CALIFORNIA AQUEDUCT SUBSIDENCE PROGRAM - SUBSIDENCE AND GROUNDWATER MONITORING PROJECT

Prepared for
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CHAPTER 1
Introduction

This Initial Study (IS) and Mitigated Negative Declaration (MND) has been prepared by the California Department of Water Resources (DWR) to address the environmental impacts of the proposed California Aqueduct Subsidence Program (CASP) Subsidence and Groundwater Monitoring Project (proposed project) and to satisfy the requirements of the California Environmental Quality Act (CEQA). The DWR is planning installation of equipment to collect spatial information at approximately five (5) groundwater and subsidence monitoring stations along the California Aqueduct (Aqueduct) (approximately Mile Posts 213.0L, 230.6L, 259.6L, 271.2L, and 279.1L within the San Joaquin Field Division) (**Figure 1**). The proposed project would provide real-time data to monitor groundwater levels and other spatial information as they relate to ground subsidence. The data would be used to help inform how subsidence is affecting the Aqueduct and would assist in maintaining infrastructure of the State Water Project (SWP). The proposed project is described in more detail in Chapter 2.

1.1 Document Organization

Chapter 1 – Introduction. This chapter provides an introduction to the proposed project, organization of this document, purpose of the IS, and summary of findings.

Chapter 2 – Project Description. This chapter describes the proposed project, including project location, project objectives, activities to be conducted under the proposed project, and potential permits and/or approvals that may be required prior to implementation of the proposed project.

Chapter 3 – Initial Study Environmental Checklist. This chapter presents an analysis of implementation of the proposed project for the resource areas included in the CEQA Environmental Checklist Form (Appendix G of the CEQA Guidelines [14 CCR 15000 et seq.]). For each resource area question, the following is provided: (1) environmental setting; (2) discussion of the potential effects of implementing the proposed project; (3) finding of significance; and (4) any mitigation measures incorporated into the proposed project to reduce identified significant impacts to a less-than-significant level. This chapter lists the references used in preparation of this IS for each resource topic.

Following completion of the required 30-day public comment period, and before approving the proposed project, the DWR will consider the Mitigated Negative Declaration (MND) together with any comments provided during the public comment period and will adopt the MND if, based on the whole of the record: (1) there is no substantial evidence that the proposed project would have a significant effect on the environment; and (2) that it represents the DWR's independent

judgement and analysis. The DWR will also prepare and adopt a Mitigation Monitoring Reporting Program (MMRP) as part of the approval process as required under Public Resources Code (PRC) Section 21081.6(c) for mitigation measures identified in the MND.

1.2 Purpose of the Initial Study

This IS was prepared in accordance with PRC Section 21000 et seq. (CEQA) and Title 14 of the California Code of Regulations Section 15000 et seq. (CEQA Guidelines). The purpose of this IS is to: (1) determine whether implementation of the proposed project would result in potentially significant or significant effects to the environment; and (2) incorporate mitigation measures into the proposed project design, as necessary, to eliminate the proposed project's potentially significant or significant impacts or reduce them to a less-than-significant level.

1.3 Summary of Findings

Based on the analysis included in Chapter 3, implementation of the proposed project would result in no impact on the following resource areas:

- Agriculture and Forestry Resources
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Recreation
- Wildfire

Based on the analysis included in Chapter 3, implementation of the proposed project would result in less-than-significant impacts on the following resource areas:

- Aesthetics
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Public Services
- Transportation
- Utilities and Service Systems
- Air Quality

Based on the analysis included in Chapter 3, implementation of the proposed project would result in less-than-significant impacts following incorporation of mitigation measures into the proposed project on the following resource areas:

- Biological Resources
- Cultural Resources
- Geology and Soils
- Tribal Cultural Resources
- Energy
- Greenhouse Gas Emissions

SOURCE: ESRI, 2024; ESA, 2024.

California Aqueduct Subsidence Program-Subsidence and Groundwater Monitoring Project

Figure 1
Groundwater Monitoring Well Locations

ESA

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CHAPTER 2
Project Description

2.1 Background

The DWR owns, operates, and maintains the SWP, a complex system that supplies water to water agencies and districts in portions of the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. More than 27 million Californians receive a portion of their drinking water supply from the SWP, and about 750,000 acres of agricultural land, primarily in the San Joaquin Valley, are irrigated with SWP water (California Department of Water Resources 2024).

The Aqueduct is the SWP's primary method of transporting water from Northern California to Southern California. Subsidence or sinking of the land surface due primarily to overdraft of groundwater in the San Joaquin Valley (SJV) has occurred along the Aqueduct over the last century. Aqueduct-adjacent subsidence of up to 6 feet has occurred during the decades after 1967 (California Department of Water Resources 2017), resulting in loss of conveyance capacity and reduced operational range, as well as increased maintenance, repair, and energy costs (California Department of Water Resources 2017). During the drought of 2013 to 2016, some areas of the SJV experienced subsidence rates of nearly 1.25 inches/month, which is comparable to the subsidence rates observed prior to construction of the Aqueduct (California Department of Water Resources 2017).

The California Aqueduct Subsidence Program (CASP) is an initiative of the DWR the purpose of which is to develop and implement corrective and preventive measures to mitigate the effects of subsidence, while planning the cost-beneficial remediation of anticipated future subsidence of the Aqueduct. One such preventive measure involves the proposed project. Monitoring subsidence and groundwater conditions proximal to the Aqueduct provides information necessary to understand changing conditions along the Aqueduct and facilitates decision making regarding other preventive actions and cost-beneficial corrective actions.

2.2 Project Location

The proposed groundwater and subsidence monitoring stations would be located in five discontinuous areas totaling approximately 11.5 acres within the DWR San Joaquin Field Division in Kern County (Figure 1).

2.3 Project Objectives

The proposed project would provide real-time data to monitor groundwater levels and other spatial information as they relate to ground subsidence. The data would be used to help inform how subsidence is affecting the Aqueduct and would assist in maintaining infrastructure of the SWP.

2.4 Project Description

2.4.1 Description of Activities

The proposed project involves drilling below the ground surface within the Aqueduct right-of-way to depths of about 25 to 2,800 feet , and diameters of 6 to approximately 24 inches. Depths and diameters of drill holes are contingent to the infrastructure installed (i.e., monitoring well, extensometer, or continuous global positioning system [cGPS]) stations. Prior to the start of drilling, site preparation activities would include vegetation removal, grading of a work area measuring approximately 200 feet by 500 feet, and grading of an approximately 15-foot-wide path from the embankment road to the work area. Depth of site preparation activities would not be expected to exceed 6 inches below ground surface. Drill cuttings/spoils would be collected in roll-off bins or 55-gallon drum, dependent on volume, and removed from site for disposal.]. Drilling fluids (water and drill mud), if used, would be contained in tanks for later removal from site.

Groundwater monitoring well installations would require drill-hole diameters up to 24 inches near the ground surface, for conductor casing installation, and stepped down to a minimum of 10 inches at the lowest depths of the drill hole. The dimensions of the completed well pad would be approximately 4 feet by 4 feet with up to a well-head monument height of approximately 3 feet above existing ground surface. The well pad would be surrounded by concrete-filled bollards at each corner. Equipment used to install the monitoring wells is anticipated to include one drill rig (e.g., truck-mounted, Fraste FS400 mud rotary drill, or equivalent) and support equipment including equipment trailers and support truck, shaker table, backhoe, forklift, 20-yard bins, CONEX container(s), portable toilets, and passenger vehicles (e.g., trucks). Visqueen or plastic sheeting would be placed on the ground prior to setting up the drill rig and support equipment to capture potential leaks (e.g., fuel and hydraulic). If 24-hour shifts are required, two trailer mounted light towers and one additional transportation truck would also be used.

Extensometer installations would occur at approximately two of the five proposed monitoring stations. Methods and equipment for drilling activities during extensometer installation are identical to monitoring wells, with one modification. Drill holes are only required to be 10 inches in diameter to a depth consistent with the monitoring well installed at the site. A surface completion of concrete pad, bollards, and housing to protect equipment would be required for the footprint of the extensometer which is anticipated to beis not expected to exceed 12 feet by 12 feet.

Continuous GPS (cGPS) station installations would be completed using a limited-access drill rig (LAR) to drill a total of six, 6-inch-diameter holes per station. Five holes are drilled to install the cGPS antenna, and one hole for the telemetry/solar panel installation. The antenna installation drillholes are to depths of 35 feet; one, centered hole is drilled normal to the ground surface (i.e.,

straight down), the remaining four holes for antenna stabilization are drilled into the ground surface at a 45-degree angle. The stabilization drill holes extend radially out from the centered hole at 90-degree intervals. The cGPS antenna and telemetry/solar panel installations are set approximately 50 feet apart and require an approximately 1-foot-wide and 3-foot-deep excavated trench for a wiring conduit. The trench would be backfilled with excavated soils. Continuous GPS installations are commonly completed in one to two days and would not require night work.

All monitoring equipment would be powered by a new solar panel. No new diesel-powered equipment would be required for project operations.

Water may be needed temporarily during implementation of the proposed project. Water for dust suppression may be pumped from the Aqueduct. If that source of water is insufficient, and other sources cannot be used, the DWR would arrange for water to be brought to the project area from local water supplies for dust suppression.

Equipment and materials staging areas would be located on disturbed soils and asphalt within the Aqueduct right-of-way in close proximity to each of the drilling activities. Waste generated by construction activities would be contained to the immediate drilling area.

All supplies and unused materials would be removed from the site after completion of drilling and installation activities. The cuttings pit, if constructed, would be backfilled with the same material used to construct the pit berms at the time of excavation. Access to the sites would be made via the Aqueduct embankment road. Some ground improvements may be made for accessibility during wet and muddy conditions such as spreading gravel over unimproved ground surfaces. Approximately 10 construction vehicles, consisting of a drill ring, forklift, backhoe, and approximately 6 - 8 employees would be required to implement the proposed project.

2.4.2 Construction Considerations

All work would be completed above the water line to ensure that water deliveries would not be impacted. Construction of the proposed project is anticipated to begin in the summer of 2024 and conclude by the end of 2025 (approximately 18 months). Activities at each of the five well sites are expected to last 45 to 60 days. Construction activities would commonly occur between the hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, with weekends as an option; however, nightwork may be required to complete some of the deeper holes, requiring 24-hour drilling.

Approximately 6-8 construction workers are anticipated to be required during monitoring station installations. Access to construction areas would occur on existing roadways and service roads, including access roads on top of both sides of the Aqueduct embankments. No new roads would be required to access the construction areas. Staging areas for storage of materials and equipment would be located in previously disturbed roadways and road aprons adjacent to the Aqueduct.

Upon completion of the proposed project, all construction areas would be regraded to match pre-project conditions. Access roads would remain to facilitate future sampling and maintenance of monitoring stations. Any remaining stockpiles or materials would be removed from the site. Any

spoils deem useful for repurposing may be dumped within the existing right-of-way (e.g., borrow material).

2.4.3 Operation and Maintenance

Once the proposed monitoring wells are installed, existing staff would resume regular maintenance and operation of the proposed project in accordance with existing maintenance schedules. Operations would consist of monthly on-site check-ins to gather data, which include one truck on site to review the logs. Routine maintenance within the proposed project area includes pothole repair; vegetation removal; erosion repairs; building maintenance and inspections; broken liner panels repair and/or replacement; debris removal; and repair and maintenance at check gates.

2.5 References

California Department of Water Resources. 2017. *California Aqueduct Subsidence Study*. Last updated: June 2017.

——. 2024. SWP Facilities. Viewed online at: https://water.ca.gov/Programs/State-Water-Project/SWP-Facilities. Accessed: May 1, 2024.

CHAPTER 3
Initial Study and Environmental Checklist

1. Project Title:	Subsidence and Groundwater Monitoring Project
2. Lead Agency Name and Address:	California Department of Water Resources 715 P Street, Sacramento, CA 95814
3. Contact Person and Phone Number:	Philip Meyer, 916-837-3654
4. Project Location:	California Aqueduct within Kern County
5. Project Sponsor's Name and Address:	Same as Lead Agency
6. General Plan Designation(s):	N/A
7. Zoning:	N/A

8. Description of Project:

The proposed project involves installation of monitoring equipment at approximately five locations at depths of about 600 to 2800 feet near Aqueduct MilePosts 213.0L, 230.6L, 259.5L, 271.2L, and 279.1L.

9. Surrounding Land Uses and Setting.

The surrounding vicinity is rural and undeveloped except for agricultural uses.

10. Other public agencies whose approval is potentially required

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

See Section 3.2, *Environmental Checklist – Tribal Cultural Resources*, for details on tribal consultation.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below include impacts that are "Less Than Significant with Mitigation Incorporated." There are no environmental factors that have an impact that is identified as a "Potentially Significant Impact" as all potential significant impacts can be reduced to less than significant with the incorporation of mitigation measures.

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

☐ 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

6/11/2024

Signature Date

Signature Date

3.2 Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I.	**AESTHETICS —** Except as provided in Public Resources Code Section 21099, would the proposed 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 proposed project is in an urbanized area, would the proposed project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Environmental Setting

The entirety of the proposed project area is characterized by the concrete-lined Aqueduct canal and compacted soils that serve as access roads and the Aqueduct embankment. The proposed project area is largely uninhabited and surrounded by agricultural crops and oil fields. Agricultural uses near the proposed project area include sparse associated infrastructure, such as barns, warehouses, equipment, and storage areas. The topography of the proposed project area and surrounding vicinity is relatively flat. The primary roadways providing access to the proposed project area are State highways 41 and 46. There are no scenic parks or trails located near the proposed project area (California Department of Transportation 2024).

Discussion

a, c) The proposed project would be adjacent to the Aqueduct along existing access roads.

Once installed, the installations would sit on an approximately 2 feet by 2 feet pad at ground level with an approximate height of 3 feet above existing ground surface. Therefore, the proposed project would not have the scale or massing to obstruct or adversely impact expansive scenic vistas of distant hillsides, mountains, or surrounding agricultural lands within the proposed project area. Nor would they significantly adversely affect the existing visual character of the surrounding area.

Construction activities would include the short-term, approximately 18 months (60–90 days per well site), stockpiling of materials and equipment staging in designated staging areas adjacent to the Aqueduct along the access road. Therefore, they would not

permanently affect surrounding scenic vistas or resources or the existing visual character of the Aqueduct or surrounding areas. Once construction is completed, all project areas would be returned to pre-project conditions. Therefore, impacts to scenic vistas and the visual character and quality of public views in the proposed project area would be **less than significant**.

b) The project area is not located along a State Scenic Highway. Therefore, the proposed project would not impact scenic resources, which include rock outcroppings, trees, or historic buildings within a designated State Scenic Highway corridor and **no impact** would occur.

d) The proposed project area is located within a rural setting where primary sources of nighttime light and daytime glare are limited to sparse agricultural structures, some nighttime agricultural activities, and passing vehicles. The proposed project would not install or add new permanent sources of light or glare to the vicinity; however, some nighttime work could be required. Since the proposed project area is largely uninhabited and remote, the source of glare from nighttime construction activities is not likely to be seen by the public. In addition, construction activities would be short-term, approximately 60–90 days per well site. Therefore, impacts would be **less-than-significant** impacts from light or glare.

References

California Department of Transportation. 2024. Scenic Highways. Viewed online at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed: May 1, 2024.

Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant 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 Dept. 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 proposed 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?	☐	☐	☐	☒

Environmental Setting

The proposed project area is entirely within the Aqueduct right-of-way and dominated by the concrete lined canal, canal levee and gravel access road. There are no Department of Conservation (DOC) classified farmlands; lands under Williamson Act contracts; or lands with forestry resources within the proposed project area. There would be no change to existing land use conditions.

Discussion

a–e) The proposed project would occur entirely within the existing DWR right-of-way. There are no lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide importance or lands enrolled under a Wiliamson Act Contract in the proposed project area (California Department of Conservation 2024a, 2024b). There are no forestry resources within the proposed project area; therefore, there would be no conflict with existing zoning of forest land or cause rezoning of forest land, timberland, or timberland zoned for Timberland Production. The proposed project would not involve any changes to current General Plan land use or zoning designations. No other adverse impacts to the existing environment would occur from implementation of the proposed project that could result in conversion of farmland to non-agricultural use or forest land to non-forest use. Thus, **no impact** would occur.

References

California Department of Conservation. 2024a. Farmland Mapping and Monitoring Program. Viewed online at: https://www.conservation.ca.gov/dlrp/fmmp. Accessed: May 1, 2024.

——. 2024b. Williamson Act Program. Viewed online at: https://www.conservation.ca.gov/dlrp/wa. Accessed: May 1, 2024.

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant 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 proposed 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 proposed 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?	☐	☐	☐	☒

Environmental Setting

The proposed project sites are located the San Joaquin Valley Air Basin (SJVAB), which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is responsible for implementing programs and regulations required by the federal Clean Air Act (CAA) and the California CAA within the SJVAB. The SJVAB is currently designated as a non-attainment area for state and national ozone standards, state and national Particulate Matter $(PM)_{2.5}$ standards, and the state PM_{10} standard. The SJVAB is designated as "attainment" or "unclassified" with respect to all other criteria air pollutant standards (San Joaquin Valley Air Pollution Control District 2023).

The air district has developed a small project level screening tool to guide in the analysis of air quality impacts under CEQA during construction (San Joaquin Valley Air Pollution Control District 2020).

Discussion

a–c) As discussed above, the SJVAB is currently designated as a non-attainment area for federal and state standards with regard to $PM_{2.5}$ and ozone, and the state PM_{10} standard. In this capacity, SJVAPCD has prepared plans to attain federal and state ambient air quality standards for which it has been designated as non-attainment. The air quality plans include emissions inventories that identify sources of air pollutants, evaluations for feasibility of implementing potential opportunities to reduce emissions, computer modeling to estimate future levels of pollution, and a strategy for how air pollution will be further reduced.

Although nominal, the proposed project construction activities would result in emissions of ozone precursors (ROG and NOx) and PM in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and PM are primarily a result of the combustion of fuel from on-road vehicles and off-road

construction equipment. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously. These construction activities would temporarily generate air pollutant emissions in addition to dust and fumes. Particulate matter is among the pollutants of greatest localized concern with respect to construction activities and are regulated by SJVAPCD's Rule VIII, which limits fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities (San Joaquin Valley Air Pollution Control District 2024). The proposed project would be required to comply with these limits.

Overall, construction associated with the proposed project is expected to last approximately 18 months. Additionally, the proposed project would be exempt from quantifying criteria pollutant air quality emissions through the SJVAPCD's small project analysis levels if proposed project dimensions are less than 280,000 square feet and result in fewer than 550 daily one-way trips (San Joaquin Valley Air Pollution Control District 2020). Once operational, the proposed project would not create any new sources of air pollutant emissions and all wells and appurtenant facilities would be operated by solar power**.** The Aqueduct would operate similar to existing conditions and there would be no change in operations resulting in a new source of emissions. Existing staff would resume regular maintenance and operation of the Aqueduct following construction. Therefore, no new emissions would be generated as a result of proposed project operation. Proposed project operation would not conflict with or obstruct implementation of the regional air quality plan. **No impact** would occur.

CEQA defines cumulative impacts as two or more individual impacts which, when considered together, are either significant or "cumulatively considerable," meaning they add considerably to a significant environmental impact. An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed.

By its very nature, air pollution is largely a cumulative impact. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the SJVAB. The non-attainment status of the SJVAB with respect to regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of SJVAPCD's attainment plans. Consequently, the SJVAPCD's application of thresholds of significance for criteria pollutants is a relevant way to determine whether a project's individual emissions would have a cumulatively significant impact on air quality.

Per CEQA Guidelines Section 15064(h)(3), a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance

plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (San Joaquin Valley Air Pollution Control District 2024). The SJVAPCD has established thresholds of significance for criteria pollutant emissions, thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined to comply with the SJVAPCD's air quality plans and would not contribute a cumulatively considerable increase for these criteria pollutants (San Joaquin Valley Air Pollution Control District 2024b).

Sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. Residential areas are also considered sensitive to poor air quality because people usually stay home for extended periods of time, which results in greater exposure to ambient air quality.

The section of Aqueduct in which the proposed project would occur primarily runs through agricultural fields and undeveloped land. The area is rural and predominately uninhabited, and there are no sensitive receptors within 1,000 feet of any of the proposed project sites. Additionally, the proposed project's construction is linear in nature and is not anticipated to occur at any one site for an extended period of time. Operation of the proposed project would not result in any new emissions. The proposed project would not expose sensitive receptors to substantial criteria pollutants due to the lack of receptors near the proposed project site and the short-term nature of construction activity. Therefore, impacts would be **less than significant.**

d) Operation of the Aqueduct would be similar to existing conditions and would not introduce any new sources that would generate odorous emissions. Diesel-powered construction equipment can generate short-term, non-persistent odors due to engine exhaust, but these dissipate quickly and would likely not be noticeable beyond the work site. Additionally, as discussed above, the area surrounding the proposed project site is rural and uninhabited. Therefore, the proposed project would not create odors that could impact a substantial number of people, and **no impact** would occur.

References

San Joaquin Valley Air Pollution Control District. 2020. Small Project Level Analysis. Viewed online at: https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI-SPAL.PDF. Last updated: November 13, 2020.

——. 2024a. Ambient Air Quality Standards & Valley Attainment Status. Viewed online at: https://www.valleyair.org/aqinfo/attainment.htm. Accessed: May 1, 2024.

——. 2024b. Regulation VIII – Fugitive PM10 Prohibitions. Viewed online at: https://ww2.valleyair.org/rules-and-planning/current-district-rules-and-regulations/. Accessed: May 1, 2024.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES — Would the proposed project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Regulatory Setting

Federal

Endangered Species Act of 1973 (USC, Title 16, Sections 1531 through 1543)

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that United States Fish and Wildlife Service (USFWS) determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for

administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (e.g., to harass, harm, pursue, hunt, wound, kill) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at Code of Federal Regulation (CFR), Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in Section 3(5)(A) of the FESA: (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (USC, Title 16, Sections 703 through 711)

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

Federal Clean Water Act (USC, Title 33, Sections 1251 through 1376)

The federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project proponent for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain State certification, thereby ensuring that the discharge will comply

with provisions of the CWA. The Regional Water Quality Control Boards (RWQCB) each administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by U.S. Army Corp of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. USACE implementing regulations are found at CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

State

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no State agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project proponent would have to apply for an Incidental Take Permit under Section 2081(b) to remain in compliance with the CESA.

Regional Water Quality Control Board

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB also regulate waters of the State under the Porter-Cologne Act Water Quality Control Act (Porter-Cologne Act). The RWQCB require projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically require compensatory mitigation for impacts to wetlands and/or waters of the State. The RWQCB also have jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the State and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the applicable RWQCB and comply with other requirements of Porter-Cologne Act. The proposed project site is located within the jurisdiction of the Lahontan RWQCB.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the State fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point

sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The proposed project site is under the jurisdiction of the Lahontan RWQCB and its associated basin plan.

California Fish and Game Code

Sections 1600 through 1616. Under these Sections of the CFGC, the project operator is required to notify California Department of Fish and Wildlife (CDFW) prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

Sections 2080 and 2081. Section 2080 of the CFGC states that "No person shall import into this State [California], export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2080.1 or 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project proponent ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Sections 3503, 3503.5, 3513, and 3800. Under these Sections of the CFGC, the project proponent is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey or their nests or eggs; the taking or possessing of any migratory nongame bird as designated in the MBTA unless authorized by rules or regulations approved by the Secretary of the Interior; the taking, possessing, or needlessly destroying of the nest or eggs of any bird; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

Sections 3511, 4700, 5050, and 5515. Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the CFGC. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

Sections 4000 through 4003. Under Section 4000 of the CFGC, it is unlawful to conduct activities that would result in the taking, possessing, or destroying of any fur-bearing mammals, including desert kit foxes, without prior authorization from the CDFW.

CEQA *Guidelines*, Section 15380

In addition to the protections provided by specific federal and state statutes, CEQA *Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species nonetheless may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the Section of the CFGC dealing with rare or endangered plants or animals. This Section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA *Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (California Fish and Game Code Sections 1900 through 1913)

California's Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. The project proponent is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and Sections of CEQA that apply to rare or endangered plants.

Environmental Setting

The following environmental setting is based on the CASP Monitoring Wells Biological Resources Technical Report (BRTR) prepared by DWR in 2024 (**Appendix A**). The proposed project is located entirely within DWR's right-of-way, consisting of disturbed areas of sparce vegetation that includes paved and unpaved roads adjacent to the Aqueduct. The proposed project area also contains native and non-native herbaceous communities immediately adjacent to the Aqueduct, between the access road and adjacent agriculture fields within DWR's right-of-way. The information provided in this section was obtained from a desktop-level review of biological

resources and from biological assessments conducted in 2023 at each of the sites. In addition, results from assessment surveys associated with other DWR maintenance projects and other general activities conducted in the vicinity of the proposed project area between 2018 and present were incorporated into the analysis.

As described in the BRTR, species-specific surveys were conducted for special-status plants, San Joaquin kit (*Vulpes macrotis mutica*) fox dens, San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), sensitive kangaroo rats, burrowing owl (*Athene cunicularia*) and their burrows, raptor nesting, and blunt-nosed leopard lizard (*Gambelia sila*) where habitat was present (Appendix A). Special-status plant and animal species and sensitive habitats that may occur in the proposed project area were determined, in part, by reviewing natural resource agency databases and relevant literature and other sources. Additionally, the baseline biological survey data collected for a region wide Habitat Conservation Plan that is in development was also taken into consideration. Impacts to biological resources as a result of implementing the proposed project are further discussed below.

