutierrezia* spp.)	Low potential to occur. Suitable habitat present on site. One CNDDB occurrence within five miles of the site (CDFW 2023.). No San Joaquin antelope squirrel nor sign was observed during surveys conducted in and around the Chrisman Pumping Plant property in 2017. This species was not observed during wildlife surveys conducted on the southern portion of the property in 2021.
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in human-made structures and trees	Low potential to occur. One documented occurrence within five miles of the project site, recorded in 1918 (CDFW 2023). Suitable roosting habitat is limited to the guard shack and culvert, and grassland habitat is marginal. Dudek biologists observed four individuals under a bridge approximately 1 mile northwest of the project site on June 23, 2021.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE	Alluvial fan and floodplain soils; habitat with one or two species of sparsely scattered shrubs and a ground cover of introduced and native annual grasses and forbs	Low potential to occur. One documented occurrence within approximately five miles of the project site (CDFW 2023). During species-focused kangaroo rat trapping surveys in 2022, the habitat assessment for the project site was determined to be unsuitable, with dense annual grasslands and no kangaroo rat burrows observed. During the March 2023 site visit, small mammal burrows were observed and mapped.
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE, BCC/SSC	Marshes, wetlands, streams, and sloughs along lake basins in southern San Joaquin Valley; historical occurrences include Buena Vista, Tulare, and Kern Lakes; distribution poorly known	Not expected to occur. There is one documented occurrence northwest approximately 7 miles of the project site (CDFW 2023). No suitable habitat is present.
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Low potential to occur. There are no occurrences within five miles of the project site(CDFW 2023). Open grassland habitat and friable soils are present, but marginal, along the project boundary. Dudek biologists observed no suitable burrows during the burrow habitat assessment surveys in 2021and again in March 2023.
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Grasslands and scrublands, including those that have been modified; oak woodland, alkali sink scrubland, vernal pool, and alkali meadow	Moderate potential to occur. There are five documented occurrences within 5 miles of the project site (CDFW 2023). Open grassland habitat is present but marginal along the project boundary. During species-focused San Joaquin kit fox camera trap surveys in 2021, none were found to be present on the project site. Dudek biologists observed no suitable burrows during the burrow habitat assessment surveys in 2021 and again in March 2023.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/None	Open grassland and scrub communities supporting suitable floral resources	Not expected to occur. There is one documented occurrence within five miles of project site, that overlaps with the project site, recorded in 1954 (CDFW 2023). Open grassland habitat is present but marginal with limited floral resources.
Branchinecta lynchi	vernal pool fairy shrimp	FT/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats	Not expected to occur. There are no documented occurrences within 20 miles of the project site (CDFW 2023). There are no vernal pools on the project site.
Danaus plexippus pop. 1	monarch	FC/None	Wind-protected tree groves with nectar sources and nearby water sources	Not expected to occur. No suitable habitat present.

Status Legend
Federal
BCC: U.S. Fish and Wildlife Service—Birds of Conservation Concern
FC: Candidate for federal listing as threatened or endangered
FE: Federally listed as endangered
FPD: Federally proposed for delisting
FT: Federally listed as threatened
State
FP: CDFW Fully Protected species
SE: State listed as endangered
SSC: California Species of Special Concern
ST: State listed as threatened

Reference

CDFW (California Department of Fish and Wildlife). 2022. RareFind 5. California Natural Diversity Database. CDFW, Biogeographic Data Branch. Accessed December 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx.

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Appendix C

Cultural Resources – Confidential

Appendix D

Noise Calculations

Appendix D- Noise

Construction Noise Model Input / Output

To User: bordered cells are inputs, unbordered cells have formulae
enter "0" to turn off air or grnd absorption terms, "1" to turn on

air abs? 1
grnd abs? 1

magnitude of threshold (dBA) = 80
allowable hours over which Leq is to be averaged = 8

Project Phase No.	Project Phase Description	Comparable FHWA RCNM Construction Equipment Type	Quantity	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Source to NSR Distance (ft.)	*Temporary Barrier Insertion Loss (dB)*	*Additional Noise Reduction*	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
1	demolition (of existing culvert	excavator	1	40	81	5000	0		31.2	8	480	27
		dozer	1	40	82	5000	0		32.2	8	480	28
		front end loader	1	40	79	5000	0		29.2	8	480	25
		dump truck	1	40	76	5000	0		26.2	8	480	22
		dump truck	1	40	76	5000	0		26.2	8	480	22
		All Other Equipment > 5 HP	1	50	85	5000	0		35.2	8	480	32
								Total Aggregate Noise Exposure from demolition (of existing culvert Phase				**35.4**
								Highest L_{max}	**35.2**			
3	Grading	grader	1	40	85	5000	0		35.2	8	480	31
		roller	1	20	80	5000	0		30.2	8	480	23
		front end loader	1	40	79	5000	0		29.2	8	480	25
		All Other Equipment > 5 HP	1	50	85	5000	0		35.2	8	480	32
		All Other Equipment > 5 HP	1	50	85	5000	0		35.2	8	480	32
		flat bed truck	1	40	74	5000	0		24.2	8	480	20
		All Other Equipment > 5 HP	1	50	85	5000	0		35.2	8	480	32
								Total Aggregate Noise Exposure from Grading Phase				**38.4**
								Highest L_{max}	**35.2**			
4	building construction (for new culvert)	crane	1	16	81	5000	0		31.2	8	480	-8
		Concrete Pump Truck	1	20	81	5000	0		31.2	8	480	24
		Concrete Pump Truck	1	20	81	5000	0		31.2	8	480	24
		Concrete Pump Truck	1	20	81	5000	0		29.2	8	480	24
		Concrete Mixer Truck	1	40	79	5000	0		29.2	8	480	25
		Concrete Mixer Truck	1	40	79	5000	0		29.2	8	480	25
		Concrete Mixer Truck	1	40	79	5000	0		29.2	8	480	25
		front end loader	1	40	79	5000	0		35.2	8	480	25
		All Other Equipment > 5 HP	1	50	85	5000	0		31.2	8	480	32
								Total Aggregate Noise Exposure from building construction (for new culvert) Phase				**35.8**
								Highest L_{max}	**35.2**			
5	Paving (if applicable, or site impovements)	paver	1	50	77	5000	0		27.2	4	240	21
		scraper	1	40	84	5000	0		34.2	4	240	27
		roller	1	20	80	5000	0		30.2	8	480	23
		All Other Equipment > 5 HP	1	50	85	5000	0		35.2	8	480	32
								Total Aggregate Noise Exposure from Paving (if applicable, or site impovements) Phase				**34.0**
								Highest L_{max}	**35.2**			

Appendix E

Tribal Consultation – Confidential