Natural Vegetation Communities and Land Covers

Natural vegetation communities and land cover types mapped within the proposed project area include alkali desert scrub, annual grassland, and barren. Alkali desert scrub was characterized by open stands of very low to moderately high (0.8–6.6 feet) grayish, spinescent, leptophyllous to microphyllus subshrubs and shrubs, which are physically uniform, widely spaced, and occur on relatively dry soils. Annual grassland was characterized by open grasslands composed of annual grasses and forbs, often occurring as an understory to other habitats. Great physical differences were characterized in the annual grassland communities between seasons and the species diversity and structure were found to depend largely on weather patterns and grazing activities. Barren land cover was characterized by the absence of vegetation. Any habitat with <2 percent total vegetation cover by herbaceous, desert, or non-wildland species and <10 percent cover by tree or shrub species was defined as barren. Barren areas may consist of sparse growth, rock, gravel, and soil. None of the habitat types mapped within the proposed project area meet the criteria for sensitive or rare natural communities. Thus, no sensitive natural communities occur within the proposed project area.

Special-Status Species

Special-status species are legally protected under the state and federal ESAs or other regulations or are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

1. Species listed or proposed for listing as threatened or endangered under the federal ESA (50 Code of Federal Code of Regulations 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]);
2. Species that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 40, February 28, 1996);
3. Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations 670.5);

4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
5. Animal species of special concern to the CDFW;
6. Animals fully protected under CFGC (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
7. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (State CEQA Guidelines, Section 15380); and
8. Plants considered under the CDFW and California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B, 2A, 2B, 3 or 4) (California Native Plant Society 2024).

A query of the CDFW California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife 2024), the CNPS online database (California Native Plant Society 2024), and the USFWS Information for Planning and Consultation Online System was conducted to identify special-status species that have been previously recorded within a three-mile radius or nine-quad search of the proposed project area. A list of plant and animal species detected during biological surveys conducted by DWR in 2023 are provided in the respective technical reports in Appendix A. A map depicting the results of the database queries is provided in Appendix A.

The potential for a special-status species to occur in the proposed project area is based on the following criteria:

- **No Potential:** The proposed project area is located outside of the species current range, or suitable habitat to support the species is not present.
- **Low Potential:** The proposed project area and/or immediate vicinity only provide limited habitat for a particular species. In addition, the proposed project area may lie outside the known range for a particular species.
- **Moderate Potential:** The proposed project area and/or immediate vicinity is located within the current range of the species, or there are nearby documented occurrences, and suitable habitat for the species may be present.
- **High Potential:** The proposed project area and/or immediate vicinity provide high-quality or ideal habitat (i.e., soils, vegetation assemblage, and topography) for a particular species; the species has been recently (since 2018) documented.
- **Present:** The species has been documented on site.

Special-Status Plants

Sixteen special-status plant species were identified as having a moderate to high potential to occur within the proposed project area including Bakersfield cactus (*Opuntia basilaris* var. *treleasei*; FE, SE, CRPR 1B.1), California alkali grass (*Puccinellia simplex*; CRPR 1B.2), California jewelflower (*Caulanthus californicus*; FE, SE, CRPR 1B.1), Lemmon's jewelflower (*Caulanthus lemmonii*; CRPR 1B.2), Comanche Point layia (*Layia leucopappa*; CRPR 1B.1), cottony buckwheat (*Eriogonum gossypinum*; CRPR 4.2), crownscale (*Atriplex coronata* var. *coronata*; CRPR 4.2), Lost Hills crownscale (*Atriplex coronata var. vallicola*; CRPR 1B.2), Douglas' fiddleneck (*Amsinckia douglasiana*; CRPR 4.2), Hoover's eriastrum (*Eriastrum*

hooveri; FD, CRPR 4.2), horn's milk-vetch (*Astragalus hornii* var. *hornii*; CRPR 1B.1), Kern mallow (*Eremalche parryi* ssp. *kernensis*; FE, CRPR 1B.2), oil neststraw (*Stylocline citroleum*; CRPR 1B.1), recurved larkspur (*Delphinium recurvatum*; CRPR 1B.2), San Joaquin bluecurls (*Trichostema ovatum*; CRPR 4.2), and San Joaquin woollythreads (*Monolopia congdonii*; FE, CRPR 1B.2). These species, including those with a low potential to occur, are present below in **Table 1**.

TABLE 1
POTENTIALLY OCCURRING SPECIAL-STATUS PLANT SPECIES WITHIN ALL SITES

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
heart-leaved thorn-mint *Acanthomintha obovate* ssp. *Cordata*	Federal: None State: None CRPR: 4.2	Apr-Jul	Chaparral (openings), cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1.
Howell's onion *Allium howellii* var. *howellii*	Federal: None State: None CRPR: 4.3	Mar-Apr	Valley and foothill grassland	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1.
Douglas' fiddleneck *Amsinckia douglasiana*	Federal: None State: None CRPR: 4.2	Mar-May	Cismontane woodland and valley and foothill grassland	**High.** Observed near MP 279.1 in 2021.
forked fiddleneck *Amsinckia furcata*	Federal: None State: None CRPR: 4.2	Feb-May	Cismontane woodland and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
oval-leaved snapdragon *Antirrhinum ovatum*	Federal: None State: None CRPR: 4.2	May-Nov	Chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Horn's milk-vetch *Astragalus hornii* var. *hornii*	Federal: None State: None CRPR: 1B.1	May-Oct	Meadows and seeps, and playas.	**Moderate.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Within CNPS estimated range.
Salinas milk-vetch *Astragalus macrodon*	Federal: None State: None CRPR: 4.3	Apr-Jul	Chaparral (openings), cismontane woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
heartscale *Atriplex cordulata* var. *cordulata*	Federal: None State: None CRPR: 1B.2	Apr-Oct	Chenopod scrub, meadows and seeps, and valley and foothill grassland (sandy).	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
Earlimart orache *Atriplex cordulata* var. *erecticaulis*	Federal: None State: None CRPR: 1B.2	Aug-Sep	Valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
crownscale *Atriplex coronata* var. *coronata*	Federal: None State: None CRPR: 4.2	Mar-Oct	Chenopod scrub, valley and foothill grassland, and vernal pools.	**Moderate.** Habitat is present at all sites. Within CNPS estimated range.
Lost Hills crownscale *Atriplex coronata* var. *vallicola*	Federal: None State: None CRPR: 1B.2	Apr-Sep	Chenopod scrub, valley and foothill grassland, and vernal pools.	**Moderate.** Habitat is present and within CNPS estimated range at MP 213.0 and 230.6.

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
Carrizo Plain crownscale *Atriplex flavida*	Federal: None State: None CRPR: 1B.3	Mar-Jul	Chenopod scrub, valley and foothill grassland, and vernal pools.	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
lesser saltscale *Atriplex minuscula*	Federal: None State: None CRPR: 1B.1	May-Oct	Chenopod scrub, playas, and valley and foothill grassland.	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
subtle orache *Atriplex subtilis*	Federal: None State: None CRPR: 1B.2	Jun-Sep	Valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Bakersfield smallscale *Atriplex tularensis*	Federal: None State: SE CRPR: 1A	Jun-Oct	Chenopod scrub.	**Low.** Habitat is not present at MP 271.2, but it is within CNPS estimate range.
alkali mariposa-lily *Calochortus striatus*	Federal: None State: None CRPR: 1B.2	Apr-Jun	Chaparral, chenopod scrub, Mojavean desert scrub, and meadows and seeps.	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
California jewelflower *Caulanthus californicus*	Federal: FE State: CE CRPR: 1B.1	Mar-May	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	**Moderate.** Habitat is present at all sites and within CNPS estimated range.
Lemmon's jewelflower *Caulanthus lemmonii*	Federal: None State: None CRPR: 1B.2	Feb-May	Pinyon and juniper woodland and valley and foothill grassland.	**High.** Habitat is present at MP 279.1 and CNDDB occurrences are within 3 miles.
hispid salty bird's-beak *Chloropyron molle* ssp. *hispidum*	Federal: None State: None CRPR: 1B.1	Jun-Sep	Meadows and seeps, and valley and foothill grassland	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
slough thistle *Cirsium crassicaule*	Federal: None State: None CRPR: 1B.1	May-Aug	Chenopod scrub, marshes and swamps (sloughs), and riparian scrub.	**Low.** Marginal habitat is present at MP 213.0 and 230.6. Within CNPS estimate range.
Kern Canyon clarkia *Clarkia xantiana* ssp. *parviflora*	Federal: None State: None CRPR: 4.2	May-Jun	Chaparral, cismontane woodland, Great Basin scrub, and valley and foothill grassland.	**Low.** Habitat is present at all sites, but outside of CNPS estimated range.
recurved larkspur *Delphinium recurvatum*	Federal: None State: None CRPR: 1B.2	Mar-Jun	Chenopod scrub, cismontane woodland, and valley and foothill grassland.	**Moderate.** Habitat is present at all sites and within estimate CNPS range.
Kern mallow *Eremalche parryi* ssp. *kernensis*	Federal: FE State: None CRPR: 1B.2	Mar-May	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	**Moderate.** Habitat is present at all sites and within CNPS estimate range.
Hoover's eriastrum *Eriastrum hooveri*	Federal: FD State: None CRPR: 4.2	Mar-Jul	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	**High.** Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6.
cottony buckwheat *Eriogonum gossypinum*	Federal: None State: None CRPR: 4.2	Mar-Sep	Chenopod scrub and valley and foothill grassland.	**High.** Habitat is present at all sites. The species has been observed in the vicinity of MP 279.1.

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
protruding buckwheat *Eriogonum nudum* var. *indictum*	Federal: None State: None CRPR: 4.2	May-Oct	Chaparral, Chenopod scrub, and cismontane woodland.	**Low.** Habitat is present at MP 213.0 and 230.6. Outside of CNPS estimate range.
Temblor buckwheat *Eriogonum temblorense*	Federal: None State: None CRPR: 1B.1	May-Sep	Valley and foothill grassland (clay, sandstone).	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
spiny-sepaled button-celery *Eryngium spinosepalum*	Federal: None State: None CRPR: 1B.2	Apr-Jun	Valley and foothill grassland and vernal pools.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
San Benito poppy *Eschscholzia hypecoides*	Federal: None State: None CRPR: 4.3	Mar-Jun	Chaparral, cismontane woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Tejon poppy *Eschscholzia lemmonii ssp. Kernensis*	Federal: None State: None CRPR: 1B.1	Mar-May	Chenopod scrub and valley and foothill grassland.	**Low.** Habitat is present at all sites. Outside of CNPS estimate range.
stinkbells *Fritillaria agrestis*	Federal: None State: None CRPR: 4.2	Mar-Jun	Chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Ferris' goldfields *Lasthenia ferrisiae*	Federal: None State: None CRPR: 4.2	Feb-May	Vernal pools (alkaline, clay).	**Low.** Habitat is not present but is within CNPS estimate range.
pale-yellow layia *Layia heterotricha*	Federal: None State: None CRPR: 1B.1	Mar-Jun	Cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Comanche Point layia *Layia leucopappa*	Federal: None State: None CRPR: 1B.1	Mar-Apr	Chenopod scrub and valley and foothill grassland.	**High.** Habitat is present at all sites. MP 271.2 is within CNPS estimate range and CNDDB occurrences within 3 miles.
Munz's tidy-tips *Layia munzii*	Federal: None State: None CRPR: 1B.2	Mar-Apr	Chenopod scrub and valley and foothill grassland (alkaline clay).	**Low.** Marginal habitat is present, but clay soils are not. Within estimated CNPS range.
showy golden madia *Madia radiata*	Federal: None State: None CRPR: 1B.1	Mar-May	Cismontane woodland and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
sylvan microseris *Microseris sylvatica*	Federal: None State: None CRPR: 4.2	Mar-Jun	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, and valley and foothill grassland.	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
San Joaquin woollythreads *Monolopia congdonii*	Federal: FE State: None CRPR: 1B.2	Feb-May	Chenopod scrub and valley and foothill grassland (sandy).	**Moderate.** Habitat is present at all sites and within estimated CNPS range.
Piute Mountains navarretia *Navarretia setiloba*	Federal: None State: None CRPR: 1B.1	Apr-Jul	Cismontane woodland Pinyon and juniper woodland Valley and foothill grassland	**Low.** Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.

Common Name *Scientific Name*	Listing Status	Flowering Period	Habitat Requirements	Potential for Occurrence
Bakersfield cactus *Opuntia basilaris* var. *treleasei*	Federal: FE State: SE CRPR: 1B.1	Apr-May	Chenopod scrub, cismontane woodland, and valley and foothill grassland.	**High.** MP 279.1 is within CNPS estimate range and CNDDB occurrences within 3 miles.
California alkaligrass *Puccinellia simplex*	Federal: None State: None CRPR: 1B.2	Mar-May	Chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools.	**Moderate.** Marginal habitat is present at all sites. The estimated CNPS range is near all sites.
oil neststraw *Stylocline citroleum*	Federal: None State: None CRPR: 1B.1	Mar-Apr	Chenopod scrub, coastal scrub, and valley and foothill grassland.	**High.** Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6.
San Joaquin bluecurls *Trichostema ovatum*	Federal: None State: None CRPR: 4.2	Jul-Oct	Chenopod scrub and valley and foothill grassland.	**Present.** Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6 and MP 279.1.

FE = Federally Endangered; SE= California Endangered; FT = Federally Threatened; ST= California Threatened; 1B.1= Plants Seriously Rare or Endangered in California; 1B.2 = Plants Rare, Threatened, or Endangered in California and Elsewhere

Special-Status Wildlife

Fourteen special-status wildlife species are present or have a moderate to high potential to occur within the proposed project areas including California glossy snake (*Arizona elegans occidentalis*; SSC), San Joaquin coachwhip (*Masticophis flagellum ruddocki*; SSC), California horned lark (*Eremophila alpestris actia*; WL), loggerhead shrike (*Lanius ludovicianus*; SSC), western burrowing owl (SSC), American badger (*Taxidea taxus*; SSC), San Joaquin antelope squirrel (ST), giant kangaroo rat (*Dipodomys ingens*; FE, SE), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*; FE, SE), Tulare grasshopper mouse (*Onychomys torridus tularensis*; SSC), San Joaquin kit fox (FE, ST), pallid bat (*Antrozous pallidus*; SSC), western mastiff bat (*Eumops perotis californicus*; SSC), and Crotch bumble bee (*Bombus crotchii*; SCE). In addition, although western spadefoot (*Spea hammondii*; FPT, SSC) was not identified as having a moderate or high potential to occur within the proposed project area, the species has been documented within 3 miles of MP 259.5; thus, is assumed present wherever suitable ponding habitat occurs on site. These species, including those with a low potential to occur, are presented below in **Table 2**.

TABLE 2
POTENTIALLY OCCURRING SPECIAL-STATUS WILDLIFE SPECIES WITHIN ALL SITES

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
AMPHIBIANS			
Spadefoot Toads (Scaphiopodidae)			
Western spadefoot *Spea hammondii*	Federal: FPT State: SSC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food source.	**None.** Habitat not present.
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	**Low.** The sites either do not provide suitable habitat or are heavily vegetated with shrubs or support disturbed grassland. Additionally, this species has not been documented on site. However, the species was observed over 3 miles south of MP 279.1 in 2023.
Egg-Laying Snakes (Colubridae)			
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas with friable soils for burrowing.	**Moderate.** Suitable habitat occurs on site at MP 259.5 and 271.2. No suitable habitat for this species occurs at the other sites.
San Joaquin coachwhip *Masticophis flagellum ruddocki*	Federal: None State: SSC	Inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects.	**Present.** Documented to use right of way of MP 230.6, MP 271.2 and MP 279.1 and suitable habitat occurs on site at MP 259.5.. Species is not likely to occur at the other sites.
BIRDS			
Hawks, Kites, Harriers, & Eagles (Accipitridae)			
Swainson's hawk *Buteo swainsoni*	Federal: BCC State: ST	Found in Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Low.** Hawks have been documented foraging in the area, but nesting habitat is not present.

Common Name ***Scientific Name***	**Listing Status**	**Habitat Requirements**	**Potential for Occurrence**
True Owls (Strigidae)			
Western burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	**High.** Suitable habitat is present at MP 230.6; however, the species has not been documented on site during DWR surveys. Low potential for this species to occur at other sites due to marginal habitat.
Shrikes (Laniidae)			
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Present.** Documented to use right of way of MP 213.0, MP 230.6, MP 259.5, and MP 271.2. Species is not likely to occur at MP 279.1.
Larks (Alaudidae)			
California horned lark *Eremophila alpestris actia*	Federal: None State: WL	Found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above the treeline. During the winter, this species typically flocks in desert lowlands.	**Present**. Documented to use right of way at MP 259.5. Species is not likely to occur at the other sites.
MAMMALS			
Free-Tailed Bats (Molossidae)			
Pallid bat *Antrozous pallidus*	Federal: None State: SSC	Roosts in rock crevices, old buildings, bridges	**High.** Foraging habitat is present, however roosting habitat is not present. Species is not likely to occur at the other sites.
Western mastiff bat (=greater bonneted bat) *Eumops perotis californicus*	Federal: None State: SSC	Known to occur in habitat consisting of extensive open areas within dry desert washes, flood plains, chaparral, cismontane oak woodland, coastal scrub, open ponderosa pine forest, and grasslands. Roosts primarily in crevices in rock outcrops and buildings.	**High.** Foraging habitat is present at MP 230.6; however, roosting habitat is not present. Species is not likely to occur at the other sites.
Squirrels & relatives (Sciuridae)			
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	Federal: None State: ST	Occurs in the western San Joaquin Valley from 60 to 360 meters elevation on dry, sparsely vegetated, loam soils. Selects areas with slopes from 0 to 20 degrees and uses widely scattered shrubs and annual forbs and grasses.	**Present.** Species documented at MP 213.o, MP 230.6, and MP 259.5 (habitat is marginal and species may use the area primarily for foraging). No or low potential for this species to occur at other sites due to no suitable habitat or marginal habitat on site.
Kangaroo rats, Pocket mice, & Kangaroo mice (Heteromyidae)			
Giant kangaroo rat *Dipodomys ingens*	Federal: FE State: SE	Inhabits fine sandy loam soils supporting sparse annual grass/forb vegetation and marginally found in low-density alkali desert scrub.	**Present**. Species documented on site at MP 230.6. Species is not likely to occur at the other sites.

Common Name ***Scientific Name***	**Listing Status**	**Habitat Requirements**	**Potential for Occurrence**
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	Federal: FE State: SE	Inhabits arid, alkaline, annual grassland and shrubland associations between 60 and 90 meters above sea level. Also found in sparse cover of plants and alkaline soils with a high clay content and seasonal flooding.	**Present.** Species documented on site at MP 230.6. No or low potential for this species to occur at other sites due to no suitable habitat or marginal habitat.
Mice, Rats, & Voles (Muridae)			
Tulare grasshopper mouse *Onychomys torridus tularensis*	Federal: None State: SSC	Found primarily on sandy or gravelly soils in open and semi-open habitats. Found in the southern San Joaquin Valley, Carrizo Plain, Cuyama Valley, and nearby foothills of the Sierra Nevada and Tehachapi Mountains.	**Present.** Species documented on site at MP 230.6. No or low potential for this species to occur at other sites due to a lack of habitat or presence of marginal habitat.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	**High.** Suitable habitat is present at MP 230.6 and species has been documented foraging on site at MP 230.6. No or low potential for this species to occur at other sites due to a lack of habitat or presence of marginal habitat. Species may use right of way as corridor only at MP 259.5, 271.2, and 279.1.
Weasels & relatives (Mustelidae)			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	**Present or High.** Species has been documented on site at MP 230.6 and 271.2. Suitable habitat occurs on site at MP 230.6, MP 259.5, and MP 271.2. Low potential for this species to occur at other sites due to marginal habitat.
INSECTS			
Bumble Bees (Bombus)			
Crotch bumble bee *Bombus crotchii*	Federal: None State: CE	Occurs primarily in California. Prefers grassland and scrub areas within drier climates. They overwinter in leaf litter and soft soil.	**Moderate.** Marginal habitat is present at MP 271.2 and MP 279.1. No potential for this species to occur at other sites due to a lack of suitable habitat.

NOTES: FP= Fully protected; FE = Federally Endangered; FPT = Federally Proposed Threatened; SE= California Endangered; CE=Candidate Endangered; FT = Federally Threatened; ST= California Threatened; SSC = California Species of Special Concern; BCC= Birds of Conservation Concern; WL= Watchlist.

Special-Status Amphibians

Western Spadefoot

Western spadefoot is federally proposed as threatened and CDFW species of special concern. This species is not known to occur at any of the sites; however, an occurrence was recorded in CNDDB within three miles of MP 259.5. Therefore, this species is assumed to be present wherever habitat occurs, such as sites with areas of ponding that fill during high rainfall events that persist for at least 11 weeks, typically between October to May. This species lives in a wide range of habitats, including lowlands to foothills, grasslands, open chaparral, and pine-oak woodlands. It prefers shortgrass plains, sandy or gravelly soil (e.g., alkali flats, washes, alluvial fans). It is fossorial and breeds in temporary rain pools and slow-moving streams (e.g., areas flooded by intermittent streams). Although ponding has not been observed at MP 259.5 in 2024, an examination of aerial maps shows a pond present in March 2023. Due to the lack of ponding in 2024, it has been determined that suitable habitat is not currently present at MP 259.5, therefore, there is no potential for the species to occur.

Special-Status Reptiles

Blunt-nosed Leopard Lizard

The blunt-nosed leopard lizard is a relatively large lizard species that is native to the saltbush (*Atriplex sp*.) and alkali shrubland habitats of the San Joaquin Valley and occurs between 100 and 2,400 feet above mean sea level (amsl). It is listed as state endangered, state Fully Protected, and federally endangered. Blunt-nosed leopard lizards are carnivorous, generally feeding on grasshoppers, cicadas, and small lizards (including other leopard lizards). They are known to utilize mammal burrows for shade and hibernation and generally do not excavate their own burrows. The blunt-nosed leopard lizard hibernates in the winter and is active between March and late June or July. The distribution of the blunt-nosed leopard lizard has been reduced through habitat impacts and conversion from oil exploration and cultivation operations (California Department of Fish and Wildlife 2020).

The blunt-nosed leopard lizard is not known to occur at any of the sites. Although MP 230.6 contains portions of suitable habitat, blunt-nosed leopard lizards have not been observed during any surveys, including focused surveys, conducted in 2018 and 2022. The surveys adhered to seasonal timing and weather windows necessary for aboveground lizard activity.

California Glossy Snake

The California glossy snake inhabits arid scrub, rocky washes, grasslands, and chaparral habitats, and generally prefers microhabitats of open areas with friable soils for burrowing. Although some diurnal activity has been reported, glossy snakes are most active at night (Zeiner et al. 1988–1990). Individuals are most commonly encountered in May and June in the southern portion of their California range (Zeiner et al. 1988–1990). In the interior Coast Ranges, another activity peak occurs prior to the first rains of fall (Zeiner et al. 1988–1990) and periods of winter inactivity occur at all localities. Suitable habitat for this species is present in portions of the MP 259.5 and MP 271.2 sites.

San Joaquin Coachwhip

The San Joaquin coachwhip inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub, where they take refuge in rodent burrows, under shaded

vegetation, and under surface objects (Zeiner et al. 1988–1990; California herps 2024). This species is diurnal and is usually active mid-morning and late afternoon from March through October (Zeiner et al. 1988–1990). Observations for this species have been documented at MP 230.6, MP 271.2, and MP 279.1, and suitable habitat for this species is present in portions of the MP 259.5 site.

Special-Status Birds

Western Burrowing Owl

The western burrowing owl is a small diurnal owl that generally occurs throughout dry, open areas dominated by grasses and/or forbs up to 1,600 feet amsl. It is a species of concern with the CDFW. It preys on small mammals, reptiles, and birds; roosts/breeds in ground squirrel burrows; and is known to inhabit man-made structures, such as irrigation pipes. This species has declined throughout its range within California due to habitat conversion (California Department of Fish and Wildlife 2020).

Western burrowing owl habitat is present at MP 230.6 and marginal habitat is present at MP 213.0 and MP 259.5. There has been no occurrence of the species in the project area; however, occurrences have been recorded in CNDDB within three miles at all three sites. The sites located at MP 213.0 and MP 259.5 have had nearby occurrences, however, the potential habitat within the sites is severely degraded and therefore is not considered suitable for the species. The Aqueduct consists of a strip of land known as the right of way that neighbors the developed structure. The right of way may provide cover and food for small mammals, which are prey sources. Ground squirrel burrows and dens exist in portions of the Aqueduct embankment at all potential project sites. The embankment therefore can be a suitable habitat.

Swainson's Hawk

This State threatened species is an uncommon breeding resident and migrant within the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County and the Mojave Desert. Swainson's hawks' prey upon various small mammals, large arthropods, amphibians, reptiles, and rarely fish. They are known to nest within juniper-sage flats, riparian areas, and in oak savannah, and forage in adjacent grasslands, grain/alfalfa, livestock pastures. Nest sites are typically near the top of a solitary tree or in a small grove of trees along a stream. Pairs often build nests in shelterbelts or other trees located near agricultural fields and pastures where they feed. Nesting trees often include willow, black locust, oak, aspen, cottonwood, and conifers. In the southern part of their range Swainson's Hawks will build nests as little as three feet off the ground in mesquite bushes, and on occasion, they'll nest on a power pole or transmission tower. It is thought that breeding throughout California has been on a sharp decline due to a loss of nesting habitat.

Swainson's hawks have been observed in the proximity of MP 213.0, 230.6, and 259.5; however, there have been no occurrences of nesting within 2 miles of any of the sites within the project area. Swainson's hawks are observed throughout the Central Valley during the spring and summer. The species depends on annual grasslands and agricultural fields for foraging. The species also requires structures or trees for nesting opportunities. The sites at MP 213.0, 230.6, and 259.5 provide suitable foraging habitat for this species; however, no sufficient nesting

opportunities occur in the vicinity of the proposed project area, only small power poles and adjacent orchards.

California Horned Lark and Loggerhead Shrike

Two special-status bird species occur within the proposed project area: California horned lark and loggerhead shrike. California horned lark is a state watch list species observed at MP 259.5 and loggerhead shrike is a CDFW species of special concern which was observed at MP 213.0, MP 230.6, 259.5, and MP 271.2. Portions of the proposed project area provide suitable foraging and breeding habitat for these species.

Special-Status Mammals

Pallid Bat and Western Mastiff Bat

A diversity of bat species has been documented using bridges along the Aqueduct, including two CDFW species of special concern: pallid bat and western mastiff bat. Pallid bats prefer dry, open habitats (i.e., grasslands, shrub-steppe, and dry forests), but also live in rocky arid deserts, coniferous forests, and areas with water. Pallid bats roost in cliffs, caves, mines, bridges, buildings, and occasionally use tree snags for day roosts. Western mastiff bats roost in crevices in rock outcrops, cliff faces, tunnels, and tall buildings, and require open areas with a vertical drop for roosting.

Pallid bat was detected during acoustic surveys conducted in 2021 and an unknown bat species was observed in the bridge crevices during the 2023 general assessment. Roosting habitat does not occur within the proposed project footprint, there is only foraging habitat present. California myotis (*Myotis californicus)* was also recorded at MP 271.2. Western mastiff was recorded at a bridge a little under a mile from MP 230.6, but roosting habitat is not available at the sites within the project area.

San Joaquin Antelope Squirrel

The San Joaquin antelope squirrel is listed as State threatened and is a permanent resident of the San Joaquin Valley, ranging between 200 and 1,200 feet amsl. This species primarily feeds on insects, green foliage and seeds, and small vertebrates. These squirrels live in small underground familial colonies on sandy, easily excavated grasslands in isolated locations in San Luis Obispo and Kern Counties. San Joaquin antelope squirrel prefers deep, rich soil types since they are easy to dig through in both winter and summer temperatures (Hawbecker 1953). They may live in burrows of their own construction or take over and enlarge those dug by kangaroo rats. The San Joaquin antelope squirrel is generally considered diurnal; however, it avoids the hottest part of the day. Cultivation and overgrazing have been instrumental in the decline of this species within its range (California Department of Fish and Wildlife 2020).

San Joaquin antelope squirrel was found present at MP 213.0, MP 230.6, and MP 259.5 in 2021, and may occur in portions of the MP 271.2 site. However, observations of this species were infrequent within the proposed project footprint at MP 213.0 and MP 259.5 and the habitat within these sites are marginal.

Giant Kangaroo Rat

The giant kangaroo rat is a federally and State endangered species that occurs throughout portions of the western San Joaquin Valley, within sparse annual grass/forb vegetation and alkali desert shrubland with fine, sandy/loamy soils. Giant kangaroo rats prefer annual grassland on gentle slopes of generally less than 10 degrees, with friable, sandy-loam soils. They develop burrow systems with one to five or more separate openings. There are generally two types of burrows: 1) vertical shaft with a circular opening and no dirt apron and 2) larger, more horizontally-opening shaft, usually wider than high with a well-worn path leading from the mouth. Reproduction is influenced by population density and availability of food. This species currently occupies approximately 2 percent of its former range and its population decline is thought to be the result of cultivation, damage caused by domesticated cattle and use of rodenticides.

Marginal habitat due to high density of shrubs or highly disturbed non-native grassland without shrubs present occur on all sites within the project area. Observations of small mammal burrows within the sites were determined to be primarily associated with California ground squirrel and gopher burrows. Giant kangaroo rates have not been documented within three miles of the sites and therefore the species is unlikely to occur at all sites within the project area except the MP 230.6 site. Giant kangaroo rat occurrences were recorded during the 2018 and 2022 trapping efforts at the MP 230.6 site.

Tipton Kangaroo Rat

The Tipton kangaroo rat is a subspecies of the San Joaquin kangaroo rat (U.S. Fish and Wildlife Service 2020) that occurs within alkali shrubland and ancillary herbaceous habitats within the southwestern San Joaquin Valley, at elevations up to 1,800 feet amsl. It is listed as federally and State endangered. This species collects seeds of annual grasses and forbs for immediate consumption and for caching in holes excavated adjacent to their burrows. Tipton kangaroo rat prefers flat topography and sandy loam soils to excavate burrows; however, burrows may also be located in slightly elevated mounds, the berms of roads, canal embankments, railroad beds, and bases of shrubs and fences where wind-blown soils accumulate above the level of surrounding terrain. Tipton kangaroo rat is known to develop burrow complexes of up to 144 square feet. According to a burrow study on Tipton's kangaroo rat and Heerman's kangaroo rat (*D. heermanni tulernsis*) in fallow fields of the southern San Joaquine Valley, Tipton's kangaroo rat burrow length varied between 0.75 to 3.5 meters (2.5 to 11.5 feet) (Germano and Rhodehamel 1995). Soft soils, such as fine sands and sandy loams, and powdery soils of finer texture and of higher salinity generally support higher densities of Tipton kangaroo rats than other soil types (California State University, Stanislaus 2020). Burrows are typically simple but may include interconnecting tunnels. Most are less than 10 inches deep (U.S. Fish and Wildlife Service 2010). Rapid urbanization and cultivation have been instrumental in the decline of this species within its range (California Department of Fish and Wildlife 2020).

Tipton kangaroo rat was observed at the MP 230.6 site during 2018 and 2022 trapping efforts. Tipton kangaroo rat has a low potential to occur at MP 213.0, MP 259.5, and MP 271.2. Extremely marginal habitats due to a high density of shrubs or highly disturbed non-native grassland without shrubs present occur on the sites; thus, this species is unlikely to occur on the other sites. Although small mammal burrows were observed at the sites, the bulk of burrows

within the proposed project area were California ground squirrel and gopher burrows along the embankments of the right-of-way or at the fence line.

Tulare Grasshopper Mouse

The Tulare grasshopper mouse is a CDFW species of special concern and one of 10 currently recognized subspecies that can be distinguished by its smaller size and slightly darker dorsal coloration (pale grayish-drab tinged with dark pinkish-cinnamon) (Bolster 1998). This species is thought to be primarily nocturnal and active year-round. Tulare grasshopper mouse inhabits low, open scrub and semi-scrub habitats (i.e., alkali desert scrub and desert scrub). The social unit is reported to be a male-female pair with offspring in a burrow system with a wide home range. Males home range is approximately 3.2 hectares (7.8 acres) and females have a home range of 2.4 hectares (5.9 acres). Their nests typically occur in a burrow system that may have been abandoned. Habitat loss and agricultural conversion are the primary reason for this species decline in the San Joaquin Valley.

Tulare grasshopper mouse was observed at MP 230.6 as recorded during 2018 and 2022 trapping efforts. Tulare grasshopper mouse has a low potential to occur at MP 213.0, MP 259.5, and MP 271.2 due to extremely marginal habitats, such as high density of shrubs or highly disturbed non-native grassland without shrubs present occur on the sites; thus, this species is unlikely to occur on the other sites. Although small mammal burrows were observed at the sites, the bulk of burrows within the proposed project area were California ground squirrel and gopher burrows along the embankments of the right-of-way or at the fence line.

San Joaquin Kit Fox

The San Joaquin kit fox is a small subspecies of kit fox that occurs in native shrub-dominated habitat within the San Joaquin Valley and is listed as federally endangered and State threatened. This species feeds on various small prey items, including black tailed jackrabbits, desert cottontail, kangaroo rats, ground squirrels, snakes, lizards, and small birds. The San Joaquin kit fox excavates its own dens in sandy and/or friable soils and, due to seasonally extreme temperatures, for thermal regulation and water conservation. Agriculture and oil exploration have eliminated much of the San Joaquin kit fox habitat (California Department of Fish and Wildlife 2020).

CNDDB contains records for occurrences of San Joaquin kit fox within three miles of all sites. Dens suitable in size for this species were observed at all sites; however, no signs of use, such as, scat, small mammal remains, paw prints, oblong or keyhole entrances of the den. Canid scat or prints observed on site were typical of coyote or dog based on sizing and shape. In 2019, a San Joaquin kit fox was recorded on a trail camera at MP 230.6, but an occupied burrow was never identified.

American Badger

The American badger is a medium-sized mammal that occurs in dry, shrub-dominated habitats throughout California. It is designated as a species of special concern by the CDFW. This species primarily feeds on fossorial rodents and excavates its own burrows in sandy, friable soils. The American badger is active year-round and functions both diurnally and nocturnally. This species is uncommon throughout its range within the state.

An American badger was recorded in 2019 on a trail camera within the footprint at the MP 230.6 and 271.2 sites, however no dens were observed within the footprint of MP 230.6 in 2019 and 2023 surveys. Suitable dens with potential activity were also observed at the MP 259.5 site. Surveys in 2023 and 2024 observed potential suitable and active dens within the proposed footprint of MP 259.5 and 271.2.

Special-Status Invertebrates

Crotch Bumble Bee

Crotch bumble bee is a fuzzy pollinator with a robust, rounded body with short, dense fur, and contrasting black and yellow or orange on the abdomen makes it a distinctive bumble bee species. It is found between San Diego and Redding in a variety of habitats including open grasslands, shrublands, chaparral, margins of deserts in Joshua tree and creosote scrub, and semi-urban settings. It also occurs in Mexico and has been documented in southwest Nevada, near the California border. California's Central Valley once served as a primary population center for the species. Once common throughout its range, the bumble bee is now absent from much of its former range. They are social insects that live in annual colonies composed of a queen, workers, and reproductive members of the colony (new queens, or gynes, and males). Worker and male bees are active from late March to September, with worker and male abundance peaking in early July. Queen bees are active from late February to late October, peaking in early April and a second pulse occurring in July. Bumble bee colony success is dependent on suitable foraging, nesting, and overwintering sites; thus, diverse habitat features increase the likelihood of nesting and overwintering sites. Nests are often located underground, in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Generally, bumble bee species are known to dig a few centimeters into soft, disturbed soil and form chambers for the queen to spend the duration of the winter, overwinter in small cavities just below or on the ground surface, or under leaf litter or other debris. Its short tongue corresponds with open flowers with short corollas, including milkweeds, dust maidens, lupins, medics, phacelias, sages, clarkias, poppies, and wild buckwheat. Crotch bumble bee records and observations in California are most commonly associated with plants in the following plant families: Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, Boraginaceae, Hydrophylloideae, and Asclepiadoideae.

CNDDB records of Crotch bumble bees occur within three miles of the MP 271.2 and MP 279.1 sites. Both sites contain portions of grassland and flowering herbaceous vegetation. The sites are dominated by nonnative grasses and ruderal herbs offering marginal habitat to the species.

Migratory and Nesting Birds and Raptors

Migratory and Nesting Birds

The proposed project area supports a diversity of other migratory birds. Northern harrier (*Circus hudsonius)*, red-tailed hawks (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), greater road runner (*Geococcyx californianus*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), lesser nighthawk (*Chordeiles acutipennis)*, rock wren (*Salpinctes obsoletus)*, and killdeer (*Charadrius vociferus*) were all recently observed throughout the sites. Annual grassland provides nesting and foraging habitat for this species, as well as the adjacent agricultural fields and fallowed lands. Additionally, cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) are known to occur wherever nesting structures such as bridges or overhangs

are present. At MP 271.2 and MP 297.2 bridges are located approximately 500 feet from the proposed project footprints where swallow nesting has been recorded.

Wildlife Corridors

Wildlife movement generally fall into three basic categories: (a) wildlife movement along corridors or habitat linkages associated with home-range activities such as foraging, territory defense, and breeding; (b) dispersal movements—typically one-way movements; and (c) temporal migration movements—essentially dispersal actions which involve a return to the place of origin. Habitat connectivity at each of the sites can be considered north to south along the Aqueduct, east to west across the Aqueduct, and the open water environment of the Aqueduct.

The Aqueduct generally runs north to south along the Central Valley and can be considered a link to habitat adjacent to it. The north to south connection along both sides of the aqueduct is open and provides a potential movement corridor or temporary habitat for wildlife to traverse. However, the Aqueduct itself presents a barrier for terrestrial wildlife to move/migrate in a west-to-east direction between large open space areas. Periodic bridges, over chutes, and utility crossings across the canal provide terrestrial passage from one side of the Aqueduct to the other, and these structures, and crossings may be used for individual wildlife to cross from one side of the canal to the other, and for nesting and roosting. As for open water, waterfowl and coastal bird species often use the Aqueduct as a resting area during the spring and fall migratory periods. Bats and birds forage for insects over the open water.

The proposed project area is located within the Pacific Flyway, a large bird migration corridor between Alaska and South America that is approximately 4,000 miles in length and 1,000 miles across that encompasses states of the intermountain west and those that border the Pacific Ocean, in the United States including all of California, Oregon, Washington, Idaho, Utah, Nevada, Alaska, and Hawaii, as well as parts of Montana, Wyoming, Colorado, and New Mexico. Bird migration along the Pacific Flyway occurs in a north-south direction. Primary migration routes in California occur along the coast for ocean-going species, and through the Central Valley and eastern deserts of southern California. Important habitats and stopovers for migrating birds in the Pacific Flyway include protected coastal waters, as well as interior freshwater sources like the many refuges that exist in the Central Valley. The Aqueduct supports a consistent, perennial source of fresh water that is utilized by birds for foraging and as a stop-over during spring and fall migration along the Pacific Flyway. Additionally, native habitat located within the proposed project area and along DWR's right-of-way provides foraging and breeding opportunities for a number of terrestrial wildlife species.

Critical Habitat for Plant and Wildlife Species

The USFWS defines the term critical habitat in the FESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

There is no critical habitat present within or adjacent to the proposed project site. The nearest critical habitat is for the Buena Vista Lake ornate shrew located approximately four miles to the north of the proposed project area.

Jurisdictional Resources

The Aqueduct is not a water of the U.S. or water of the State subject to the jurisdictional permitting requirements of Section 404 and 401 of the Clean Water Act. In addition, aquatic resources do not occur at the sites. Only one ephemeral creek or drainage is identified near MP 271.2. A branch of Pleitito Creek intersects the California Aqueduct where a confined channel carries flow over a siphoned portion of the Aqueduct. Pleitito Creek's source is from the San Emigdio Mountains and the area consists of desert riparian habitat dominated by tamarisk (*Tamarix spp.*).

Discussion

a) All activities would occur within the existing DWR right-of-way. Given the short duration of the impact and the relatively small acreage of direct impact associated with the drilling (relative to the proposed project area), coupled with the proposed avoidance and minimization measures, the proposed project is expected to have a **less-than-significant impact with mitigation incorporated** on special-status species as outlined below.

Construction

Special-Status Plants

As discussed above, 16 special-status plants were identified as having a moderate to high potential to occur within the proposed work areas. Specifically, crownscale, Lost Hills crownscale, California jewelflower, recurved larkspur, Kern mallow, Hoover's eriastrum, cottony buckwheat, Comanche Point layia, San Joaquin woollythreads, California alkaligrass, oil neststraw, and San Joaquin bluecurls have a moderate to high potential to occur within MP 213.0; crownscale, Lost Hills crownscale, California jewelflower, recurved larkspur, Kern mallow, Hoover's eriastrum, cottony buckwheat, Comanche Point layia, San Joaquin woollythreads, California alkaligrass, oil neststraw, and San Joaquin bluecurls have a moderate to high potential to occur within MP 230.6; Horn's milk-vetch, crownscale, California jewelflower, recurved larkspur, Kern mallow, Hoover's eriastrum, cottony buckwheat, Comanche Point layia, San Joaquin woollythreads, California alkaligrass, oil neststraw, and San Joaquin bluecurls have a moderate to high potential to occur within MP 259.5; Horn's milk-vetch, crownscale, California jewelflower, recurved larkspur, Kern mallow, Hoover's eriastrum, cottony buckwheat, Comanche Point layia, San Joaquin woollythreads, California alkaligrass, oil neststraw, and San Joaquin bluecurls have a moderate to high potential to occur within MP 271.2; and Douglas' fiddleneck, Horn's milk-vetch, crownscale, California jewelflower, Lemmon's jewelflower, recurved larkspur, Kern mallow, Hoover's eriastrum, cottony buckwheat, Comanche Point layia, San Joaquin woollythreads, Bakersfield cactus, California alkaligrass, oil neststraw, and San Joaquin bluecurls have a moderate to high potential to occur within MP 279.1.

Proposed project-related activities have the potential to impact these special-status plant species if present within the monitoring well footprints or construction equipment staging areas through the removal of plants and their habitat. Therefore, the proposed project

would implement **Mitigation Measure BIO-1** (Avoid and Minimize Effects to Special-Status Plants) and **Mitigation Measure BIO-2** (Minimize Effects to Special Status Plants), which would ensure that special-status plant species are identified, avoided, and compensated if impacted by construction of the proposed project, and provides requirements for seed collection and dispersal for special-status plant species that cannot be avoided during construction. Furthermore, implementation of **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction to inform crews about sensitive species. With implementation of **Mitigation Measures BIO-1 through BIO-4**, it is not anticipated that any special-status plant species or habitat would be affected and impacts to special-status species would be less than significant with mitigation incorporated.

Special-Status Amphibians and Reptiles

California Glossy Snake and San Joaquin Coachwhip

Two special-status reptiles, California glossy snake (SSC) and San Joaquin coachwhip (SSC), are present or have a moderate to high potential to occur within the proposed work areas. Specifically, California glossy snake has a moderate potential to occur within the arid scrub, rocky washes, grasslands, and chaparral habitats in open areas with friable soils in portions of the MP 259.5 and MP 271.2 site. San Joaquin coachwhip was observed or has a moderate potential to occur in the open, dry, treeless areas in portions of the MP 230.6, MP 259.5, MP 271.2, and MP 279.1 site. Although no special-status amphibians were identified to have a moderate or high potential to occur within the proposed project area, western spadefoot (FPT, SSC) has been documented within 3 miles of the MP 259.5 site; thus, is assumed present wherever suitable ponding habitat occurs on site.

These species are mobile and would likely be able to avoid active construction areas. Although it is unlikely that the proposed project would result in direct mortality to special-status amphibians and reptiles if present during construction, these species can be slow moving and may be crushed by construction equipment or trapped in trenches. Indirect impacts to these species may occur through habitat loss from construction activity; however, indirect impacts would be temporary, and these areas would return to their natural condition following the completion of work. Due to the potential for the proposed project to impact special status amphibians and reptiles, the proposed project would implement **Mitigation Measure BIO-5** (Avoid Effects to Special-Status Snakes) and **Mitigation Measure BIO-6** (Minimize Effects to Special-Status Snakes), which would require avoidance and minimization measures to ensure the species is able to leave on its own regard. Furthermore, **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start

of construction to inform crews about sensitive species. With implementation of **Mitigation Measures BIO-3 through BIO-6**, impacts to special status amphibians and reptiles from construction activities would be reduced to a less than significant level.

Special-Status Birds

California Horned Lark, Loggerhead Shrike, and Western Burrowing Owl

Three special-status bird species including California horned lark, loggerhead shrike, and western burrowing owl were identified as being present or having a moderate to high potential to occur within the proposed work areas. Specifically, California horned lark was determined to be present within MP 259.5; loggerhead shrike was determined to be present within MP 213.0, MP 230.6, MP 259.5, and MP 271.2; and western burrowing owl has a high potential to occur within MP 230.6. Construction activities have the potential to result in direct mortality to these species if any are present within the proposed work areas; therefore, impacts are potentially significant.

Breeding and nesting behavior of loggerhead shrike and California horned lark birds may be impacted if nests are located near work areas. These activities could cause direct mortality to adults sitting on nests, direct mortality of eggs or young, adult abandonment of nests, and/or reproductive failure. The nesting season extends from February 1 through September 1. Impacts to loggerhead shrike and California horned lark would be avoided by conducting proposed project construction activities outside of the nesting season, if feasible. Furthermore, implementation of **Mitigation Measure BIO-7** (Avoid and Minimize Effects to Migratory Bird Species) would require nesting bird surveys, followed by establishment of buffers between nests and construction activities. With implementation of **Mitigation Measure BIO-7**, impacts to loggerhead shrike and California horned lark would be reduced to a less than significant level.

Indirect impacts to western burrowing owl from noise and vibration during construction activities could occur if a burrowing owl is breeding or wintering within areas of suitable habitat, and direct impacts could occur during construction within proposed work areas that contain suitable habitat. Therefore, the proposed project would be required to implement **Mitigation Measure BIO-8** (Avoid Effects to Burrowing Owl) and **Mitigation Measure BIO-9** (Minimize Effects to Burrowing Owl), which require preconstruction surveys for burrowing owl, followed by avoidance of burrows and relocation of owls, if necessary. With implementation of **Mitigation Measures BIO-8 and BIO-9**, impacts to burrowing owl would be reduced to a less than significant level.

Furthermore, **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction to inform crews about sensitive species. Implementation of these mitigation measures would further reduce impacts to special status birds.

Special-Status Mammals

A total of eight special-status mammals were identified as present or have a high potential to occur within the proposed project area due to the presence of suitable habitat including American badger, San Joaquin kit fox, San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, pallid bat, and western mastiff bat.

American Badger and San Joaquin Kit Fox

American badger is known to occur at MP 230.6 and 271.2 sites and this species has a high potential to occur at MP 259.5 due to the presence of suitable habitat (i.e., occurrence of similar sign, such as crescent shaped entrances and claw marked dens). Potential dens were observed within the proposed footprints of MP 259.5 and 271.2 during general assessments conducted in 2023 and 2024. San Joquin kit fox was observed at the MP 230.6 site in 2019 and potentially uses all the sites for foraging.

Direct mortality to American badger and San Joaquin kit fox via crushing of occupied dens or burrows may occur as a result of construction activities. Indirect impacts such as noise and equipment traffic may result in den or burrow abandonment. Indirect impacts may also occur through habitat loss; however, these impacts would be temporary, and these areas would be returned to their natural condition following the completion of work. Due to the potential for the proposed project to impact American badger and San Joaquin kit fox, the proposed project would implement **Mitigation Measure BIO-10** (Avoid Effects to American Badger), **Mitigation Measure BIO-11** (Minimize Effects to American Badger), **Mitigation Measure BIO-12** (Avoid Effects to San Joaquin Kit Fox), **Mitigation Measure BIO-13** (Minimize Effects to San Joaquin Kit Fox), **Mitigation Measure BIO-14** (Compensate for Temporary or Permanent Loss of San Joaquin Kit Fox Habitat), which would require preconstruction surveys, occupied den or burrow avoidance, best management practices, and compensatory mitigation requirements if avoidance is not feasible. Furthermore, **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction to inform crews about sensitive species. With implementation of **Mitigation Measure BIO-3**, **BIO-4**, and **BIO-10** through **BIO-14**, impacts to American badger and San Joaquin kit fox would be reduced to a less than significant level.

San Joaquin Antelope Squirrel, Giant Kangaroo Rat, Tipton Kangaroo Rat, and Tulare Grasshopper Mouse

San Joaquin antelope squirrel was found to be present at MP 213.0, MP 230.6, and MP 259.5 sites, and has the potential to occur at MP 271.2 due to suitable habitat. Habitat within the MP 213.0 and MP 259.5 project footprints was marginal, and observations of San Joaquin antelope squirrel were infrequent within these project footprints. Giant kangaroo rat, Tipton kangaroo rat, and Tulare grasshopper mouse occurred at the MP

230.6 site. Tipton kangaroo rat and Tulare grasshopper mouse have a low potential to occur at MP 213.0, MP 259.5, MP 259.5, and MP 271.2 sites due to the extremely marginal habitat onsite and lack of suitable burrows onsite. No suitable habitat or signs of giant kangaroo rat were observed at the other sites outside of the MP 230.6 site.

Direct mortality to San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, and Tulare grasshopper mouse via crushing of occupied burrows may occur as a result of construction activities. Indirect impacts such as noise and equipment traffic may result in burrow abandonment. Indirect impacts may also occur through habitat loss; however, these impacts would be temporary, and these areas would be returned to their natural condition following the completion of work. Due to the potential for the proposed project to impact San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, and Tulare grasshopper mouse, the proposed project would implement **Mitigation Measure BIO-15** (Avoid Effects to San Joaquin Antelope Squirrel), **Mitigation Measure BIO-16** (Minimize Effects to San Joaquin Antelope Squirrel), **Mitigation Measure BIO-17** (Avoid Effects to Special-Status Kangaroo Rats), **Mitigation Measure BIO-18** (Compensate for Temporary or Permanent Loss of Special-Status Small Mammals Habitat), which would provide preconstruction habitat assessments, exclusion fencing, biological monitoring requirements, and compensatory mitigation requirements if avoidance is not feasible. Furthermore, **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction to inform crews about sensitive species. With implementation of **Mitigation Measure BIO-3**, **BIO-4**, and **BIO-15** through **BIO-18**, impacts to San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, and Tulare grasshopper mouse would be reduced to a less than significant level.

Pallid Bat and Western Mastiff Bat

Pallid bat was determined to have a high potential to occur within the MP 279.1 site and western mastiff bat was determined to have a high potential to occur within the MP 230.6 site due to the presence of foraging habitat at each of these sites; however, no suitable roosting habitat for these species occurs within the proposed project area.

Since no roosting habitat is present within any of the project areas, roosting bats would not be impacted by construction activities. Indirect impacts related to foraging bats and habitat loss would occur. Construction activities are scheduled to occur during the day when these species are not likely to be foraging; thus, impacts to foraging is not likely. Potential construction impacts would be temporary and foraging habitat would be returned to their natural condition following the completion of work. Therefore, impacts to special-status bats, including pallid bat and western mastiff bat, would be less than significant.

Special-Status Insects

Crotch Bumble Bee

One special-status insect, Crotch bumble bee (SCE), has a moderate potential to occur within the grassland and herbaceous vegetation within proposed work areas at the MP 271.2 and MP 279.1 sites. This species may be impacted by construction activities through direct mortality or indirectly through temporary habitat loss from construction activity. However, indirect impacts would be temporary, and these areas would return to their natural condition following the completion of work. Due to the status of Crotch's bumble bee as a state candidate endangered species, impacts are potentially significant. Therefore, the proposed project would implement **Mitigation Measure BIO-19** (Avoid Effects to Crotch Bumble Bee) and **Mitigation Measure BIO-20** (Minimize Effects to Crotch Bumble Bee) which would require preconstruction surveys, work buffers and timing restrictions if observed, and mitigation if impacts cannot be avoided. Furthermore, **Mitigation Measure BIO-3** (Avoid Effects to All Special Status Species and Resources) and **Mitigation Measure BIO-4** (Minimize Effects to All Special-Status Species) would be implemented which would require preconstruction surveys and establishment of no disturbance buffers and would require DWR to conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction to inform crews about sensitive species. With implementation of **Mitigation Measures BIO-3**, **BIO-4**, **BIO-19**, and **BIO-20**, impacts to Crotch bumble bee from construction activities would be reduced to a less than significant level.

Mitigation Measures

Mitigation Measure BIO-1 (Avoid and Minimize Effects to Special-Status Plants): Within one year before the commencement of ground-disturbing activities, habitat assessment surveys for special-status plants shall be conducted by a qualified botanist, in accordance with the most recent USFWS and CDFW guidelines and at the appropriate time of year when the target species would be in flower or otherwise clearly identifiable. Survey results can be climate dependent; survey timing shall be coordinated with USFWS and CDFW.

Locations of special-status plant populations shall be clearly identified in the field by staking, flagging, or fencing a minimum 50-foot-wide buffer around them before the commencement of activities that may cause disturbance. No activity shall occur within the buffer area if feasible. If encroachment within the buffer is required, USFWS and/or CDFW shall be consulted to determine appropriate compensation measures for the loss of special-status plants. Worker awareness training and biological monitoring shall be conducted to ensure that avoidance measures are being implemented.

Mitigation Measure BIO-2 (Minimize Effects to Special-Status Plants): If special-status plants are identified during the pre-construction surveys within the proposed project footprint and cannot be avoided, in consultation with USFWS or CDFW, seed collection shall occur prior to construction. Seed collection shall include visiting the site during the appropriate periods (post bloom) to harvest seeds from existing plants. Seeds shall be stored in a secure location in appropriate conditions to maintain viability. Once construction activities are complete, seeds shall be dispersed on site to recover the seed bank at the site.

Mitigation Measure BIO-3 (Avoid Effects to All Special-Status Species and Resources): Preconstruction surveys shall be conducted by a qualified biologist within 30 days before the start of construction activities. "No disturbance" buffers shall be established around detections or the species shall be allowed to leave the proposed project area unharmed.

Mitigation Measure BIO-4 (Minimize Effects to All Special-Status Species): DWR shall conduct a Worker Environmental Awareness Program (WEAP) prior to the start of construction. A qualified biologist shall conduct a presentation on all potential special-status species to train all construction staff that will be involved with the proposed project. This training shall include:

- A description of special-status species and their habitat needs.
- Information on special-status species occurrence within the proposed project vicinity.
- An explanation of the status of the species and their protection under the state and federal Endangered Species Act.
- A list of the measures being taken to reduce impacts to the species during construction, such as:
    - Proposed project-related vehicles shall observe a daytime speed limit of 15 mph throughout the site in all proposed project areas, except on State and Federal highways. Night-time work, such as equipment maintenance, shall be minimized to the extent possible. However, if work does occur after dark, the speed limit shall be reduced to 10 mph.
    - Off-road proposed project-related construction traffic outside of the designated proposed project area shall be prohibited. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a day from a construction or proposed project site.
    - No firearms shall be permitted on the proposed project site.
    - No pets shall be permitted on the proposed project site.
    - Use of rodenticide in the proposed project area shall not be allowed.

A "fact sheet" conveying all training information shall be prepared and distributed to all construction personnel in attendance at the initial training.

Upon completion of the WEAP training, construction crews shall sign a form stating that they attended the training, understood the information presented, and would comply with the WEAP requirements.

Mitigation Measure BIO-5 (Avoid Effects to Special-Status Snakes): Preconstruction surveys for special status snake species shall be conducted by a qualified biologist during periods of increased activity for the species. A 50-foot no-disturbance buffer shall be established around identified occupied or potentially occupied burrows. Ground-disturbing activities that might affect the structural integrity of identified burrows shall not occur within established no-disturbance buffers.

Mitigation Measure BIO-6 (Minimize Effects to Special-Status Snakes): If occupied burrows or suspected areas of refuge cannot be avoided during ground-disturbing activities, a qualified biological monitor shall be present. Activities shall be carried out in a slow and intentional manner to give potential species in the area the ability to exit the area. The biological monitor shall be in clear communication with equipment operators to slow or stop activities if the species is observed. The species shall be allowed to leave on its own volition.

Mitigation Measure BIO-7 (Avoid and Minimize Effects to Migratory Bird Species): If work activities occur within the bird nesting season (generally defined as February 1 through September 1), a qualified biologist shall conduct a nesting bird survey no more than 14 days prior to initiation of ground disturbance. Survey areas shall reflect the species type such as 300 feet for general songbird, 500 feet for raptors, and a quarter of a mile for listed raptor species. The survey shall be limited to areas with permitted access and shall not be conducted on private property without prior authorization. These surveys shall be conducted in accordance with any required protocols.

If pre-construction surveys confirm California horned lark being present at MP 259.5, there shall be no vegetation removal or other ground disturbing activities conducted during the nesting bird season (generally defined as February 1 through September 1) at this location.

If an active nest is found, the nest shall be avoided and a suitable buffer zone shall be delineated in the field where no impacts shall occur until the chicks have fledged, as determined by a qualified biologist. Construction buffers shall be determined by a qualified biologist based on the location of the nest, species tolerance to human presence, and the type of construction activities being conducted. Typical buffers include 50–150 feet for passerines. Larger buffers may be required for species that are less tolerant to disturbances, such as raptors and special-status species. Activities requiring heavy equipment that generate ground vibrations and acute noises may require larger buffers, whereas finish work, such as electrical or manual work with hand tools may require a smaller buffer to adequately protect bird nests.

If encroachment within a buffer is required, USFWS and CDFW shall be consulted to determine appropriate measures for avoidance and minimization of potential impacts. Mitigation may include presence of an on-site biologist to monitor nests during construction activities within buffers. If birds exhibit signs of stress or leave the nest for an extended period of time, construction within the buffer shall halt until birds have fledged or an alternative strategy can be determined.

Mitigation Measure BIO-8 (Avoid Effects to Burrowing Owl): Preconstruction surveys for burrowing owls shall be conducted by a qualified biologist in areas supporting potentially suitable habitat and within 30 days before the start of construction activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the site shall be resurveyed.

Occupied burrows shall not be disturbed during the breeding season (February 1 through August 31), if feasible. A minimum 160-foot-wide buffer shall be placed around occupied burrows during the nonbreeding season (September 1 through January 31), and a minimum 650-foot-wide buffer shall be placed around occupied burrows during the

breeding season. Ground-disturbing activities shall not occur within the designated buffers, if feasible.

Mitigation Measure BIO-9 (Minimize Effects to Burrowing Owl): If potential burrowing owl burrows are in the proposed project area, burrows shall be confirmed empty and excavated prior to their breeding season. The use of one-way doors may be used at burrow entrances as a precaution. This shall be done in consultation with CDFW.

If occupied burrowing owl burrows cannot be avoided during ground-disturbing activities, they shall be relocated in accordance with CDFW's Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012).

If feasible, the relocation shall be done during the non-breeding season. A qualified biologist shall verify through noninvasive methods that owls have not begun egg-laying and incubation, or that juveniles from occupied burrows are foraging independently and are capable of independent survival. A plan shall be coordinated with CDFW to offset burrow habitat and foraging areas on the proposed project site if burrows and foraging areas are taken by the proposed project.

If destruction of occupied burrows occurs, existing unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created. This shall be done in consultation with CDFW.

Passive owl relocation techniques shall be implemented. Owls shall be excluded from burrows in the immediate impact zone within a 160-foot-wide buffer zone by installing one-way doors in burrow entrances. These doors shall be in place at least 48 hours before excavation to ensure the owls have departed.

The proposed project area shall be monitored daily for 1 week to confirm owl departure from burrows before any ground-disturbing activities.

Where possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

Mitigation Measure BIO-10 (Avoid Effects to American Badger): Preconstruction surveys by a qualified biologist shall be conducted in areas supporting potentially suitable habitat and within 30 days before the start of construction activities.

Occupied burrows shall not be disturbed, if feasible. A 100-foot no-work buffer shall be established around occupied maternity dens throughout the pup-rearing season (February 15 through July 1) and a 50-foot no-work buffer around occupied dens during other times of the year. If nonmaternity dens are found and cannot be avoided during construction activities, they shall be monitored for badger activity. If a qualified biologist determines that dens may be occupied, passive den exclusion measures shall be implemented for 3 to 5 days to discourage the use of these dens prior to project disturbance activities.

Mitigation Measure BIO-11 (Minimize Effects to American Badger): If an occupied burrow/den cannot be avoided, the individual shall be passively relocated by exclusion. Passive relocation techniques would be implemented. Relocation shall only occur outside of the breeding period of American badger.

The project area shall be monitored daily for 1 week to confirm badger departure from burrow before any ground-disturbing activities.

Where possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

A plan shall be coordinated with CDFW to offset burrow habitat and foraging areas on the proposed project site if burrows and foraging areas are taken by the proposed project.

Mitigation Measure BIO-12 (Avoid Effects to San Joaquin Kit Fox): A qualified biologist shall conduct pre-construction surveys no fewer than 14 days and no more than 30 days prior to the onset of any ground-disturbing activity. The primary objective is to identify kit fox habitat features (e.g. potential dens and refugia) on the proposed project site. If San Joaquin kit fox is detected at any time, all activities associated with the proposed project shall be halted immediately. The proposed project shall be placed on hold until coordination with the USFWS and CDFW is completed. Where potential dens are present, a 50-foot-wide buffer shall be placed to avoid and minimize disturbance to the species. Where known dens are present, a 100-foot-wide buffer shall be placed to avoid and minimize disturbance to the species.

If natal pupping dens are present or encroachment within a buffer is required, USFWS and CDFW shall be coordinated with to determine appropriate measures. Unavoidable effects shall be compensated through a combination of creation, preservation, and restoration of habitat or purchase of credits at an approved mitigation bank at a minimum 1:1 ratio or equivalent.

Mitigation Measure BIO-13 (Minimize Effects to San Joaquin Kit Fox): Project activities shall be carried out in a manner that minimizes adverse effects to San Joaquin kit foxes, should they occur in the project area. Minimization measures shall include:

- Construction work at night (half hour after sunset to half-hour before sunrise) shall be avoided to the maximum extent possible.
- To prevent inadvertent entrapment of San Joaquin kit fox or other animals during construction, all excavated, steep-walled holes, or trenches more than 1 foot deep shall be covered with plywood or similar materials at the end of each workday. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be inspected for trapped animals.
- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for San Joaquin kit fox before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe shall not be moved until USFWS has been consulted and CDFW contacted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- Before the start of work each day, the work site shall be checked for animals under any equipment to be used that day, such as vehicles or stockpiles of items such as pipes. If a San Joaquin kit fox is found, it shall be allowed to leave on its own

volition. shall be halted, and DWR contacted. USFWS and CDFW shall be notified within 48 hours.

- Sightings of San Joaquin kit fox shall be reported to the California Natural Diversity Database.

Mitigation Measure BIO-14 (Compensate for Temporary or Permanent Loss of San Joaquin Kit Fox Habitat): If San Joaquin kit fox habitat would be affected by the proposed project, a compensatory mitigation plan shall be developed and implemented in coordination with USFWS and CDFW, as appropriate. Unavoidable effects shall be compensated through a combination of creation, preservation, and restoration of habitat or purchase of credits at an approved mitigation bank at a minimum 1:1 ratio.

If off-site compensation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in and developed as part of the USFWS and CDFW coordination and consultation process. The plan shall include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations.

Mitigation Measure BIO-15 (Avoid Effects to San Joaquin Antelope Squirrel): No more than 12 months prior to construction, a habitat assessment of the project footprint shall be conducted by a qualified biologist for San Joaquin antelope squirrel to identify all habitat suitable for the species in the project footprint. If suitable habitat is identified, a qualified biologist shall conduct surveys for the San Joaquin antelope squirrel. These surveys shall be conducted under appropriate conditions to detect San Joaquin antelope squirrels (temperatures 68°F to 86°F, no more than 80 percent cloud cover, and not under foggy or rainy conditions).

A 50-foot no-disturbance buffer shall be established around identified occupied or potentially occupied burrows. Ground-disturbing activities that might affect the structural integrity of identified burrows shall not occur within established no-disturbance buffers.

Mitigation Measure BIO-16 (Minimize Effects to San Joaquin Antelope Squirrel): If San Joaquin antelope squirrels are observed in the area but are not using the project footprint for breeding or residence, an exclusion fence shall be erected to discourage the species from entering the project footprint. Before the start of project activities, approved exclusion fencing shall be installed just outside the work limit. This fencing shall be maintained throughout construction and shall be removed at the conclusion of ground-disturbing activities. A USFWS- or CDFW-approved biological monitor shall be present on site, during intervals recommended by USFWS or CDFW, to inspect the fencing.

The approved biological monitor shall be on site each day during any ground disturbance and during initial site grading or development of sites in suitable habitat for special-status small mammals.

Before the start of work each day, the biological monitor shall check for animals under any equipment to be used that day, such as vehicles or stockpiles of items such as pipes. If special-status small mammals are present, they shall be allowed to leave on their own, before the initiation of construction activities for the day. To prevent inadvertent entrapment of special-status small mammals during construction, all excavated, steep-

walled holes or trenches more than 1 foot deep shall be covered by plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.

Plastic monofilament netting (erosion control matting) or similar material shall not be used at the project site because special-status small mammals may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

Mitigation Measure BIO-17 (Avoid Effects to Special-Status Kangaroo Rats): No more than 12 months prior to construction, a habitat assessment of the project footprint shall be conducted by a qualified biologist for special-status kangaroo rats to identify all habitat suitable for the species in the project footprint. If suitable habitat is identified for kangaroo rat species, qualified biologists shall conduct surveys for Tipton kangaroo rat and giant kangaroo rat. These surveys shall be conducted in accordance with the United States Fish and Wildlife Service's *Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats* (Survey Protocol) (USFWS 2013), or other more recent guidelines, if available.

A 50-foot no-disturbance buffer shall be established around identified occupied or potentially occupied burrows. Ground-disturbing activities that might affect the structural integrity of identified burrows shall not occur within established no-disturbance buffers.

In instances where Tipton kangaroo rat or giant kangaroo rat are observed at any time during presence/absence surveys, pre-construction surveys, or construction monitoring, USFWS and CDFW shall be notified of the occurrence within 2 business days.

Mitigation Measure BIO-18 (Compensate for Temporary or Permanent Loss of Special-Status Small Mammals Habitat): If special-status kangaroo rat and San Joaquin antelope squirrel habitat would be affected by the proposed project, a compensatory mitigation plan shall be developed and implemented in coordination with USFWS and CDFW, as appropriate. Unavoidable effects shall be compensated through a combination of creation, preservation, and restoration of habitat or purchase of credits at an approved mitigation bank at a minimum 1:1 ratio or equivalent.

Mitigation Measure BIO-19 (Avoid Effects to Crotch's Bumble Bee): Preconstruction surveys of Crotch's bumble bee nest sites shall be conducted by a qualified biologist in areas supporting suitable habitat and during the optimal flight period of April 1 through July 31. If a Crotch's bumble bee is observed, it shall be allowed to leave the site unharmed. A 50-foot no-work buffer shall be established around any detected Crotch's bumble bee nests.

Mitigation Measure BIO-20 (Minimize Effects to Crotch's Bumble Bee): If encroachment within a buffer is required, USFWS and CDFW shall be coordinated to determine appropriate measures for avoidance and minimization of potential impacts. Mitigation may include the presence of an on-site biologist to monitor nests during construction activities within buffers.

If species are suspected to use the site for foraging only, vegetation removal shall be avoided during critical periods such as for emerging or pre-dormancy (first bloom and last bloom), if feasible.

Operation

During operation, existing staff would resume regular maintenance in accordance with existing maintenance and water delivery schedules. Operations would consist primarily of monthly on-site check-ins to gather data, which includes approximately one truck on site to review the logs. These maintenance trips would occur on previously disturbed roads that would not provide suitable habitat to support special-status plant and wildlife species. Therefore, operation of the proposed project would have a **less-than-significant impact** to special-status plants and wildlife species and no mitigation would be required.

b) None of the habitat types and associated alliances present at the sites meet the criteria for sensitive or rare natural communities. Therefore, construction and operation of the proposed project would have **no impact** to 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 the U.S. Fish and Wildlife Service.

c) The Aqueduct is not a federally or State regulated water body in accordance with the federal CWA or state CFGC (Sections 1600 through 1616). As discussed within the BRTR, aquatic resources do not occur at the proposed work areas; however, a branch of Pleitito Creek intersects the California Aqueduct where a confined channel carries flow over a siphoned portion of the Aqueduct near MP 271.2. Proposed project work would take place more than 300 feet from Pleitito Creek; therefore, construction and operation of the proposed project would not impact aquatic resources, including federally protected wetlands, through direct removal, filling, hydrological interruption, or other means and **no impact** would occur.

d) All activities would occur within the existing DWR right-of-way. Given the short duration of the impact and the relatively small acreage of direct impact associated with the drilling (relative to the proposed project area), coupled with the proposed avoidance and minimization measures, the proposed project is expected to have a **less-than-significant impact with mitigation incorporated** on wildlife movement, nesting birds, and native wildlife nursery sites as outlined below.

Wildlife Movement

Construction and Operation

The proposed project is located within the Pacific Flyway. The Aqueduct supports a consistent, perennial source of fresh water that is utilized by birds for foraging and as a stop-over during spring and fall migration along the Pacific Flyway. All proposed work areas offer the same level of habitat connectivity from generally a north and south direction and as an open water source. The native habitat located on the landside embankment of the Aqueduct provides foraging and breeding opportunities for a number of terrestrial wildlife species; however, the Aqueduct presents a barrier for terrestrial

wildlife to move/migrate in a west-to-east direction between large open space areas in the region. At MP 213.0, the only east to west connection is at MP 212.64 in the form of a pipeline and cement structure and an over chute at MP 213.4. At MP 230.6, connectivity is an over chute at MP 230.44 and a pipeline at MP 230.7. At MP 259.5 and 279.1, a road intersection is within 400 feet of the proposed sites. MP 271.2 is connected by a siphoned portion of the aqueduct. These west-to-east and north-to-south pathways would remain unobstructed during construction and operation to allow for wildlife passage. Additionally, construction activities are proposed to occur during daytime hours, which would minimize disruption of wildlife movement at night (when most wildlife are likely to be traversing).

It is possible that some migratory birds may temporarily avoid foraging or wading in the Aqueduct immediately adjacent to the project site during construction activities, simply because of the mere presence of human activity and noises and vibrations that would be generated during construction activities. However, construction activities associated with the proposed project would not prevent avian or terrestrial species from using other portions of the Aqueduct for these purposes. Construction and operation of the proposed project would not impede wildlife movement in the region, nor would it prevent migratory birds or terrestrial wildlife from using the Aqueduct.

Therefore, the proposed project would not have a significant effect on local or regional wildlife movement, nor would it present an impact to a wildlife movement corridor. As such impacts to wildlife movement would be **less-than-significant**.

Nesting Birds and Native Wildlife Nursery Sites

Construction

Native resident and migratory bird species protected under the Migratory Bird Treaty Act and the California Fish and Game Code Section 3500 may nest within and near the proposed work areas. Potential impacts to nesting birds may occur during the general avian nesting season (i.e., from February 1 to September 1 for songbirds, January 15 to August 31 for raptors) during construction. Impacts may include direct and indirect impacts to individuals, eggs, and/or nests due to disturbance from human activities and construction noise and vibration, as well as habitat loss. Impacts to nesting birds would be potentially significant. Therefore, **Mitigation Measure BIO-7** (Avoid and Minimize Effects to Migratory Bird Species) would be implemented and would require nesting bird surveys no more than 14 days prior to initiation of ground-disturbing activities. If active nests are found, suitable buffer zones would be delineated, as determined by a qualified biologist based on the location of the nest, species tolerance to human presence, and the type of construction activities being conducted. If encroachment within a buffer is required, USFWS and CDFW would be coordinated with to determine appropriate measures for avoidance and minimization of potential impacts. With implementation of **Mitigation Measure BIO-7**, impacts to nesting birds during construction would be reduced to a **less-than-significant** level.

Operation

During operation, existing staff would resume regular maintenance in accordance with existing maintenance and water delivery schedules. Operations would consist primarily of monthly on-site check-ins to gather data, which includes approximately one truck on site to review the logs. These trips would be minimal and would not generate disturbance that could negatively impact nesting birds. Therefore, operation of the proposed project would have a **less-than-significant impact** to nesting birds.

e) To the extent feasible, implementation of the proposed project would comply with applicable adopted county ordinances protecting biological resources; however, State agencies such as DWR are not subject to local biological ordinances. Nonetheless, no county or other local policies or ordinances applicable to protecting biological resources within the proposed project area have been identified; therefore, **no impact** would occur.

f) The Southwest San Joaquin Valley Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) is in preparation. These documents have not yet been adopted and would not have an effect on the proposed project. No other proposed or existing HCP/NCCP extends into the proposed project site; therefore, **no impact** would occur.

References

Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft final Report prepared by P.V. Brylski, P.W. Collins, E.D. Pierson, W.E. Rainey, and T.E. Kucera. 126. Tulare Grasshopper Mouse, *Onychomys torridus tularensis*. Paul W. Viewed online at: file:///C:/Users/jpage/Downloads/MSSC_39.pdf. Accessed: April 29, 2024.

California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation.

California Department of Fish and Wildlife. 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard. Last updated: October 2019.

——. 2024. "California Wildlife Habitat Relationships." Viewed online at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range. Accessed: April 22, 2024.

——. 2024. California Natural Diversity Database Special Animals List. Viewed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline. Accessed: April 24, 2024.

California Native Plant Society. 2024. CNPS Rare Plant Ranks. Viewed online at: https://www.cnps.org/rare-plants/cnps-rare-plant-ranks. Accessed: April 22, 2024.

California State University, Stanislaus. 2020. Endangered Species Recovery Program. Viewed online at: https://esrp.csustan.edu/speciesprofiles/profile.php?sp=%20dinin. Accessed: April 22, 2024.

Californiaherps. 2024. San Joaquin Coachwhip – *Coluber flagellum ruddocki.* Viewed online at: http://www.californiaherps.com/snakes/pages/c.f.ruddocki.html. Accessed: April 24, 2024.

Germano DJ, Rhodehamel WM. 1995. "Characteristics of Kangaroo Rat Burrows in Fallow Fields of the Southern San Joaquin Valley." 1995 Transaction of the Western Section of the Wildlife Society 31: Pages 40–44. Viewed online at: https://www.csub.edu/~dgermano/K-ratBurrows.pdf. Accessed: April 22, 2020.

Hawbecker AC. 1953. "Environment of the Nelson antelope ground squirrel." Journal of Mammalogy 34 (3): Pages 324–334. Viewed online at: doi:10.2307/1375840. JSTOR 1375840.

U.S. Fish and Wildlife Service. 2010. Species Account for Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides*. Viewed online at: https://www.fws.gov/sacramento/es_species/Accounts/Mammals/Documents/tipton_kangaroo_rat.pdf. Accessed: April 22, 2020. Last updated: May 28, 2010

——. 2013. USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats. U.S. Fish and Wildlife Service Sacramento Field Office. Last updated: March 2013.

——. 2020. Endangered Species Recovery Program, Fresno Kangaroo Rat. Viewed online at: https://esrp.csustan.edu/speciesprofiles/profile.php?sp=dinie. Accessed: April 22, 2024.

Zeiner DC, Laudenslayer, Jr. WF, Mayer KE, White M, eds. 1988–1990. California's Wildlife. Vol. I–III. California Depart. of Fish and Game, Sacramento, CA.

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES — Would the proposed project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Environmental Setting

This section examines the potential impacts of the proposed project on cultural resources. Tribal cultural resources are addressed in the *Tribal Cultural Resources* section of this document. For the purposes of this analysis, the term *cultural resource* is defined as follows:

> *Native American and historic-era sites, structures, districts, and landscapes, or other evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or another reason. These resources include the following types of CEQA-defined resources: historical resources, archaeological resources, and human remains.*

This section relies on the information and findings presented in the following report:

Hoffman, R, Zimmer P, Garcia Kellar A, Hrycyk A, Lowe M, and Miller D. 2024. *California Aqueduct Subsidence Program (CASP) Cultural Resources Technical Study for the Subsidence and Groundwater Monitoring Well Project, San Joaquin Field Division, Kern County, California.* Prepared by Environmental Science Associates, Petaluma, CA. Prepared for the California Department of Water Resources. February.

Records Searches

Records searches covering the proposed project area were conducted on March 21, 2023 (File No. 23-086), September 5, 2023 (File No. 23-355), and January 16, 2024 (File No. 24-005) by staff at the California Historical Resources Information System's (CHRIS') Southern San Joaquin Valley Information Center (SSJVIC), housed at California State University, Bakersfield. The SSJVIC records search included a review of all recorded cultural resources and previous studies within the proposed project area plus a 0.25-mile radius.

The SSJVIC records search results indicate that one cultural resource has been previously recorded within all portions of the proposed project area. This resource is an architectural resource consisting of the Aqueduct (P-15-015820). Five additional cultural resources have been recorded within the proposed project area: P-15-009671, P-15-020185, and P-15-020189 at MP 230.6; P-15-004024 at MP 259.6; and P-15-015972 at MP 279.05. Two of these are architectural resources: P-15-009671 is a buried Standard Oil (Chevron) Pipeline; and P-15-015972 is the Wind Gap Bridge crossing over the Aqueduct. The remaining three previously recorded cultural

resources in the proposed project area are archaeological resources: P-15-004024 are the remnants of the Sunset Railroad; P-15-020185 is a multi-component archaeological site with both pre-contact and historic-era components; and P-15-020189 is a pre-contact lithic and shell scatter. One cultural resource has been previously recorded within a 0.25-mile buffer of the proposed project area: P-15-019371 is an architectural resource consisting of the Belridge Water Storage District Zone 5 Canal.

Ethnographic Research

Village sites in the proposed project area vicinity include: *Pohalin Tinliu*, located on the southern shore of Kern Lake, approximately 5 miles north of MP 271.2; *Loasau*, located on the northern side of Kern Lake, approximately 8 miles northeast of MP 271.2; *Halau*, located near the entrance of Kern River into the channel connecting Kern Lake and Buena Vista Lake, approximately 7 miles north of MP 271.2; and *Tulamniu*, located on the slope of the hills at the western side of Buena Vista Lake, approximately 5 miles north of MP 259.6 (Kroeber 1976 [1925]; Wallace 1978a).

Native American Outreach

The California Native American Heritage Commission (NAHC) maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on September 11, 2023, to request a search of the SLF for the proposed project area at MP 213, 271.2, and 279.05, and on January 9, 2024, for the proposed project area at MP 230.6 and 259.6. The NAHC replied on November 9, 2023, and January 19, 2024, respectively, stating that the SLF has no record of any resources in or near the proposed project area. The responses also provided contact lists for 19 individuals representing ten California Native American Tribes that may be traditionally and culturally affiliated with the proposed project area.

In support of Native American consultation requirements for the proposed project pursuant to PRC Section 21080.3, and in accordance with the California Natural Resources Agency's *Final Tribal Consultation Policy* (TCP) and the DWR's *Tribal Engagement Policy* (TEP), the DWR sent letters, in March 2023, to representatives from five California Native American Tribes requesting that the recipients notify the DWR if they would like to consult pursuant to PRC Section 21080.3. In January 2024, the DWR sent similar letters, and follow-up emails, to representatives from ten California Native American Tribes. The only response the DWR received from this outreach was an email from the Chairperson of the yak tityu tityu yak tiłhini – Northern Chumash Tribe, stating that her tribe defers consultation to the Tejon Indian Tribe. No additional correspondence with California Native American Tribes regarding the proposed project has occurred.

Additional details on proposed project correspondence with Native American representatives are provided in the *Tribal Cultural Resources* section of this document.

Field Survey

ESA conducted a cultural resources survey for the proposed project area at MP 213 and 279.05 on September 12 to 14, 2023, for the proposed project area at MP 271.2 on May 11, 2023, and for the proposed project area at MP 230.6 and 259.6 on January 31, 2024. Generally flat areas with

visible ground surface were subject to systematic pedestrian survey with transects spaced at intervals no more than 15 meters apart. Areas with limited ground visibility, such as densely vegetated or inundated areas, were subject to opportunistic survey where areas with some ground-visibility were targeted. Paved areas, such as the Aqueduct access roads, were not surveyed. Berms were visually inspected during the survey. Transects spaced 5 meters apart were used in areas in or within 30 meters of previously recorded site boundaries.

No archaeological resources were newly identified in the proposed project area as a result of the survey. No archaeological material associated with P-15-020185 or P-15-020189 (previously recorded within the proposed project area at MP 230.6) was identified in the proposed project area. Some archaeological material associated with previously recorded historic-era archaeological resource P-15-004024 (Sunset Railroad) was observed within the proposed project area at MP 259.6. Indirect evidence of the presence of previously recorded architectural resource P-15-009671 (Standard Oil Pipeline) was observed within the proposed project area at MP 230.6. The remaining two previously recorded cultural resources (both architectural resources) mapped in the proposed project area, the Aqueduct (P-15-015820) and the Wind Gap Bridge (P-15-015972), were observed in all portions of the proposed project area and the proposed project area at MP 279.05, respectively.

Summary of Resources Identified

Background research for the proposed project identified six cultural resources (P-15-004024, P-15-009671, P-15-015820, P-15-015972, P-15-020185, P-15-020189) in the proposed project area, but field survey for the proposed project confirmed the presence of cultural material in the proposed project area for only four of these cultural resources (P-15-004024, P-15-009671, P-15-015820, P-15-015972).

P-15-015820 (California Aqueduct) is already considered eligible for the California Register of Historical Resources (California Register) and, therefore, qualifies as an historical resource, pursuant to CEQA Guidelines Section 15064.5. Irrespective of previous determinations of National Register-eligibility or recommendations of California Register-eligibility, the remaining five cultural resources identified in the proposed project area (P-15-004024, P-15-009671, P-15-015972, P-15-020185, P-15-020189) are treated as historical resources, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts on these resources resulting from the proposed project.

Discussion

As presented below, question a) focuses on architectural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed under question b).

a) Three architectural resources that qualify as historical resources, as defined in CEQA Guidelines Section 15064.5, were identified within the proposed project area: P-15-009671 (Standard Oil [Chevron] Pipeline), within the proposed project area at MP 230.6; California Aqueduct (P-15-015820), which is within all portions of the proposed project area; and the Wind Gap Bridge (P-15-015972), which is within the proposed project area at MP 279.05.

P-15-009671 was previously recommended not eligible for the California Register but is being treated as a historical resource, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts and the small portion of the resource within the proposed project area. The Aqueduct is considered eligible for the California Register and qualifies as a historical resource pursuant to CEQA Guidelines Section 15064.5. The California Aqueduct's character-defining features have, in summary, been identified as: planned and engineered relationship with natural features and impediments for canal alignment; open trapezoidal design; concrete lining; and ancillary infrastructure (constructed between 1960 and 1974). The Wind Gap Bridge has not been previously evaluated for California Register-eligibility but is being treated as a historical resource, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts.

The proposed project consists of small-diameter borings (18-inch-diameter) in the aqueduct right-of-way. The proposed project would not drill within or otherwise alter or modify any portion of P-15-009671 or the Wind Gap Bridge. Any alterations to the immediate surroundings of the resources resulting from the proposed project would not materially impair the resources and they would continue to be able to convey any potential historical significance that justifies their inclusion, or eligibility for inclusion, in the California Register. As a result, the proposed project would have a less-than-significant impact on the resources, for CEQA purposes, since it would not result in a substantial adverse change in the significance of the resources.

Similarly, the borings that would occur as a result of the proposed project would occur in the aqueduct right-of-way, which is not a character-defining feature of the California Aqueduct. The proposed project would not drill within or otherwise alter or modify any of the character-defining features of the Aqueduct, and any alterations to the immediate surroundings resulting from the proposed project would be temporary since the proposed project does not include the construction of any new aqueduct facilities. As no alteration of any character-defining feature of the aqueduct would occur as a result of the proposed project, the resource's significance would not be materially impaired and it would continue to be able to convey its potential historical significance that justifies its inclusion, or eligibility for inclusion, in the California Register. As a result, the proposed project would have a less-than-significant impact on the resource for CEQA purposes, because it would not result in a substantial adverse change in the significance of the resource.

In summary, the proposed project would result in a **less-than-significant** impact on historical resources, as defined in CEQA Guidelines Section 15064.5.

b) Three archaeological resources were identified in the proposed project area: P-15-004024, which is within the proposed project area at MP 259.6, consists of the remnants of the historic-era Sunset Railroad; P-15-020185, which is within the proposed project area at MP 230.6, and consists of a site with both a pre-contact habitation component and an historic-era hearth and artifact scatter; and P-15-020189, which is within the proposed project area at MP 230.6, and consists of a small, sparse pre-contact flaked-stone lithic

and freshwater mussel scatter with a deflated hearth. P-15-004024 was previously recommended not eligible for the California Register, but is being treated as a historical resource, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts and the small portion of the resource within the proposed project area. P-15-020185 was previously recommended California Register-eligible under Criterion 4, and is being treated as a historical resource, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts and the small portion of the resource within the proposed project area. P-15-020189 does not appear to have been previously evaluated for California Register-eligibility, but is being treated as a historical resource, pursuant to CEQA Guidelines Section 15064.5, for the purposes of the proposed project only, given the limited potential for impacts and the small portion of the resource within the proposed project area.

The only elements of P-15-004024 observed in the proposed project area during the field survey were ballast with a raised rail line bed lacking ties, rails, or spikes. The proposed project consists of small-diameter borings (18-inch-diameter) in the aqueduct right-of-way and would not drill within or otherwise alter or modify any portion of P-15-004024. Any alterations to the immediate surroundings resulting from the proposed project would be temporary since the proposed project does not include the construction of any new aqueduct facilities. As no alteration of P-15-004024 or its immediate surroundings would occur as a result of the proposed project, the resource's significance would not be materially impaired and it would continue to be able to convey any potential historical significance that justifies its inclusion, or eligibility for inclusion, in the California Register. As a result, the proposed project would have a less-than-significant impact on the resource, for CEQA purposes, since it would not result in a substantial adverse change in the significance of the resource.

Only a very small portion of P-15-020185, its northeastern-most portion, is within the proposed project area, at MP 230.6; this area was not mapped as having any specific artifacts or concentrations. Similarly, only a very small portion of P-15-020189, its eastern-most portion, is within the proposed project area, at MP 230.6. No cultural material associated with P-15-020185 or P-15-020189 was observed in the proposed project area during the field survey. The proposed project would not drill within or otherwise alter or modify any portion of P-15-020185 or P-15-020189 that contributes to the resources' potential California Register-eligibility, as no archaeological material associated with the resources has been identified in the proposed project area. Any alterations to the immediate surroundings resulting from the proposed project would be temporary since the proposed project does not include the construction of any new aqueduct-related structures. As no alteration of P-15-020185 or P-15-020189 or their immediate surroundings would occur as a result of the proposed project, the resources' significance would not be materially impaired and they would continue to be able to convey any potential historical significance that justifies their inclusion, or eligibility for inclusion, in the California Register. As a result, the proposed project would have a less-

than-significant impact on the resources for CEQA purposes, because it would not result in a substantial adverse change in the significance of the resources.

In summary, the proposed project is not anticipated to result in any significant impacts on historical resources, as defined in CEQA Guidelines Section 15064.5, or unique archaeological resources, as defined in PRC Section 21083.2(g). However, because the proposed project includes ground-disturbing activities, which have the potential for encountering as-yet unrecorded archaeological resources. If any previously unrecorded archaeological resources were identified during construction and found to qualify as a historical resource, as defined in CEQA Guidelines Section 15064.5, or a unique archaeological resource, as defined in PRC Section 21083.2(g), any impacts to the resource resulting from the proposed project could be potentially significant. Any such potentially significant impacts would be reduced to a less-than-significant level with implementation of Mitigation Measures **CUL-1** and **CUL-2**. As such, impacts on archaeological resources from the proposed project would be **less-than-significant with mitigation**.

Mitigation Measures

CUL-1: Unanticipated Discovery Protocol for Archaeological Resources: In the event that archaeological resources potentially qualifying as historical resources, unique archaeological resources, or tribal cultural resources under CEQA are encountered, the DWR shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until the Qualified Archaeologist, defined as one meeting the *U.S. Secretary of the Interior's Historic Preservation Professional Qualification Standards for Archeology* (62 Federal Register 33708–33723) and with expertise in California archaeology, has inspected the discovery and conferred with the DWR on the potential significance of the resource. If the discovered materials are potential tribal cultural resources, affiliated Native American Tribes shall be notified and provided an opportunity to participate in the evaluation of the find. If it is determined that that a discovered archaeological resource meets the definition for historical resource in CEQA Guidelines Section 15064.5(a), unique archaeological resource in PRC Section 21083.2(g), or tribal cultural resource in PRC Section 21074, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. If avoidance of a resource is determined by the DWR to be infeasible in light of factors such as the nature of the find, proposed project design, costs, and other considerations, then the Qualified Archaeologist shall develop and implement an Archaeological Resources Data Recovery and Treatment Plan.

Pursuant to PRC Sections 5024 and 5024.5, as a project on state-owned land DWR shall consult with the California SHPO in the development of the data recovery and treatment plan. DWR shall also consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure that cultural values ascribed to the resources, beyond those that are scientifically important, are considered.

If, during implementation of the proposed project, DWR determines that portions of the proposed project may be sensitive for archaeological resources or tribal cultural resources, DWR may authorize construction monitoring of these locations by an archaeologist and representative from a California Native American Tribe that is culturally and geographically associated with the proposed project area. Any monitoring by a California Native American Tribe shall be done under agreements between DWR and culturally affiliated California Native American Tribes.

CUL-2: Unanticipated Discovery Protocol for Human Remains: If potential human remains are encountered during proposed project construction, all work shall halt within 100 feet of the find and the appropriate County Coroner shall be contacted to evaluate the remains and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e)(1). If the County Coroner determines that the remains are Native American, the County shall contact the NAHC, in accordance with California Health and Safety Code Section 7050.5(c) and PRC Section 5097.98. Per PRC Section 5097.98, the DWR shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the DWR has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

c) No human remains have been identified in the proposed project area through archival research, field surveys, or Native American outreach. Also, the land use designations for the proposed project area do not include cemetery uses, and no known human remains exist within the proposed project area. Therefore, the proposed project is not anticipated to disturb any human remains.

However, because the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. In the event that human remains were discovered during proposed project construction activities, impacts on the human remains resulting from the proposed project would be significant if those remains were disturbed or damaged. Such potentially significant impacts would be reduced to less-than-significant by implementing Mitigation Measure **CUL-2**. As such, impacts on human remains from the proposed project would be less-than-significant with mitigation.

References

Kroeber, AL. 1976 [1925]. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78, Smithsonian Institution, Washington, DC. 1976 reprinted ed., Dover Publications, Inc., New York, NY.

Wallace, W. 1978a. “Northern Valley Yokuts”. In *California*, edited by Heizer RF, pp. 462–470. Handbook of North American Indians, vol. 8, Sturtevant WC, general editor. Smithsonian Institution, Washington, DC.

Energy

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI.	**ENERGY —** Would the proposed project:				
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during proposed project construction or operation?	☐	☒	☐	☐
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Environmental Setting

Kern County does not implement an energy action plan. However, the State's Commercial Motor Vehicle Idling Regulation and Off-Road Regulation requires that construction sites minimize idling and associated emissions, which also minimizes use of fuel. Specifically, during construction, idling of commercial vehicles and off-road equipment is limited to 5 minutes to comply with state requirements.

Additionally, the DWR has adopted the DWR Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR's efforts to reduce its GHG emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) (California Department of Water Resources 2024) (refer to the *Greenhouse Gas Emissions* section in this chapter). Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP, including the following:

1. Analysis of GHG emissions from construction of the proposed project (**Appendix B)**.
2. Determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP.
3. Incorporation of the DWR's project-level GHG emissions reduction strategies into the design of the project.
4. Determination that the project does not conflict with the DWR's ability to implement any of the "Specific Action" GHG emissions reduction measures identified in the GGERP.
5. Determination that the project would not add electricity demands to the SWP system that could alter the DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Discussion

a) There would be an increase in fuel demand (gasoline and diesel) that would result from the use of construction tools and equipment, truck trips to haul materials and equipment to and from the site, and vehicle trips generated from construction workers commuting to and from the site. A GGERP Consistency Determination Checklist documenting that the proposed project has met each of the required elements is included in Appendix B. All best management practices (BMPs) required by the GGERP for a project of this nature

are included in **Mitigation Measure GHG-1** (see the *Greenhouse Gas Emissions* section in this chapter). With implementation of **Mitigation Measure GHG-1**, energy consumed during construction of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy. Once operational, the proposed project would not create any new sources of energy and all wells and appurtenant facilities would be operated by on-site solar power. Additionally, all emissions from the proposed project will occur as ongoing operations and maintenance emissions and therefore have been analyzed and accounted for in the GGERP. Therefore, impacts associated with construction and operation of the proposed project would be **less than significant with mitigation incorporated**.

b) The proposed project would be consistent with the GGERP, and operation of the proposed project would be via renewable resources. Therefore, the proposed project would be consistent with applicable energy efficiency policies and standards and would not create a wasteful, inefficient, or unnecessary consumption of energy. Therefore, there would be **no impact**.

References

California Department of Water Resources. 2024. *Climate Action Plan, Phase 1: Greenhouse Gas Emissions Reduction Plan.* Update 2023. Viewed online at: https://water.ca.gov/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan. Last updated January 2024.

Geology and Soils

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VII. GEOLOGY AND SOILS — Would the proposed 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 proposed 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?	☐	☒	☐	☐

Environmental Setting

The proposed project sites are located in the southwestern San Joaquin Valley, a portion of the Central Valley lying south of the Sacramento-San Joaquin River Delta. The Central Valley, comprising the Sacramento Valley to the north and the San Joaquin Valley to the south, is an elongated depositional basin situated between the Sierra Nevada to the east and the Coast Ranges to the west. The valley formed initially as a marine basin inboard of a subduction zone in the late Jurassic and has been modified by uplift in the bounding mountain ranges (Miller and Graham 2018). During the Cenozoic, deposition in the Central Valley shifted from marine to non-marine. These units are exposed along the margins of the valley in areas of more recent faulting and uplift. By the Pliocene epoch approximately (5 million years ago), the entire Central Valley was the site of terrestrial deposition (Haydon 2013). Since then, sedimentation has been dominated by alluvial fans coming off the mountain ranges, river deposition along the valley floor, and expansion and contraction of lakes as the climate shifted.

Earthquake fault zones were conceived in the Alquist-Priolo Earthquake Fault Zoning Act. The intent of the Alquist-Priolo Act is to reduce losses from surface fault rupture. California created this law following the destructive 1971 San Fernando earthquake (magnitude 6.6), which was associated with extensive surface fault ruptures that damaged numerous structures. The California Department of Conservation (DOC) maps earthquake hazard zones and other types of geologic ground failure risks, such as liquefaction and earthquake-induced landslides. An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years. The nearest known active fault to the proposed project area is the La Ponza Fault, approximately 25 miles west of the Aqueduct (California Department of Conservation 2023). Due to the flat topography and lack of saturated soils, liquefaction and landslide risks associated with seismic activity in the proposed project area are low.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. The following assessment of impacts to paleontological resources relies upon the analysis presented in the cultural (Environmental Science Associates 2024a) and paleontological resources (Environmental Science Associates 2024b) technical studies conducted for the proposed project.

Discussion

a.i–iv) As discussed above, the proposed project area is not located within an earthquake fault zone or a liquefaction- or landslide-prone area and therefore would not be subject to lateral spreading. However, in general, California is seismically active, with most locations in proximity to faults that can produce detectable seismic ground shaking. The proposed project would likely be subject to strong seismic ground shaking during a substantial seismologic event that could result in damage to new wells. As the proposed project area is not near occupied areas and all proposed wells would be installed at or near to ground level, the risk of loss, injury, or death involving strong ground shaking is **less than significant**.

b) Existing soils along the Aqueduct embankment can be characterized as highly disturbed, compacted mixtures of sediment and gravel derived from sources on and off site. Construction of the proposed project would require ground-disturbing activities such as grading and excavation to install the wells. The DWR would follow standard construction BMPs to control erosion and water pollution such as installing a silt fence, creating a sediment/desilting basin, installing sediment traps, using fiber rolls, creating gravel bag berms, and /or creating sandbag or straw bale barriers Upon completion of construction activities, exposed soils would be compacted in place to blend in with the existing embankment and road access soil surfaces would be disposed of in the local landfill. Therefore, impacts associated with erosion of soils would be **less than significant.**

c) As discussed above, the proposed project area is not located within an earthquake fault zone or a liquefaction- or landslide-prone area. However, the proposed project is located in an area of known subsidence, occurring at varying rates since before the Aqueduct was constructed. Because the area surrounding the proposed project is dominated by

groundwater withdrawal practices—one of the primary causes of subsidence—subsidence is expected to continue. Subsidence is the gradual caving in or sinking of an area of land, and any structures built on subsidence prone lands may be subject to collapsing. The proposed project is designed to monitor subsidence rates and would not result in an increase in subsidence as it does not involve extraction, or any of the other known causes of subsidence. Therefore, impacts as a result of proposed project implementation on unstable soils would be **less than significant**.

d) The proposed project components would be located within the aqueduct right-of-way where soils consist of compacted mixtures of disturbed sandy sediment and gravel, uncharacteristic of expansive soils that shrink, and swell based on water content. The proposed project involves the installation and operation of groundwater monitoring wells and would not involve construction of occupied structures; therefore, **no impact** would occur.

e) The proposed project would not include the construction or operation of any septic tanks or alternative water disposal system. Therefore, **no impact** would occur.

f) The Los Angeles County Museum records search conducted for the proposed project indicates that no fossil localities have been previously recorded within the proposed project area and no known unique paleontological resources would be impacted by the proposed project. However, a number of fossil specimens have been recovered from the region from similar sediments as those that underlie the proposed project area. Excavation for the proposed project has the potential to impact older alluvium as well as the Pliocene-Pleistocene Tulare Formation. While there are no known fossil localities at the proposed project sites according to the Los Angeles County Museum and University of California Museum of Paleontology records, a large number of vertebrate fossils have been previously recorded in relatively close proximity from the same sedimentary deposits—older Pleistocene alluvium and the Tulare Formation—that occur in the proposed project sites. Those units are ranked as High Potential by the Society of Vertebrate Paleontology (2010) standards, while the Quaternary Alluvium found at the surface is ranked as Low Potential but may increase in sensitivity with depth. The exact depth to these units is unknown and the following mitigation measures take into account the unknown potential. Excavation into these sediments could result in a potentially significant impact to significant fossils, however, implementation of Mitigation Measures PALEO-1 through PALEO-5, impacts would be **less than significant with mitigation incorporated**.

Mitigation Measures

PALEO-1: Retention of a Qualified Paleontologist. Prior to the start of the proposed project implementation, the DWR shall retain a qualified Paleontologist (Principal Paleontologist) who meets the professional criteria established by the Society of Vertebrate Paleontology (SVP) (2010) to implement the paleontological resources mitigation measures for the proposed project.

PALEO-2: Paleontological Resources Sensitivity Training. Prior to the start of the proposed project implementation, the Principal Paleontologist, or their designee, shall conduct paleontological resources awareness training for on-site personnel. The training session shall focus on how to identify paleontological resources that may be encountered during the well drilling, and the procedures to be followed in the event of their discovery. The DWR shall ensure on-site personnel are made available for and attend the training and retain documentation demonstrating attendance.

PALEO-3: Paleontological Monitoring. All well drilling shall be monitored by the Principal Paleontologist. During the start of monitoring if the Principal Paleontologist deems that either the Pleistocene Alluvium or the Tulare Formation is at a shallow depth below the Quaternary Alluvium, paleontological resources monitoring shall continue and be conducted for any excavations that have the potential to create spoils with fragments larger than one inch in length. This includes large augers and excavation by heavy equipment. Paleontological monitoring shall not be required for any well drilling methods that do not produce visible spoils that could contain identifiable fossils. Paleontological monitoring shall be conducted by a monitor who meets the professional criteria established by the SVP (2010) working under the direct supervision of the Principal Paleontologist. Monitoring can be reduced, or ceased entirely, if determined adequate by the Principal Paleontologist.

The paleontological monitor shall collect any identifiable fossils encountered during the geotechnical investigation. If on-site personnel discover potential fossils during the geotechnical investigation when a paleontological monitor is not present, they shall set aside the fossil materials and notify the Principal Paleontologist.

PALEO-4: Paleontological Resources Treatment and Disposition. Significant fossils shall be prepared by the Principal Paleontologist to the point of identification and cataloged. Significant fossils shall be curated at a public, non-profit institution with a research interest in the material and with retrievable storage, such as the Natural History Museum of Los Angeles County, if such an institution agrees to accept the fossils. If no institution accepts the fossil collection, then the fossils may be donated to a local museum, historical society, school, or other institution for educational purposes. Accompanying notes, reports, maps, and photographs shall also be filed with the final repository.

PALEO-5: Paleontological Resources Monitoring Report. Upon completion of the proposed project, the Principal Paleontologist shall prepare a report summarizing the results of the monitoring efforts if significant fossils are identified during project implementation. The report shall be submitted to DWR to signify the satisfactory completion of required paleontological mitigation measures. If significant fossils are discovered, the report shall also be submitted to the appropriate repositories.

References

California Department of Conservation. 2020. Alquist-Priolo Earthquake Fault Zones. Viewed online at: https://www.conservation.ca.gov/cgs/alquist-priolo. Accessed: May 1, 2024.

Environmental Science Associates. 2024a. California Aqueduct Subsidence Program (CASP) Cultural Resources Technical Study for the Subsidence and Groundwater Monitoring Well Project, San Joaquin Field Division, Kern County, California.

——. 2024b. Paleontological Resources Technical Study for the Subsidence and Groundwater Monitoring Well Project, San Joaquin Field Division, Kern County, California.

Haydon, WD. 2013. Quaternary surficial deposits of the southern San Joaquin Valley: Geological Society of America Abstracts with Programs 45(6):52.

Miller DD, and SA Graham. 2018. Late Cenozoic uplift and shortening in the central California Coast Ranges and development of the San Joaquin Basin foreland, In Tectonics, sedimentary basins, and provenance: a celebration of the career of William R. Dickinson, RV Ingersoll and TF Lawton (editors), Geological Society of America Special Paper 540:425–440.

Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Viewed online at: https://vertpaleo.org/governance-documents/. Accessed: May 1, 2024.

Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. GREENHOUSE GAS EMISSIONS — Would the proposed 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?	☐	☐	☐	☒

Environmental Setting

GHG emissions worldwide cumulatively contribute to the significant adverse environmental impacts of global climate change. The combination of GHG emissions from past, present, and future projects in the San Joaquin Valley; the entire state of California; across the nation; and around the world contribute cumulatively to the phenomenon of global climate change and its associated environmental impacts.

Discussion

a, b) The SJVAPCD does not recommend quantitative significance thresholds for the analysis of the impact of a project's GHG emissions on the environment. Instead, the SJVAPCD's approach relies on the application of performance-based standards to assess project-specific GHG emission impacts on global climate change. This is based on the principle that projects whose emissions have been reduced or mitigated consistent with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, should be considered to have a less-than-significant impact on global climate change (San Joaquin Valley Air Pollution Control District 2018). SJVAPCD's policy provides for the following tiered approach in assessing significance of project-specific GHG emission increases:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement best performance standard.
- Projects implementing best performance standards would not require quantification of project-specific GHG emissions and would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing best performance standards would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent compared to business as usual (BAU), including GHG emission reductions achieved since the 2002–2004 baseline period, consistent with GHG emission reduction targets established in California Air Resources Board's AB 32 Scoping Plan. Projects achieving at least a

29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

In May 2012, the DWR adopted the DWR GGERP, which details DWR's efforts to reduce its GHG emissions consistent with Executive Order S-3-05 and AB 32 (California Department of Water Resources 2024). The DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g., building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

The DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines Section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG Reduction Plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable." (See CEQA Guidelines, Section 15064[h][3].)

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP, including the following:

1. Analysis of GHG emissions from construction of the proposed project.
2. Determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP.
3. Incorporation of the DWR's project-level GHG emissions reduction strategies into the design of the project.
4. Determination that the project does not conflict with DWR's ability to implement any of the "Specific Action" GHG emissions reduction measures identified in the GGERP.
5. Determination that the project would not add electricity demands to the SWP system that could alter the DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist documenting that the proposed project has met each of the required elements is included in Appendix B. All BMPs required by the GGERP for a project of this nature are included in **Mitigation Measure GHG-1**. Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in Appendix B), the proposed project is compliant with the applicable GHG emission reduction plan, as is required by the SJVAPCD; therefore, the impact with respect to GHG emissions is **less than significant with mitigation incorporated**. Once

operational, the proposed project would not create any new sources of energy and all wells and appurtenant facilities would be operated by on-site solar power. Impacts during operation would be less than significant.

Mitigation Measures

Mitigation Measure GHG-1: The proposed project shall implement the following required best management practices, as applicable:

- Evaluate proposed project characteristics, including location, proposed project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the proposed project or specific elements of the proposed project.
- Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.
- 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.
- Evaluate the performance requirements for concrete used on the proposed project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.
- Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.
- 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, California Code of Regulations, Title 13, 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.
- 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.
- Implement a tire inflation program on the job site 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.
- Develop a proposed project-specific ride share program to encourage carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.
- 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 staff develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

- For deliveries to proposed 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 SmartWay2 certified truck shall be used to the maximum extent feasible.
- 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.
- Develop a proposed project-specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.
- 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.

References

California Department of Water Resources. 2024. *Climate Action Plan, Phase 1: Greenhouse Gas Emissions Reduction Plan.* Update 2023. Viewed online at: https://water.ca.gov/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan. Last updated January 2024.

San Joaquin Valley Air Pollution Control District. 2018. AB 32 Global Warming Solutions Act of 2006. Viewed online at: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006. Accessed: May 1, 2024

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HAZARDS AND HAZARDOUS MATERIALS — Would the proposed project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the proposed project result in a safety hazard or excessive noise for people residing or working in the proposed 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?	☐	☐	☒	☐

Environmental Setting

A hazardous material is any material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. State agencies regulating hazardous materials are the California Environmental Protection Agency (Cal/EPA) and the Office of Emergency Services (OES). Within the Cal/EPA, the California Department of Toxic Substances Control (DTSC) has primary regulatory authority for hazardous materials regulation enforcement. State hazardous waste regulations are contained primarily in the California Code of Regulations (CCR) Title 22. The California Division of Occupational Safety and Health (CalOSHA) has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in CCR Title 8.

The DTSC defines the Hazardous Waste and Substance Sites List (also known as the "Cortese Sites" List) as a planning document used by state, local agencies and developers to comply with the CEQA by providing information about the location of hazardous material sites. A review of the DTSC Cortese List indicates that there are no identified hazardous material sites located within the

proposed project area (California Department of Toxic Substances Control 2023a). A database search of hazardous materials sites using the online DTSC EnviroStor and State Water Resources Control Board (SWRCB or State Water Board) GeoTracker databases identified zero hazardous clean-up sites (California Department of Toxic Substances Control 2023b; State Water Resources Control Board 2015) within the proposed project area.

Discussion

a) The proposed project would require the use of small qualities of hazardous materials such as diesel fuel, gasoline, oils, grease, equipment fluids, cleaning solutions and solvents, lubricant oils, and adhesives.

During construction, the handling, storing or transporting hazardous materials or wastes would comply with numerous hazardous materials regulations such as those described above that would reduce the risk of accidental release and provide protocols and notification requirements should an accidental release occur. By complying with relevant federal, State, and local laws, the proposed project would not result in a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials during implementation of the proposed project. Further, once construction is complete, the operation of the monitoring equipment would not involve the use of hazardous materials. Therefore, impacts would be **less than significant**.

b) The small quantities of hazardous materials that would be used during implementation of the proposed project would not be stored near the proposed installation. Further, after construction activities are complete, operation of the monitoring wells would not involve the use of hazardous materials. Therefore, potential impacts to the public or the environment related to reasonably foreseeable accident conditions involving hazardous materials would be **less than significant**.

c) There are no schools located within one-quarter mile of the proposed project area. Furthermore, fuels, oils and lubricants used during the proposed activities would be handled in accordance with DWR material safety storage and handling protocols and BMPs that would contain and prevent spills from occurring on the proposed project area. Therefore, **no impact** would occur.

d) There are no identified hazardous material sites located within the proposed project area (California Department of Toxic Substances Control 2023a, 2023b; State Water Resources Control Board 2015). The proposed project would not be located on a hazardous materials site and **no impact** would occur.

e) The proposed project would not be located within an airport land use plan or within 2 miles of a public airport or public use airport. **No impact** would occur.

f) Construction and operation of the proposed project is not anticipated to physically interfere with emergency response access, adopted emergency response plan or evacuation plan because all activities would be within the boundaries of Aqueduct and

DWR right-of-way. Therefore, **no impact** would occur related to interference with an adopted emergency response plan or emergency evacuation plan.

g) The proposed project would not be located within a very high fire hazard zone and not within or adjacent to uses prone to wildfires, therefore the potential for wildfire impacts on people or structures due to proposed project implementation would be considered **less than significant**.

References

California Department of Toxic Substances Control. 2023a. Cortese List Data Resources. Viewed online at: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed: May 1, 2024.

——. 2023b. EnviroStor. Viewed online at: https://www.envirostor.dtsc.ca.gov/public/

State Water Resources Control Board. 2015. GeoTracker. Viewed online at: https://geotracker.waterboards.ca.gov/. Accessed: May 1, 2024.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. HYDROLOGY AND WATER QUALITY — Would the proposed 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 proposed project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or 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?	☐	☐	☐	☒

Environmental Setting

The Proposed Project area is within the South Valley Floor Watershed with Region 5 – Tulare Lake Hydrologic Basin (DWR 2020). Major cities in the Tulare Basin include Fresno, Bakersfield and Visalia. Major Geographic Features include Tulare Lake Basin, Kettleman Hills, Kings river, Kern river, Tule River, Tulare Lake, Kern Lake, and Buena Vista Lake. The Tulare Lake Basin has mild winters and hot dry summers. As discussed within the BRTR, aquatic resources do not occur at the proposed work areas; however, a branch of Pleitito Creek intersects the California Aqueduct where a confined channel carries flow over a siphoned portion of the Aqueduct near MP 271.2. Proposed project work would take place more than 300 feet from Pleitito Creek.

The SWRCB publishes updates to the *Water Quality Control Plan for the Tulare Lake Basin* (Basin Plan) to improve water quality and maintain beneficial uses in the drainage area of the San Joaquin Valley south of the San Joaquin River. The Basin Plan describes water quality concerns for the area that include agriculture, forestry, urban land uses, and stormwater runoff (Central Valley Regional Water Quality Control Board 2018).

Discussion

a) The proposed project would include construction activities that would require earthwork such as site preparation, excavation, grading, and stockpiling of soils, which would involve the disturbance and exposure of surface soils. In addition, construction activities would involve use of chemicals and solvents such as fuel and lubricating grease for motorized heavy equipment, which could accidentally spill and subsequently impact stormwater quality.

There is potential for stormwater to transport sediment and/or hazardous materials to the proposed project area. Given that proposed project construction activities at each well location would not disturb an area greater than an acre, the proposed project would not be subject to a Construction General Permit under the NPDES permit program of the federal Clean Water Act. However, DWR would incorporate erosion control BMPs to prevent the degradation of water quality in the Aqueduct. Examples of erosion control BMPs are installing a silt fence, creating a sediment/desilting basin, installing sediment traps, using fiber rolls, creating gravel bag berms, and creating sandbag or straw bale barriers. BMPs would also include practices for proper handling of chemicals, such as avoidance of fueling at the construction site and overtopping during fueling, and installation of containment pans.

Implementation of BMPs would avoid or reduce all erosion and sedimentation impacts to below a level of significance. As a result, impacts to water quality would be **less than significant**.

b) The proposed project would not disrupt water deliveries, nor would it require the use of groundwater during construction activities. In addition, the proposed project would only create small concrete well pads at each well site. Therefore, the proposed project would not prevent recharge of groundwater or lower the groundwater levels in the groundwater basin, or conflict with the Counties' Groundwater Management Plans. Therefore, there would be **no impact** to groundwater recharge.

c.i) The proposed project would introduce small concrete pads (4 sq. feet at monitoring wells, and maximum of 144 sq. feet at extensometers) at each well site creating additional impervious surfaces. Considering the increase in impervious surfaces is minimal, it is unlikely that implementation of monitoring wells and extensometers would alter the existing drainage pattern of the proposed project sites in a manner which would result in substantial erosion or siltation. Erosion control measures would be implemented to reduce the potential for stormwater-induced erosion or sedimentation off site during proposed project activities. All disturbed areas would also be restored to preexisting conditions once construction activities are completed. The proposed project would not include the construction of large structures or impervious surfaces that would substantially alter or change the rate or amount of surface runoff from the proposed project sites. Thus, the proposed project would not substantially alter the existing drainage pattern of the proposed project area in a way such that substantial erosion or siltation would occur on site or off site. Impacts would be **less than significant**.

c.ii) Although the proposed project would increase impervious services in the proposed project area, the increase would be minimal and therefore would not substantially change the rate or amount of surface runoff from the proposed project sites. As such, the proposed project would not result in flooding on site or off site. Potential impacts would be **less than significant**.

c.iii) Since project construction activities would not disturb an area greater than an acre, implementation of BMPs would avoid or reduce all erosion and sedimentation impacts to below a level of significance. As such, the proposed project would not provide substantial additional sources of polluted runoff. Impacts would be **less than significant**.

c.iv) The Federal Emergency Management Agency (FEMA) National Flood Hazard Layer for the proposed project area shows that the proposed project sites are all located within an area of minimal flood hazard (Federal Emergency Management Agency 2024). Therefore, the area is at low risk for experiencing flooding. Further, the proposed project involves the installation of monitoring wells and would not involve large infrastructure or extensive construction activities that would impede or redirect flows. **No impact** would occur.

d) The proposed project would not be located within a 100-year flood zone, or located in proximity to a large waterbody with the potential for seismic waves from an earthquake (U.S. Geological Survey 2024). The proposed project area is located more than 50 miles from the nearest ocean, the Pacific, and therefore not located within the tsunami risk zone. Therefore, the proposed project would not risk the release of pollutants due to project inundation. **No impact** would occur.

e) The proposed project would not involve pumping or extraction of groundwater. Once the construction activities are completed, operations of the proposed project area would not change. **No impact** to water quality control plans or sustainable groundwater management plans would occur.

References

California Department of Water Resources. 2020. Water Management Planning Tool. Viewed online at: https://gis.water.ca.gov/app/boundaries/. Accessed: May 1, 2024.

Central Valley Regional Water Quality Control Board. 2018. *Water Quality Control Plan for the Tulare Lake Basin*. Third Edition. Viewed online at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/#basinplans. Last updated: May 2018.

Federal Emergency Management Agency. 2024. Flood Map Service Center. Viewed online at: https://msc.fema.gov/portal/home. Accessed: May 1, 2024.

U.S. Geological Survey. 2024. The Central Valley: Tulare Basin. Viewed online at: https://ca.water.usgs.gov/projects/central-valley/tulare-basin.html. Accessed: May 1, 2024.

Land Use and Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XI. LAND USE AND PLANNING — Would the proposed project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Environmental Setting

The Aqueduct and existing access roads are within the DWR right-of-way. Lands immediately surrounding the Aqueduct and right-of-way are subject to Kern County land use plans, policies, and regulations.

The Kern County Land Use, Open Space, and Conservation Element map designates land adjacent to the proposed project sites Intensive Agriculture (Kern County Planning Department 2009).

Discussion

a, b) The proposed project involves the installation of groundwater monitoring wells within the Aqueduct right-of-way and would not introduce any additional structures, such as roads or freeways, with the potential to physically divide a community. Therefore, proposed project construction and operation would not conflict with any land use plan, policy, or regulation. **No impact** would occur.

References

Kern County Planning Department. 2009. Kern County General Plan. Viewed online at: https://kernplanning.com/planning/planning-documents/general-plans-elements/. Accessed: May 1, 2024.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. MINERAL RESOURCES — Would the proposed project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Environmental Setting

The proposed project sites are not included in Mineral Land Classification (MLC)/Surface Mining and Reclamation Act (SMARA) designated areas (California Department of Conservation 2024).

Discussion

a, b) The proposed project construction sites are not included on any CGS maps or reports identifying potentially important mineral resources. Kern County land use maps do not identify any valuable mineral resources in the proposed project area. Activities associated with the proposed project would be confined to the previously disturbed areas on the Aqueduct access road and aqueduct right-of-way. Therefore, **no impact** would occur.

References

California Department of Conservation. 2024. CGS Information Warehouse: Mineral Land Classification Tool. Viewed online at: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Accessed: May 1, 2024.

Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. NOISE — Would the proposed project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed 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 proposed project expose people residing or working in the proposed project area to excessive noise levels?	☐	☐	☐	☒

Environmental Setting

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. Given that the typical human ear is not equally sensitive to all frequencies of the audible sound spectrum, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes low and extremely high frequencies, referred to as A-weighting, and is expressed in units of A-weighted decibels (dBA).[1]

Noise Exposure and Community Noise

Noise levels rarely persist consistently over a long period. Rather, noise levels at any one location vary with time. Specifically, community noise is the result of many distant noise sources that constitute a relatively stable background noise exposure where the individual contributors are unidentifiable. Throughout the day, short duration single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) that are readily identifiable to the individual add to the existing background noise level. The combination of the slowly changing background noise and single-event noise events give rise to a constantly changing community noise environment.

To legitimately characterize a community noise environment and evaluate cumulative noise impacts, community noise levels must be measured over an extended period of time. This time-varying characteristic of environmental noise is described using statistical noise descriptors, including the ones described below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound

[1] All noise levels reported herein reflect A-weighted decibels unless otherwise stated.

level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

L_{dn}: The day-night average sound level (L_{dn}) is the energy average of the A-weighted sound levels occurring during a 24-hour period, accounting for the greater sensitivity of most people to nighttime noise by weighting ("penalizing") nighttime noise levels by adding 10 dBA to noise between 10:00 p.m. and 7:00 a.m.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response.

These relationships occur in part because of the logarithmic nature of the decibel system. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Applicable Noise Regulations

Kern County. The Noise Element of the Kern County General Plan (Kern County Planning Department 2009) provides goals, policies, and implementation measures applicable to noise. The major purpose of the County's Noise Element is to establish reasonable standards for maximum noise levels desired in Kern County, and to develop an implementation program which could effectively mitigate potential noise problems and not subject residential or other sensitive noise land uses to exterior noise levels in excess of 65 dBA L_{dn}, and interior noise levels in excess of 45 dBA L_{dn}.

The Kern County Code of Ordinances includes the following noise control ordinance regarding construction noise (Kern County 2007):

> *It is prohibited 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.*

The proposed project area is not located within 1,000 feet of an occupied residence. Therefore, the above code is not discussed further in this document.

The Kern County General Plan does not contain any goals or policies that are applicable to the proposed project because the proposed project area is not considered a sensitive land use, and the proposed project area is not located near sensitive land uses (Kern County Planning Department 2009).

Discussion

a) The proposed project would temporarily increase noise in the proposed project area. However, there are no residents located within 1,000 feet of the proposed project area. Therefore, the proposed project would not result in temporary or permanent noise-related impacts. Therefore, the proposed project would result in **less-than-significant** noise impacts during construction and operation.

b) The proposed project would temporarily increase groundborne vibration in the proposed project area. However, there are no residents located within 1,000 feet of the proposed project area. Therefore, vibration associated with the proposed project would result in **less-than-significant** impacts.

c) The proposed project sites are located in a rural area that is distant from commercial or general aviation airports. Therefore, there would be **no impact** in relation to airports and the proposed project exposing people residing or working in the proposed project area to excessive noise levels.

References

Kern County Planning Department. 2009. “Chapter 3: Noise Element.” In: Kern County General Plan. Viewed online at: https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGPChapter3.pdf. Last updated: September 22, 2009. Accessed: May 1, 2024.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. POPULATION AND HOUSING — Would the proposed 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?	☐	☐	☐	☒

Environmental Setting

Surrounding the proposed project area is extensive rural and agriculture areas. There are no residential structures on or directly adjacent to the proposed project area.

Discussion

a, b) The proposed project would not involve the construction of new homes, businesses, extensions of roads, or other infrastructure in support of population and housing resources. The proposed project is anticipated to begin in the summer of 2024 and last for approximately 18 months with approximately 6–8 construction workers expected on site at any given time. Construction workers employed for these activities are expected to come from the existing labor pool within the region and would be involved with the proposed project temporarily for the approximately 18-month construction period. Implementation of the proposed project would not directly or indirectly induce substantial population growth because the proposed project does not involve the construction of new homes, businesses, extensions of roads or other infrastructure. Therefore, **no impact** would occur.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. PUBLIC SERVICES —				
a) Would the proposed project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

Kern County Fire Department stations would serve the project sites in Kern County. The Kern County Fire Department stations closest to the proposed project sites are Lost Hills, Lokerm Buttonwillow, and Wasco. The Kern County Sheriff Station in Wasco, approximately 20 miles east of proposed project sites, would service the proposed project sites. The nearest schools to the proposed project area include Lost Hills Union School District, A.M. Thomas Middle, and Wonderful College Prep Academy Lost Hills. The nearest public park is Wonderful Park, also located in Lost Hills.

a.i, ii) Construction of the proposed project would entail delivery of fuel and fueling/maintenance of construction equipment, in addition to temporary storage of construction equipment and materials at nearby staging areas. In the event of a fire or other emergency within the proposed project area, existing fire protection and police services in Kern County would be able to sufficiently respond to emergency events with existing equipment and staffing capacities.

The proposed project would be implemented within existing DWR right-of-way and would not affect the existing operations of the Aqueduct. As a result, relative to existing conditions, the proposed project would not introduce new facilities that would require additional emergency response services. Impacts would be **less than significant**.

a.iii–v) The proposed project would not result in an increase in population. As a result, the proposed project would not lead to the construction of new housing, which could prompt a need for additional school services. The proposed project would not result in an increase in population and would not prompt the need for new parks. The proposed project would not include new housing or bring new businesses to the area that would

require any additional services or public facilities, including libraries. Therefore, the proposed project would have **no impact** related to school services.

a.v) Therefore, the proposed project would have **no impact** related to other public facilities.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. RECREATION —				
a) Would the proposed 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 proposed project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Environmental Setting

There are no existing neighborhood or regional parks or other recreational facilities in close proximity to the proposed project area.

Discussion

a, b) The proposed project would not increase the area's population that would necessitate the construction of new recreational facilities. The proposed project would not increase the need to construct or expand recreational facilities as populations in the vicinity are not expected to increase as a result of the proposed project. Construction workers would come from the existing population, and therefore, **no impact** would occur.

Transportation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. TRANSPORTATION — Would the proposed project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b) Would the proposed project 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?	☐	☐	☐	☒

Discussion

Kern County has a comprehensive transportation system to serve the rural travel needs of the proposed project. They include state highways, local roads, rural highways and streets, bus transit services, freight rail, and airports. Car and truck traffic bringing workers and supplies to the project area would increase during construction activities. Access to the project area would be from the county's roads and some unpaved agricultural roads. Most of the trucks and equipment, once brought to the project area, would remain within the project area for the duration of the project schedule.

a–d) Implementation of the proposed project would not substantially increase the number of vehicles on local roadways. The majority of traffic impacts would occur from the daily arrival and departure of workers. Approximately 10 workers would be required at the site per day. The addition of 8–10 worker round trips (4–5 one-way trips) along local roads would not substantially affect the circulation capacity, and therefore, the trips would not substantially affect the capacity of the local roadways. Traffic control is not anticipated to be required along local roadways. Proposed project-generated construction traffic would be nominal and temporary, and therefore, would not result in degradation in operating conditions on local roadways used for the proposed project. In addition, operation and maintenance of the proposed wells would be performed during regularly scheduled maintenance of other Aqueduct facilities.

As described above, implementation of the proposed project would not require a substantial number of workers over a long period of time. The proposed project would be located within the DWR right-of-way and would not impede the circulation system. Therefore, the proposed project would not conflict with adopted policies, plans, or programs related to public transit or alternative modes of transportation. The proposed project would not decrease the performance or safety of these facilities, which are sparse within the largely rural proposed project area. Proposed project activities would not disrupt services along local public transit, bicycle, or pedestrian routes.

"Vehicle miles traveled" refers to the amount and distance of automobile travel attributed to a project. A maximum of 10 workers would be required during various proposed project activities. These trips would be temporary over the approximately 18-month construction period and would not result in any perceivable increase in vehicle miles traveled that would exceed a County threshold of significance. There are no new permanent vehicle trips associated with the proposed project other than routine maintenance.

The proposed project would be implemented entirely within the DWR right-of-way. The proposed project would not include the construction or design of any roadway infrastructure that would cause a safety risk to vehicle operations. The proposed project would not adversely alter the physical configuration of the existing roadway network serving the area and would not introduce unsafe design features associated with large equipment transport. In addition, the proposed project would not introduce uses (types of vehicles) that are incompatible with existing uses already served by the area's road system.

Other than the transportation of workers and equipment to and from the stie, all proposed project-related activities would occur within the Aqueduct right-of-way. The proposed project would not interfere with emergency response access.

Therefore, the proposed project would **not impact** transportation resources.

Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. TRIBAL CULTURAL RESOURCES —				
a) Would the proposed 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), or	☐	☒	☐	☐
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Environmental Setting

This section examines the potential impacts of the proposed project on tribal cultural resources. *Tribal cultural resources* are defined by CEQA (PRC Section 21074a) as:

> *Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, in the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), or a local register of historical resources.*

This section relies on the information and findings presented in the following report:

Hoffman R, Zimmer P, Garcia Kellar A, Hrycyk A, Lowe M, and Miller D. 2024. *California Aqueduct Subsidence Program (CASP) Cultural Resources Technical Study for the Subsidence and Groundwater Monitoring Well Project, San Joaquin Field Division, Kern County, California*. Prepared by Environmental Science Associates, Petaluma, CA. Prepared for the California Department of Water Resources. February.

The confidential report details the results of the cultural resources study, which examined the environmental, ethnographic, and historic background of the proposed project area, emphasizing aspects of human occupation. Much of the background context and methodology for analyzing potential impacts of the proposed project on tribal cultural resources is the same as for the cultural resources impact analysis. For information regarding record searches, field surveys, and a summary of identified resources, please refer to the *Cultural Resources* section of this document.

Ethnographic Research

Village sites in the proposed project area vicinity include: *Pohalin Tinliu*, located on the southern shore of Kern Lake, approximately 5 miles north of MP 271.2; *Loasau*, located on the northern side of Kern Lake, approximately 8 miles northeast of MP 271.2; *Halau*, located near the entrance of Kern River into the channel connecting Kern Lake and Buena Vista Lake, approximately 7 miles north of MP 271.2; and *Tulamniu*, located on the slope of the hills at the western side of Buena Vista Lake, approximately 5 miles north of MP 259.6 (Kroeber 1976 [1925]; Wallace 1978a).

Native American Outreach

The California Native American Heritage Commission (NAHC) maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on September 11, 2023, to request a search of the SLF for the proposed project area at MP 213, 271.2, and 279.05, and on January 9, 2024, for the proposed project area at MP 230.6 and 259.5. The NAHC replied on November 9, 2023, and January 19, 2024, respectively, stating that the SLF has no record of any resources in or near the proposed project area. The responses also provided contact lists for 19 individuals representing ten California Native American Tribes that may be traditionally and culturally affiliated with the proposed project area.

In support of Native American consultation requirements for the proposed project pursuant to PRC Section 21080.3, and in accordance with the California Natural Resources Agency's *Final Tribal Consultation Policy* (TCP) and the DWR's *Tribal Engagement Policy* (TEP), the DWR sent letters, in March 2023, to representatives from five California Native American Tribes requesting that the recipients notify DWR if they would like to consult pursuant to PRC Section 21080.3. In January 2024, DWR sent similar letters, and follow-up emails, to representatives from ten California Native American Tribes. The only response DWR received from this outreach was an email from the Chairperson of the yak tityu tityu yak tiłhini – Northern Chumash Tribe, stating that her tribe defers consultation to the Tejon Indian Tribe. No additional correspondence with California Native American Tribes regarding the proposed project has occurred.

Appendix C provides documentation of the proposed project correspondence with Native American representatives to date.

Discussion

a)i–ii) Background research for the proposed project identified two cultural resources (both archaeological sites) with indigenous associations in the proposed project area: P-15-020185 and P-15-020189. The field survey for the proposed project did not identify any archaeological material associated with P-15-020185 or P-15-020189 in the proposed project area. During tribal outreach for the proposed project, no California Native American Tribe stated that either of these resources constituted a potential tribal cultural resource, as defined by PRC Section 21074, or that any other potential tribal cultural resources, as defined by PRC Section 21074, could be impacted by the proposed project.

As such, it does not appear that the proposed project would result in any impact on tribal cultural resources.

However, because the proposed project would involve ground-disturbing activities, such actions could unearth, expose, or disturb subsurface archaeological resources that were not identified on the surface. If previously unrecorded archaeological deposits are present in the proposed project area, and if they are found to qualify as tribal cultural resources, pursuant to PRC Section 21074, any impacts of the proposed project on the resource would be potentially significant. Such potentially significant impacts would be reduced to less-than-significant by implementing Mitigation Measures **CUL-1** and **CUL-2**. As such, impacts on human remains from the proposed project would be **less-than-significant with mitigation**.

Mitigation Measures

See the *Cultural Resources* section for mitigation measures **CUL-1** and **CUL-2**.

References

Kroeber, AL. 1976 [1925]. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78, Smithsonian Institution, Washington, DC. 1976 reprinted ed., Dover Publications, Inc., New York, NY.

Wallace, W. 1978a. “Northern Valley Yokuts”. In *California*, edited by Heizer RF, pp. 462–470. Handbook of North American Indians, vol. 8, Sturtevant WC, general editor. Smithsonian Institution, Washington, DC.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIX. UTILITIES AND SERVICE SYSTEMS — Would the proposed 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 proposed 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 proposed project that it has adequate capacity to serve the proposed 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?	☐	☐	☐	☒

Discussion

The Lost Hills Water District is the nearest water supplier in the vicinity of the proposed project area and serves untreated water for irrigation from the SWP. Other local water districts provide municipal water to surrounding areas via pump stations, pipelines, and other water storage and conveyance facilities.

Wastewater in the vicinity is treated and disposed of through on-site wastewater treatment systems (septic tanks). Septic tanks are designed with varying capacities depending upon the amount of waste generated. Kern County requires permits through their Public Health Services Department. Solid waste generated is collected by Waste Management (WM). WM offers non-hazardous and hazardous waste collection, processing, recycling and disposal, as well as construction and demolition waste processing, diversion, and transfer to a disposal facility. The Kettleman Hills Hazardous Waste Facility is the nearest disposal management facility in the vicinity of the project area.

a) This proposed project would involve the installation of groundwater monitoring wells that would require approximately 10 workers throughout the approximately 18-month construction schedule. The proposed project would result in the generation of wastewater associated with temporary use of portable toilets. During proposed project implementation, DWR may have portable toilet facilities available on site temporarily for use by construction workers. Given the relatively small construction workforce of approximately 6-8 construction workers on site daily for the approximate 18-month

construction period, this amount of waste would be minimal. Once construction activities are concluded, such portable facilities would be removed, and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. No water or wastewater treatment facilities would be installed as part of the proposed project and there are no proposed project activities that would require new electric power, natural gas, or telecommunications facilities.

Although the proposed project would create additional impervious surfaces, the total volume is minimal and therefore would not substantially alter the local drainage pattern of the proposed project sites. The proposed project would not include the construction of large structures or impervious surfaces that would substantially alter or change the rate or amount of surface runoff from the proposed project sites. Therefore, the proposed project would not require the construction or expansion of new storm water drainage facilities. Therefore, since there would be no construction of utility infrastructure associated with the proposed project; there would be **no impact**.

b) Water may be needed temporarily during implementation of the proposed project. Water for dust suppression may be pumped from the Aqueduct. If that source of water is insufficient, and other sources cannot be used, DWR would pay for water to be brought to the proposed project area from local water suppliers for dust suppression. Water demand for dust suppression would be temporary, and no new or expanded entitlements would be required. Therefore, potential impacts associated with availability of water supplies would be **less than significant**.

c) The proposed project would result in the generation of wastewater associated with temporary use of portable toilets. During proposed project implementation, DWR may have portable toilet facilities available on site temporarily for use by construction workers. Given the relatively small construction workforce of approximately 6–8 workers on site daily for the approximately 18-month construction period, this amount of waste would be minimal. Once construction activities are concluded, such portable facilities would be removed, and the wastewater properly handled and disposed in accordance with all applicable laws and regulations. Therefore, the proposed project does not require a wastewater treatment provider to serve the proposed project. Impacts would be **less than significant.**

d) Implementation of the proposed project would result in nominal solid waste, limited to trash and other construction-related materials. The proposed project would result in **less-than-significant impacts** related to local infrastructure capacity and would not impair attainment of solid waste reduction goals.

e) As stated above, implementation of the proposed project would result in nominal solid waste. Statewide policies regarding solid waste have become progressively more stringent, reflecting Assembly Bill 939, which requires local government to develop waste reduction and recycling policies and meet mandated solid waste reduction targets. For the minor amount of solid waste anticipated to be produced by the proposed project,

DWR would be required to comply with all laws and regulations related to the disposal and recycling of waste. impacts would be **less than significant**.

Wildfire

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant 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 proposed 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 proposed 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?	☐	☐	☐	☒

Environmental Setting

The proposed project area is located within LRAs designated as moderate and unzoned by the California Department of Forestry and Fire Protection (2023).

Discussion

a) Implementation of the proposed project is not anticipated to substantially impair an adopted emergency response plan or evacuation plan because all activities would be within the boundaries of the DWR right-of-way. Implementation of the proposed project would not interfere with emergency response access to the proposed project vicinity and **no impact** would occur.

b) The proposed project area is located within LRA moderate and unzoned fire hazard severity zones. The proposed project area does not include slopes that surround the Aqueduct that are susceptible to prevailing winds. Further, the surrounding vegetation and land use types have a low potential for fires. As a standard DWR safety practice, all vehicles and equipment would have fire prevention equipment on site, including fire extinguishers and shovels, if a fire were to occur. Therefore, construction of the proposed project is not expected to expose proposed project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Further, the proposed project would not involve operation of facilities that would exacerbate fire conditions within the area or require permanent workers or occupants at the proposed project sites. As a result, **no impact** would occur.

c) The proposed project would not require the installation or maintenance of infrastructure that would exacerbate wildfire risks. Therefore, there would be **no impact**.

d) As discussed in (a)(iv) and (c) in the *Geology, Soils, and Seismicity* section and (c)(i) and (c)(ii) in the *Hydrology and Water Quality* section, the proposed project would not result in increased drainage or runoff that could contribute to landslide or flooding impacts. **No impact** would occur.

References

California Department of Forestry and Fire Protection. 2024. California Fire Hazard Severity Zone Viewer. Viewed online at: https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414. Accessed: May 1, 2024.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XXI. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the proposed 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 proposed 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 proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a) The proposed project involves drilling below the ground surface within the Aqueduct right-of-way to depths of about 25 to 2,800 feet below the ground surface, and diameters of 6 to approximately 24 inches. The proposed project is designed to monitor groundwater levels and other spatial information as they relate to ground subsidence. The data would be used to help inform how subsidence is affecting the Aqueduct and would assist in maintaining infrastructure of the SWP. As described throughout, the proposed project would not: substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce or restrict the range of rare or endangered plants or animals; or eliminate important examples of the major periods of California history or prehistory. As discussed in the analyses provided in this Initial Study, adherence to federal, state, and local regulations, and proposed **Mitigation Measures BIO-1 through BIO-20, CUL-1 and CUL-2, GHG-1, and PALEO-1 through PALEO-5** would reduce all potentially significant impacts to biological, cultural, greenhouse gas, energy, and geological resources as well as to other issue areas analyzed, to **less-than-significant levels with mitigation incorporated**.

b) As noted throughout this document, the potential impacts of the proposed project are primarily temporary and short-term construction-related impacts and are site-specific. As noted above, all of the potential direct and indirect impacts of the proposed project were determined to be fully avoided or reduced to less than significant with incorporation of **Mitigation Measures BIO-1 through BIO-20, CUL-1 and CUL-2, GHG-1, and PALEO-1 through PALEO-5**. As a result, the potential impacts of the proposed project

are not considered cumulatively considerable, and impacts would be **less than significant with mitigation incorporated**.

c) The potential impacts of the proposed project are temporary, short-term, and site-specific. These impacts are all localized to the proposed project area and include limited adverse effects on biological, cultural, greenhouse gas, energy and geological resources. However, the proposed project would not include any activities or uses that may cause substantial adverse effects on human beings, either directly or indirectly, or on the physical environment. Compliance with applicable local, state, and federal standards, as well as incorporation of project mitigation measures, would result in **less-than-significant impacts with mitigation incorporated**.

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Appendix A

Biological Resources Technical Report

CASP MONITORING WELLS

Biological Resources Technical Report

Prepared for
California Department of Water Resources
Division of Engineering

June 2024

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Biological Resources Technical Report

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Acronyms and Abbreviations

Acronym	Definition
BRTR	Biological Resources Technical Report
CASP	California Aqueduct Subsidence Program
Cal-IPC	California Invasive Plant Council
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CVP	Central Valley Project
CWHR	California Wildlife Habitat Relationships
DOE	Division of Engineering
DWR	California Department of Water Resources
ESA	Environmental Science Associates
FESA	Federal Endangered Species Act
GPS	Global Positioning System
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MP	Milepost
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
SWP	State Water Project
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

EXECUTIVE SUMMARY

This Biological Resources Technical Report (BRTR) was prepared by the California Department of Water Resources (DWR) to evaluate biological resources at Milepost (MP) 213.0, MP 230.6, 259.5, MP 271.2, MP 279.1 of the California Aqueduct (Aqueduct). The evaluation was conducted at the Aqueduct, DWR's right of way, and adjacent lands (**Figure 1**).

CALIFORNIA AQUEDUCT SUBSIDENCE PROGRAM MONITORING WELLS

Biological Resources Technical Report

1.0 Background

The California Aqueduct is the primary method of transporting water from Northern California to Southern California. The concrete-lined canal winds its way through the Central Valley, moving water from the Clifton Court Forebay in the Sacramento-San Joaquin Delta down to Lake Perris, the State Water Project's (SWP) southernmost reservoir.

The California Aqueduct traverses portions of the San Joaquin Valley that have experienced subsidence.[1] Land subsidence in the San Joaquin Valley was first noted near the Delano area in 1935 (DWR 2017). Since that time, the San Joaquin Valley has undergone several periods of regional aquifer compaction as a result of groundwater extraction, largely for agricultural uses. The resulting land subsidence has reduced the freeboard[2] and capacity of the aqueduct system to transport and store water.

In June 2017, DWR prepared the California Aqueduct Subsidence Study, which summarized the magnitude, location, and effects of historic and current subsidence on the aqueduct system. To continue monitoring and understanding subsidence and ground water conditions monitoring wells will be installed.

2.0 Environmental Setting

2.1 Physical Conditions

The sites are located in the western San Joaquin Valley. The average temperature ranges from a high of 79.1° F to a low of 51° F. The average annual precipitation is 5.56 inches (National Oceanic and Atmospheric Administration 2024).

Mileposts 213.0 and 230.6 are located on the valley floor of the southwestern portion of the San Joaquin Valley (**Figure 2** and **Figure 3**). The Temblor Mountain Range borders the sites to the west. MP 213.0 is situated in the valley while MP 230.6 is at the base of Elk Hills. Elk Hills is one of California's most productive oil fields (CRC 2021).

Mileposts 259.5, 271.2, and 279.1 are located at the very southern end of the San Joaquin Valley (**Figure 4** and **Figure 5**). The Temblor Range begins to transition to such features as

1 Local or regional drop in ground surface elevation.

2 Vertical distance between the design water surface and the top of the concrete canal lining.

Devil's Gulch, Cienaga Canyon, San Emigdio Mountains, and Wheeler Ridge which all border the sites to the south. The three sites are situated in the valley and near the Maricopa Flats, with the exception of MP 279.1, which is tucked into the base of Wheeler Ridge.

The southern portion of the San Joaquin Valley is an asymmetric basin consisting of low alluvial plains and fans, overflow lands, and old lakebeds.

2.2 Adjacent Land Use

The existing land uses are the operations and maintenance of the California Aqueduct, open spaces, oil and gas production, and agriculture. The documented land uses are those identified in 2020 by DWR collected geospatial data for statewide crop mapping.

Agricultural production is the primary land use at the sites and consists of permanent crops such as pistachios, almonds, grapes, or citrus. The sites at MP 230.6 and 279.1 are the exception. MP 230.6 is adjacent to open space and nearby Ecological Reserves. MP 279.1 is also adjacent to open space but is at the base of the wheeler ridge hills where natural gas extraction occurs to the southwest (**Figure 6** through **Figure 10**).

3.0 Methods

The information provided in this report was obtained from a desktop-level review of biological resources and from biological assessments conducted in 2023 at each of the sites. Special-status plant and animal species and sensitive habitats that may occur in the proposed project area were determined, in part, by reviewing natural resource agency databases and relevant literature and other sources. A review of this information allowed for initial determinations on sensitive resource distributions and the probability of occurring within the proposed project footprint.

3.1 Definitions

3.1.1 Special-Status Species

For this report, special-status animal species include species that are: (1) listed as threatened or endangered under the California Endangered Species Act (CESA) or federal Endangered Species Act (FESA); (2) proposed for federal listing as threatened or endangered; (3) state or federal candidate species; and (4) identified by the California Department of Fish and Wildlife (CDFW) as species of special concern or fully protected species.

For the purpose of this report, special-status plant species include plants that are: (1) listed as threatened or endangered under the CESA or the FESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidate species; (4) designated as rare by the CDFW; and (5) California Rare Plant Rank (CRPR) 1A, 1B, 2A 2B, 3, or 4 species.

- California Rare Plant Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere

- California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere
- California Rare Plant Rank 2A: Plants presumed extirpated in California but common elsewhere
- California Rare Plant Rank 2B: Plants rare, threatened, or endangered in California but common elsewhere
- California Rare Plant Rank 3: Plants about which more information is needed, a review list
- California Rare Plant Rank 4: Plants of limited distribution, a watch list

  California Rare Plant Rank Extensions:

  .1 – Seriously threatened in California (greater than 80 percent of occurrences are threatened and/or have a high degree and immediacy of threat).

  .2 – Moderately threatened in California (20 to 80 percent of occurrences are threatened and/or have a moderate degree and immediacy of threat).

3.1.2 Potential to Occur

The potential for special-status species to occur onsite was assigned to one of five categories, as described below. Special-status species with a potential to occur are evaluated in Section 4.0 of this report.

- Present: The species has been documented onsite.
- High: The species has been recently (since 2018) documented, and suitable habitat for the species is present.
- Moderate: The site is located within the current range of the species, or there are nearby documented occurrences, and suitable habitat for the species may be present.
- Low: The site is located within the current range of the species, and low-quality or marginal habitat is present.
- None: The site is located outside of the species current range, or suitable habitat to support the species is not present.

3.2 Literature and Database Review

The following information sources were reviewed to determine the potential to occur for special-status plants, animal species, and sensitive habitats that may occur at each site:

- CDFW California Natural Diversity Database (CNDDB, [February 2024]), which provides an inventory of the status and locations of rare plants and animals in California. A three-mile search radius was conducted for each site.
- California Native Plant Society (CNPS) provides an inventory and ranking of Rare, Threatened, or Endangered vascular plant species of California (CNPS, [February 2024]). The list serves as the candidate list for listing as threatened and endangered by CDFW. A nine-quad search was conducted for each site.
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Online System (USFWS, [February 2024]), which identifies USFWS-managed

resources and suggested conservation measures for a defined project; indicates if any listed species, critical habitat, migratory birds, or other protected natural resources may be impacted at each site.

- DWR environmental data. DWR has collected environmental data at some of the proposed sites from previous ongoing maintenance projects.
- Survey data from 2021 and 2022 San Joaquin Field Division Habitat Conservation Plan (HCP) database.

3.3 Surveys

3.3.1 Vegetation and Habitat Mapping

Vegetation alliances and communities were mapped using the CDFW Vegetation Classification and Mapping Program (VegCamp). The digitized mapping data was verified in 2021.

3.3.2 Species and Resources Assessment

General habitat assessment surveys were conducted in various portions of San Joaquin Field Division for maintenance projects such as liner raises, liner repairs, drainage repairs, etc. Results from assessment surveys associated with the maintenance projects and other general activities were conducted in the vicinity between 2018 and present are included in this report (**Table 1**). The following is not an exhaustive list of the project related surveys but the most comprehensive because, if habitat was present species specific surveys were conducted for special-status plants, San Joaquin kit fox dens, San Joaquin antelope squirrel, sensitive kangaroo rats, burrowing owl and their burrows, raptor nesting, and blunt-nosed leopard lizard.

Also included for consideration was the baseline biological survey data collected for a region wide Habitat Conservation Plan in development.

Site specific habitat assessments were conducted at the proposed sites during April, May, August and November of 2023. All observations of special-status species and suitable habitat were recorded. These surveys included pedestrian, windshield, or a combination thereof using the California Aqueduct access roads, top embankments roads, toe roads, and publicly accessible roads. Species or species' resources (e.g., habitat and microhabitat) were visually identified using a spotting scope, binoculars, or unaided vision. In areas of potential interest, such as areas with sensitive or native habitat features, pedestrian surveys were conducted to ensure total visual coverage of the area.

TABLE 1. LIST OF ASSOCIATED PROJECTS FOR SPECIES AND RESOURCES DATA SOURCES

Project	Year	Location
San Joaquin Field Division Drainage Improvements Project	2018	MP 279, B Road, and field division maintenance yard
Sabodon Street Rehab Project	2019	Sabodon Road and adjacent drainage
Milepost 278 Drainage Project	2019	MP 278 drainages and overchutes
Wind Gap Road Basin Repair	2019	MP 279-281 adjacent access road
San Joaquin Field Division Instrumentation	2019	MP 175.16, 183.19, 196.58, 197.84, and 213.00
San Joaquin Field Division Liner Raises	2019, 2020	MP 199.71-200.01, MP 207.94-208.11, and MP 209.17-210.31
San Joaquin Liner Repairs	2021-2023	MP 174.07L, 176.50R, 176.58R, 181.00L, 183.27R, 184.59R, 184.82R, 186.32R, 198.25L, 203.78L, 204.30L, 208.85L, 224.05L, 224.18L, 224.88L, 224.88R, 237.37L, 237.55L, 239.24L, 240.21L, 241.33R, 241.42L, 241.46L, 241.46R, 241.60L, 242.80R, 243.25R, 243.40L, 243.40R, 246.40L, 246.70L, 247.70R, 248.20R, 256.39L, 256.56L, 256.56R, 257.30L, 260.45L, 271.27L, 274.04L, 274.04R, 282.04L, 282.04R
Habitat Conservation Plan Baseline Biological Studies	2021-2022	Entire Region MP 174-294, 13,882-acre Study Area
Milepost 230 Study Design Repair	2018-2022	MP 230.4-231.6
San Joaquin Field Division Void Repairs	2023-2024	MP 230.04R and MP 234.45L
San Joaquin Field Division Bridge Retrofits	2023-2024	MP 178.56, 198.75, 213.97, 220.28, 220.28, 222.91, 229.71, 232.23, 236.47, 239.81, 242.35, 243.01, 245.09, 248.97, 253.8, 256.13, 262.61, 264.37, 267.39, 268.94, 274.45, 281.16, 283.95, 287.12

3.3.3 Planned Surveys

Species specific assessments are planned to provide additional data at the proposed sites. The following surveys will be conducted during appropriate and recommended survey timing at sites where potential for occurrence has been identified, see section 4.0.

Rare and sensitive plant surveys will be conducted during the appropriate bloom periods for listed plant species.

Crotch bumble bee habitat assessments will be conducted to evaluate habitat viability for the species. If habitat quality is marginal or greater, Crotch bumble bee surveys will be conducted.

San Joaquin antelope squirrel presence or absence surveys will be conducted at potentially occupied sites. If it is determined that the species is present, focused surveys will be conducted to determine the use of the site, such as breeding, foraging, etc.

Den and burrow surveys will be conducted to look for active use and species presence. Potential burrowing owl burrows, American badger dens, and San Joaquin kit fox dens will be identified for further investigation. Reconnaissance level burrowing owl surveys, trail camera deployments, and spotlighting will occur at sites with potential for occurrence.

Small mammal trapping will be conducted according to USFWS survey protocol to determine species presence or absence where burrows are present at sites with potential for occurrence.

Blunt-nosed leopard lizard surveys may be conducted according to CDFW survey protocol to confirm absence at sites with low potential to occur.

4.0 Special-Status Species Analysis

4.1 Special-Status Animal Species

Special-status animal species as reported in the CNDDB and USFWS iPac were analyzed to determine potential to occur within each site in combination with known occurrences recorded by DWR (**Appendix B and C, Tables 2 through 6**).

TABLE 2. MP 213.0 REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES

Common Name ***Scientific Name***	**Listing Status**	**Habitat Requirements**	**Potential for Occurrence**
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	None. Habitat is not present. The site is heavily vegetated with shrubs.
BIRDS			
Hawks, Kites, Harriers, & Eagles (Accipitridae)			
Swainson's hawk *Buteo swainsoni*	Federal: BCC State: ST	Found in Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low. Hawks have been documented foraging in the area, but nesting habitat is not present.
True Owls (Strigidae)			
Burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	Low. Marginal habitat is present, but species has not been documented during DWR surveys.
Shrikes (Laniidae)			
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. Documented to use right of way.

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
MAMMALS			
Squirrels & relatives (Sciuridae)			
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	Federal: None State: ST	Occurs in the western San Joaquin Valley from 60 to 360 meters elevation on dry, sparsely vegetated, loam soils. Selects areas with slopes from 0 to 20 degrees and uses widely scattered shrubs and annual forbs and grasses.	Present. Species documented on site. Marginal habitat is present.
Kangaroo rats, Pocket mice, & Kangaroo mice (Heteromyidae)			
Short-nosed kangaroo rat *Dipodomys nitratoides brevinasus*	Federal: None State: SSC	Inhabits grasslands with scattered shrubs and desert-shrub associations on powdery soils. Also occurs in saline soils.	None. Site is out of species range.
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	Federal: FE State: SE	Inhabits arid, alkaline, annual grassland and shrubland associations between 60 and 90 meters above sea level. Also found in sparse cover of plants and alkaline soils with a high clay content and seasonal flooding.	Low. Marginal habitat is present.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	Low. Marginal habitat is present.
Weasels & relatives (Mustelidae)			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	Low. Marginal habitat is present.

*FP= Fully protected; FE = Federally Endangered; SE= California Endangered; CE=Candidate Endangered; FT = Federally Threatened; ST= California Threatened; SSC = California Species of Special Concern; BCC= Birds of Conservation Concern; WL= Watchlist

TABLE 3. MP 230.6 REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	Low. Suitable habitat is present; however, the species has not been documented onsite.
Egg-Laying Snakes (Colubridae)			
San Joaquin coachwhip *Masticophis flagellum ruddocki*	Federal: None State: SSC	Inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects.	Present. Documented to use right of way.

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
BIRDS			
Hawks, Kites, Harriers, & Eagles (Accipitridae)			
Swainson's hawk *Buteo swainsoni*	Federal: BCC State: ST	Found in Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low. Hawks have been documented foraging in the area, but nesting habitat is not present.
True Owls (Strigidae)			
Burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	High. Suitable habitat is present, however, the species has not been documented onsite.
Shrikes (Laniidae)			
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. Documented to use right of way.
MAMMALS			
Free-Tailed Bats (Molossidae)			
Western mastiff bat (=greater bonneted bat) *Eumops perotis californicus*	Federal: None State: SSC	Known to occur in habitat consisting of extensive open areas within dry desert washes, flood plains, chaparral, cismontane oak woodland, coastal scrub, open ponderosa pine forest, and grasslands. Roosts primarily in crevices in rock outcrops and buildings.	High. Foraging habitat is present, however roosting habitat is not present.
Squirrels & relatives (Sciuridae)			
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	Federal: None State: ST	Occurs in the western San Joaquin Valley from 60 to 360 meters elevation on dry, sparsely vegetated, loam soils. Selects areas with slopes from 0 to 20 degrees and uses widely scattered shrubs and annual forbs and grasses.	Present. Species documented on site.
Shrews (Soricidea)			
Buena Vista Lake ornate shrew *Sorex ornatus relictus*	Federal: FE State: SCC	Occurs in wetlands with dense cover and abundant layer of litter such as riparian areas near water in the southern San Joaquin Valley. A source of sufficient water source.	None. Nearby suitable habitat is declining and not present on site.
Kangaroo rats, Pocket mice, & Kangaroo mice (Heteromyidae)			
Giant kangaroo rat *Dipodomys ingens*	Federal: FE State: SE	Inhabits fine sandy loam soils supporting sparse annual grass/forb vegetation and marginally found in low-density alkali desert scrub.	Present. Species documented on site.
Short-nosed kangaroo rat *Dipodomys nitratoides brevinasus*	Federal: None State: SSC	Inhabits grasslands with scattered shrubs and desert-shrub associations on powdery soils. Also occurs in saline soils.	None. Site is out of species range.
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	Federal: FE State: SE	Inhabits arid, alkaline, annual grassland and shrubland associations between 60 and 90 meters above sea level. Also found in sparse cover of plants and alkaline soils with a high clay content and seasonal flooding.	Present. Species documented on site.

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
Mice, Rats, & Voles (Muridae)			
Tulare grasshopper mouse *Onychomys torridus tularensis*	Federal: None State: SSC	Found primarily on sandy or gravelly soils in open and semi-open habitats. Found in the southern San Joaquin Valley, Carrizo Plain, Cuyama Valley, and nearby foothills of the Sierra Nevada and Tehachapi Mountains.	Present. Species documented on site.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	High. Suitable habitat is present, species have been documented foraging on site.
Weasels & relatives (Mustelidae)			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	High. Suitable habitat is present, species have been documented foraging on site.

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TABLE 4. MP 259.5 REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
AMPHIBIANS			
Spadefoot Toads (Scaphiopodidae)			
Western spadefoot *Spea hammondii*	Federal: None State: SSC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food source.	None. Habitat not present.
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	None. Habitat not present. The site only offers disturbed grassland.
Egg-Laying Snakes (Colubridae)			
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas with friable soils for burrowing.	Moderate. Suitable habitat occurs on site.
San Joaquin coachwhip *Masticophis flagellum ruddocki*	Federal: None State: SSC	Inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects.	Moderate. Suitable habitat occurs on site.

Common Name ***Scientific Name***	**Listing Status**	**Habitat Requirements**	**Potential for Occurrence**
True Owls (Strigidae)			
Burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	Low. Marginal habitat is present, but there is high disturbance from nearby road.
Shrikes (Laniidae)			
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. Documented to use right of way.
Larks (Alaudidae)			
California horned lark *Eremophila alpestris actia*	Federal: None State: WL	Found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above the treeline. During the winter, this species typically flocks in desert lowlands.	Present. Documented to use right of way.
MAMMALS			
Squirrels & relatives (Sciuridae)			
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	Federal: None State: ST	Occurs in the western San Joaquin Valley from 60 to 360 meters elevation on dry, sparsely vegetated, loam soils. Selects areas with slopes from 0 to 20 degrees and uses widely scattered shrubs and annual forbs and grasses.	Present. Habitat is marginal and species may use the area primarily for foraging.
Kangaroo rats, Pocket mice, & Kangaroo mice (Heteromyidae)			
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	Federal: FE State: SE	Inhabits arid, alkaline, annual grassland and shrubland associations between 60 and 90 meters above sea level. Also found in sparse cover of plants and alkaline soils with a high clay content and seasonal flooding.	Low. Marginal to unsuitable habitat is present.
Mice, Rats, & Voles (Muridae)			
Tulare grasshopper mouse *Onychomys torridus tularensis*	Federal: None State: SSC	Found primarily on sandy or gravelly soils in open and semi-open habitats. Found in the southern San Joaquin Valley, Carrizo Plain, Cuyama Valley, and nearby foothills of the Sierra Nevada and Tehachapi Mountains.	Low. Marginal habitat is present.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	Low. Habitat is marginal and may use right of way as corridor only.
Weasels & relatives (Mustelidae)			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	High. Suitable habitat is present.

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TABLE 5. MP 271.2 REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	None. Habitat not present. The site only offers disturbed grassland.
Egg-Laying Snakes (Colubridae)			
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas with friable soils for burrowing.	Moderate. Suitable habitat occurs on site.
San Joaquin coachwhip *Masticophis flagellum ruddocki*	Federal: None State: SSC	Inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects.	Present. Suitable habitat occurs on site.
BIRDS			
True Owls (Strigidae)			
Burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	Low. Marginal habitat is present.
Shrikes (Laniidae)			
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. Documented to use right of way.
MAMMALS			
Squirrels & relatives (Sciuridae)			
San Joaquin antelope squirrel *Ammospermophilus nelsoni*	Federal: None State: ST	Occurs in the western San Joaquin Valley from 60 to 360 meters elevation on dry, sparsely vegetated, loam soils. Selects areas with slopes from 0 to 20 degrees and uses widely scattered shrubs and annual forbs and grasses.	Low. Habitat is marginal on site.
Kangaroo rats, Pocket mice, & Kangaroo mice (Heteromyidae)			
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	Federal: FE State: SE	Inhabits arid, alkaline, annual grassland and shrubland associations between 60 and 90 meters above sea level. Also found in sparse cover of plants and alkaline soils with a high clay content and seasonal flooding.	None. Suitable habitat is not present onsite.
Mice, Rats, & Voles (Muridae)			
Tulare grasshopper mouse *Onychomys torridus tularensis*	Federal: None State: SSC	Found primarily on sandy or gravelly soils in open and semi-open habitats. Found in the southern San Joaquin Valley, Carrizo Plain, Cuyama Valley, and nearby foothills of the Sierra Nevada and Tehachapi Mountains.	Low. Suitable habitat is marginally present.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	Low. Habitat is marginal and may use right of way as corridor only.

Common Name *Scientific Name*	Listing Status	Habitat Requirements	Potential for Occurrence
Weasels & relatives (Mustelidae)			
American badger *Taxidea taxus*	Federal: None State: SSC	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	Present. Suitable habitat is present and species was documented on site.
INSECTS			
Bumble Bees (Bombus)			
Crotch bumble bee *Bombus crotchii*	Federal: None State: CE	Occurs primarily in California. Prefers grassland and scrub areas within drier climates. They overwinter in leaf litter and soft soil.	Moderate. Marginal habitat is present.

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TABLE 6. MP 279.1 REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS ANIMAL SPECIES

Common Name Scientific Name	Listing Status	Habitat Requirements	Potential for Occurrence
REPTILES			
Leopard Lizards (Crotaphytidae)			
Blunt-nosed leopard lizard *Gambelia sila*	Federal: FE State: SE; FP	Inhabits semiarid grasslands, alkali flats, and washes. Prefers flat areas with open space for running, avoiding densely vegetated areas. Uses mammal dens and burrows for cover and shelter. Will use large shrubs with dense canopy cover for refuge and thermoregulation.	Low. Habitat is not present: however, in 2023 species were observed over 3 miles south of the site.
Egg-Laying Snakes (Colubridae)			
San Joaquin coachwhip *Masticophis flagellum ruddocki*	Federal: None State: SSC	Inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects.	Present. Species was documented on site.
BIRDS			
True Owls (Strigidae)			
Burrowing owl *Athene cunicularia*	Federal: None State: SSC	Inhabits open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Usually nests in old burrows of ground squirrel, or other small mammals.	Low. Marginal habitat is present.
Blackbirds (Icteridae)			
Tricolored blackbird *Agelaius tricolor*	Federal: None State: ST; SSC	Known to occur in freshwater marshes, swamps, and wetlands. Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	None. Habitat is not present.

Common Name Scientific Name	Listing Status	Habitat Requirements	Potential for Occurrence
MAMMALS			
Free-Tailed Bats (Molossidae)			
Pallid bat *Antrozous pallidus*	Federal: None State: SSC	Roosts in rock crevices, old buildings, bridges	High. Foraging habitat is present, however roosting habitat is not present.
Foxes, Wolves, Coyotes (Canidae)			
San Joaquin kit fox *Vulpes macrotis mutica*	Federal: FE State: ST	Inhabits arid regions in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Dens are excavated in open, level areas with loose-textured, sandy and loamy soils.	Low. Habitat is marginal and may use right of way as a corridor only.
INSECTS			
Bumble Bees (Bombus)			
Crotch bumble bee *Bombus crotchii*	Federal: None State: CE	Occurs primarily in California. Prefers grassland and scrub areas within drier climates. They overwinter in leaf litter and soft soil.	Moderate. Marginal habitat is present.

*FP= Fully protected; FE = Federally Endangered; SE= California Endangered; CE=Candidate Endangered; FT = Federally Threatened; ST= California Threatened; SSC = California Species of Special Concern; BCC= Birds of Conservation Concern; WL= Watchlist

4.2 Special-Status Plant Species

Special-status plant species as reported in the CNDDB and CNPS were analyzed to determine potential to occur at each site (**Table 7, Appendix D**).

Three special-status plant species have a moderate to high potential to occur at MP 230.6: San Joaquin bluecurls (*Trichostema ovatum*), Hoover's eriastrum (*Eriastrum hooveri*), and oil neststraw (*Stylocline citroleum*).

One special-status plant species has a high potential to occur at MP 271.2: Comanche Point layia (*Layia leucopappa*).

Six special-status plant species have a moderate to high potential to occur at MP 279.1: San Joaquin bluecurls, Bakersfield cactus (*Opuntia basilaris var. treleasei*), Douglas' fiddleneck (*Amsinckia douglasiana*), Lemmon's jewelflower (*Caulanthus lemmonii),* and cottony buckwheat (*Eriogonum gossypinum*).

Nine special-status plant species have a moderate potential to occur at the sites (see potential to occur for exact locations):: Kern mallow (*Eremalche parryi ssp. Kernensis*), San Joaquin woollythreads (*Monolopia congdonii*), California jewelflower (*Caulanthus californius*), recurved larkspur (*Delphinium recurvatum*), Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), crownscale (*Atriplex coronata*), horn's milk-vetch (*Astragalus hornii var. hornii),* cottony buckwheat (*Eriogonum gossypinum*), and California alkaligrass (*Puccinellia simplex*).

TABLE 7. ALL SITES REVIEW OF REGIONALLY OCCURRING SPECIAL-STATUS PLANT SPECIES

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
heart-leaved thorn-mint *Acanthomintha obovata ssp. Cordata*	Federal: None State: None CRPR: 4.2	Apr-Jul	Chaparral (openings), cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1.
Howell's onion *Allium howellii var. howellii*	Federal: None State: None CRPR: 4.3	Mar-Apr	Valley and foothill grassland	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1.
Mt. Pinos onion *Allium howellii var. clokeyi*	Federal: None State: None CRPR: 4.3	Mar-Apr	Great Basin scrub, meadows and seeps (edges), and pinyon and juniper woodland	None. Habitat is not present.
Douglas' fiddleneck *Amsinckia douglasiana*	Federal: None State: None CRPR: 4.2	Mar-May	Cismontane woodland and valley and foothill grassland	High. Observed near MP 279.1 in 2021.
forked fiddleneck *Amsinckia furcata*	Federal: None State: None CRPR: 4.2	Feb-May	Cismontane woodland and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
oval-leaved snapdragon *Antirrhinum ovatum*	Federal: None State: None CRPR: 4.2	May-Nov	Chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Horn's milk-vetch *Astragalus hornii var. hornii*	Federal: None State: None CRPR: 1B.1	May-Oct	Meadows and seeps, and playas.	Moderate. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Within CNPS estimated range.
Salinas milk-vetch *Astragalus macrodon*	Federal: None State: None CRPR: 4.3	Apr-Jul	Chaparral (openings), cismontane woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
heartscale *Atriplex cordulata var. cordulata*	Federal: None State: None CRPR: 1B.2	Apr-Oct	Chenopod scrub, meadows and seeps, and valley and foothill grassland (sandy).	Low. Habitat is present at all sites, but outside of CNPS estimated range.
Earlimart orache *Atriplex cordulata var. erecticaulis*	Federal: None State: None CRPR: 1B.2	Aug-Sep	Valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
crownscale *Atriplex coronata var. coronata*	Federal: None State: None CRPR: 4.2	Mar-Oct	Chenopod scrub, valley and foothill grassland, and vernal pools.	Moderate. Habitat is present at all sites. Within CNPS estimated range.
Lost Hills crownscale *Atriplex coronata* var. *vallicola*	Federal: None State: None CRPR: 1B.2	Apr-Sep	Chenopod scrub, valley and foothill grassland, and vernal pools.	Moderate. Habitat is present and within CNPS estimated range at MP 213.0 and 230.6.
Carrizo Plain crownscale *Atriplex flavida*	Federal: None State: None CRPR: 1B.3	Mar-Jul	Chenopod scrub, valley and foothill grassland, and vernal pools.	Low. Habitat is present at all sites, but outside of CNPS estimated range.
lesser saltscale *Atriplex minuscula*	Federal: None State: None CRPR: 1B.1	May-Oct	Chenopod scrub, playas, and valley and foothill grassland.	Low. Habitat is present at all sites, but outside of CNPS estimated range.
subtle orache *Atriplex subtilis*	Federal: None State: None CRPR: 1B.2	Jun-Sep	Valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
Bakersfield smallscale *Atriplex tularensis*	Federal: None State: SE CRPR: 1A	Jun-Oct	Chenopod scrub.	Low. Habitat is not present at MP 271.2, but it is within CNPS estimate range.
Mexican mosquito fern *Azolla microphylla*	Federal: None State: None CRPR: 4.2	Aug	Marshes and swamps (ponds, slow water).	None. Habitat is not present and outside of CNPS estimated range.
alkali mariposa-lily *Calochortus striatus*	Federal: None State: None CRPR: 1B.2	Apr-Jun	Chaparral, chenopod scrub, Mojavean desert scrub, and meadows and seeps.	Low. Habitat is present at all sites, but outside of CNPS estimated range.
white pygmy-poppy *Canbya candida*	Federal: None State: None CRPR: 4.2	Mar-Jun	Joshua tree "woodland", Mojavean desert scrub, and pinyon and juniper woodland.	None. Habitat is not present and outside of CNPS estimated range.
Mojave paintbrush *Castilleja plagiotoma*	Federal: None State: None CRPR: 4.3	Apr-Jun	Great Basin scrub (alluvial), Joshua tree "woodland", lower montane coniferous forest, and pinyon and juniper woodland.	None. Habitat is not present and outside of CNPS estimated range.
California jewelflower *Caulanthus californicus*	Federal: FE State: CE CRPR: 1B.1	Mar-May	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	Moderate. Habitat is present at all sites and within CNPS estimated range.
Lemmon’s jewelflower *Caulanthus lemmonii*	Federal: None State: None CRPR: 1B.2	Feb-May	Pinyon and juniper woodland and valley and foothill grassland.	High. Habitat is present at MP 279.1 and CNDDB occurrences are within 3 miles.
hispid salty bird's-beak *Chloropyron molle ssp. hispidum*	Federal: None State: None CRPR: 1B.1	Jun-Sep	Meadows and seeps, and valley and foothill grassland	Low. Habitat is present at all sites, but outside of CNPS estimated range.
slough thistle *Cirsium crassicaule*	Federal: None State: None CRPR: 1B.1	May-Aug	Chenopod scrub, marshes and swamps (sloughs), and riparian scrub.	Low. Marginal habitat is present at MP 213.0 and 230.6. Within CNPS estimate range.
Kern Canyon clarkia *Clarkia xantiana ssp. parviflora*	Federal: None State: None CRPR: 4.2	May-Jun	Chaparral, cismontane woodland, Great Basin scrub, and valley and foothill grassland.	Low. Habitat is present at all sites, but outside of CNPS estimated range.
short-bracted bird's-beak *Cordylanthus rigidus ssp. brevibracteatus*	Federal: None State: None CRPR: 4.3	Jul-Aug	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest.	None. Habitat is not present and outside of CNPS estimated range.
San Diego tarweed *Deinandra paniculata*	Federal: None State: None CRPR: 4.2	Apr-Nov	Coastal scrub, valley and foothill grassland, and vernal pools.	None. Habitat is not present and outside of CNPS estimated range.
Mt. Pinos larkspur *Delphinium parryi ssp. purpureum*	Federal: None State: None CRPR: 4.2	May-Jun	Chaparral, Mojavean desert scrub, and pinyon and juniper woodland.	None. Habitat is not present and outside of CNPS estimated range.
recurved larkspur *Delphinium recurvatum*	Federal: None State: None CRPR: 1B.2	Mar-Jun	Chenopod scrub, cismontane woodland, and valley and foothill grassland.	Moderate. Habitat is present at all sites and within estimate CNPS range.
calico monkeyflower *Diplacus pictus*	Federal: None State: None CRPR: 1B.1	Mar-May	Broadleafed upland forest and cismontane woodland.	None. Habitat is not present and outside of CNPS estimated range.
Kern mallow *Eremalche parryi ssp. kernensis*	Federal: FE State: None CRPR: 1B.2	Mar-May	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	Moderate. Habitat is present at all sites and within CNPS estimate range.

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
Hoover's eriastrum *Eriastrum hooveri*	Federal: FD State: None CRPR: 4.2	Mar-Jul	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.	High. Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6.
cottony buckwheat *Eriogonum gossypinum*	Federal: None State: None CRPR: 4.2	Mar-Sep	Chenopod scrub and valley and foothill grassland.	High. Habitat is present at all sites. The species has been observed in the vicinity of MP 279.1.
protruding buckwheat *Eriogonum nudum var. indictum*	Federal: None State: None CRPR: 4.2	May-Oct	Chaparral, Chenopod scrub, and cismontane woodland.	Low. Habitat is present at MP 213.0 and 230.6. Outside of CNPS estimate range.
Temblor buckwheat *Eriogonum temblorense*	Federal: None State: None CRPR: 1B.1	May-Sep	Valley and foothill grassland (clay, sandstone).	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
tansy-flowered woolly sunflower *Eriophyllum confertiflorum var. tanacetiflorum*	Federal: None State: None CRPR: 4.3	May-Jul	Cismontane woodland, and lower montane coniferous forest.	None. Habitat is not present and outside of CNPS estimated range.
spiny-sepaled button-celery *Eryngium spinosepalum*	Federal: None State: None CRPR: 1B.2	Apr-Jun	Valley and foothill grassland and vernal pools.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
San Benito poppy *Eschscholzia hypecoides*	Federal: None State: None CRPR: 4.3	Mar-Jun	Chaparral, cismontane woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Tejon poppy *Eschscholzia lemmonii ssp. Kernensis*	Federal: None State: None CRPR: 1B.1	Mar-May	Chenopod scrub and valley and foothill grassland.	Low. Habitat is present at all site. Outside of CNPS estimate range.
stinkbells *Fritillaria agrestis*	Federal: None State: None CRPR: 4.2	Mar-Jun	Chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Cuyama gilia *Gilia latiflora ssp. cuyamensis*	Federal: None State: None CRPR: 4.3	Apr-Jun	Pinyon and juniper woodland (sandy).	None. Habitat is not present and outside of CNPS estimated range.
urn-flowered alumroot *Heuchera caespitosa*	Federal: None State: None CRPR: 4.3	May-Aug	Cismontane woodland, lower montane coniferous forest, riparian forest (montane), and upper montane coniferous forest.	None. Habitat is not present and outside of CNPS estimated range.
Southern California black walnut *Juglans californica*	Federal: None State: None CRPR: 4.2	Mar-Aug	Chaparral, cismontane woodland, coastal scrub, and riparian woodland.	None. Habitat is not present and outside of CNPS estimated range.
alkali-sink goldfields *Lasthenia chrysantha*	Federal: None State: None CRPR: 1B.1	Feb-Apr	Vernal pools.	None. Habitat is not present and outside of CNPS estimated range.
Ferris' goldfields *Lasthenia ferrisiae*	Federal: None State: None CRPR: 4.2	Feb-May	Vernal pools (alkaline, clay).	Low. Habitat is not present but is within CNPS estimate range.
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	Federal: None State: None CRPR: 1B.1	Feb-Jun	Marshes and swamps (coastal salt), playas, and vernal pools.	None. Habitat is not present and outside of CNPS estimated range.

Common Name ***Scientific Name***	**Listing Status**	**Flowering Period**	**Habitat Requirements**	**Potential for Occurrence**
pale-yellow layia *Layia heterotricha*	Federal: None State: None CRPR: 1B.1	Mar-Jun	Cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Comanche Point layia *Layia leucopappa*	Federal: None State: None CRPR: 1B.1	Mar-Apr	Chenopod scrub and valley and foothill grassland.	High. Habitat is present at all sites. MP 271.2 is within CNPS estimate range and CNDDB occurrences within 3 miles.
Munz's tidy-tips *Layia munzii*	Federal: None State: None CRPR: 1B.2	Mar-Apr	Chenopod scrub and valley and foothill grassland (alkaline clay).	Low. Marginal habitat is present, but clay soils are not. Within estimated CNPS range.
silky lupine *Lupinus elatus*	Federal: None State: None CRPR: 4.3	Jun-Aug	Lower and upper montane coniferous forest.	None. Habitat is not present and outside of CNPS estimated range.
showy golden madia *Madia radiata*	Federal: None State: None CRPR: 1B.1	Mar-May	Cismontane woodland and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
solitary blazing star *Mentzelia eremophila*	Federal: None State: None CRPR: 4.2	Mar-May	Mojavean desert scrub.	None. Habitat is not present and outside of CNPS estimated range.
sylvan microseris *Microseris sylvatica*	Federal: None State: None CRPR: 4.2	Mar-Jun	Chaparral, cismontane woodland, Great Basin scrub, pinyon and juniper woodland, and valley and foothill grassland.	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
San Joaquin woollythreads *Monolopia congdonii*	Federal: FE State: None CRPR: 1B.2	Feb-May	Chenopod scrub and valley and foothill grassland (sandy).	Moderate. Habitat is present at all sites and within estimated CNPS range.
Piute Mountains navarretia *Navarretia setiloba*	Federal: None State: None CRPR: 1B.1	Apr-Jul	Cismontane woodland Pinyon and juniper woodland Valley and foothill grassland	Low. Nonnative grassland is identified at MP 259.5, 271.2, and 279.1. Outside of CNPS estimated range.
Bakersfield cactus *Opuntia basilaris var. treleasei*	Federal: FE State: SE CRPR: 1B.1	Apr-May	Chenopod scrub, cismontane woodland, and valley and foothill grassland.	High. MP 279.1 is within CNPS estimate range and CNDDB occurrences within 3 miles.
New York Mountains oreocarya *Oreocarya tumulosa*	Federal: None State: None CRPR: 4.3	Apr-Jun	Mojavean desert scrub and pinyon and juniper woodland.	None. Habitat is not present and outside of CNPS estimated range.
adobe yampah *Perideridia pringlei*	Federal: None State: None CRPR: 4.3	Apr-Jun	Chaparral, cismontane woodland, coastal scrub, and pinyon and juniper woodland.	None. Habitat is not present and outside of CNPS estimated range.
California alkaligrass *Puccinellia simplex*	Federal: None State: None CRPR: 1B.2	Mar-May	Chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools.	Moderate. Marginal habitat is present at all sites. The estimated CNPS range is near all sites.
aromatic canyon gooseberry *Ribes menziesii var. ixoderme*	Federal: None State: None CRPR: 1B.2	Apr	Chaparral and cismontane woodland.	None. Habitat is not present and outside of CNPS estimated range.
oil neststraw *Stylocline citroleum*	Federal: None State: None CRPR: 1B.1	Mar-Apr	Chenopod scrub, coastal scrub, and valley and foothill grassland.	High. Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6.

Common Name *Scientific Name*	Listing Status	Flowering Period	Habitat Requirements	Potential for Occurrence
San Joaquin bluecurls *Trichostema ovatum*	Federal: None State: None CRPR: 4.2	Jul-Oct	Chenopod scrub and valley and foothill grassland.	Present. Habitat is present at all sites. The species has been observed in the vicinity of MP 230.6 and MP 279.1.

*FE = Federally Endangered; SE= California Endangered; FT = Federally Threatened; ST= California Threatened; 1B.1= Plants Seriously Rare or Endangered in California; 1B.2 = Plants Rare, Threatened, or Endangered in California and Elsewhere

4.3 Habitat Connectivity

Wildlife corridors, or habitat corridors, are natural or semi-natural lands (e.g., rural, agricultural, ruderal, barren) that connect populations of wildlife across the landscape. These areas allow for movement for migration, hunting, genetic exchange, and for means of escape from events such as fires or disease.

At the sites, habitat connectivity can be considered in three main aspects—north to south along the California Aqueduct, east to west across the California Aqueduct, and the open water environment within the California Aqueduct.

- **North to South**. The California Aqueduct runs generally north to south along California's Central Valley and can be considered a link to habitat adjacent to it. The north to south connection along both sides of the aqueduct is open and provides a movement corridor or temporary habitat for traveling wildlife.
- **East to West**. The habitat connectivity from east to west is less open due to the aquatic nature of the California Aqueduct. Periodic bridges, overchutes, and utility crossings across the canal provide terrestrial passage from one side to the other. Structures and crossings may be used for individual wildlife to cross from one side of the canal to the other, and for nesting and roosting.
- **Open Water**. Waterfowl and coastal bird species often use the California Aqueduct as a resting area during the spring and fall migratory periods. Bats and birds forage for insects over the open water.

5.0 Results: Discussion of Biological Resources

5.1 Vegetation Alliances and Habitats

5.1.1 Vegetation Alliances and Habitat Types

The sites include up to five vegetation alliance communities. From those vegetation alliances, three habitat types can be distinguished using California Wildlife Habitat Relationships (CWHR) in conjunction with the Manual. Vegetation and habitat are depicted in **Table 8,** and **Figure 11 through Figure 15**.

TABLE 8. VEGETATION AND HABITAT TYPES PRESENT.

Site	Vegetation Alliance Community	Associated CWHR Habitat Type	Site Specific Description
MP 213.0	Allscale scrub	alkali desert scrub	Composed of dense atriplex shrubs (*Atriplex* sp.) and interspersed with non-native grasses. The high-density vegetation can be a deterrent to special-status species that require open spaces for hunting, foraging, and escape routes. The adjacent agricultural lands isolate the area from any adjoining suitable habitat.
MP 230.6	Upland mustards	annual grassland	Composed of sparse mustard and other ruderal herbs. A low density of atriplex shrubs is present on site, this particular area is more open than the surrounding. Higher ground compaction is noticeable.
	Allscale scrub	alkali desert scrub	
MP 259.5	Non-native grassland	annual grassland	Composed of nonnative grassland and invasives such as Russian thistle (Salsola sp.). Within and adjacent to the site is a ruderal space that is disturbed by its proximity to a road intersection.
	Allscale scrub	alkali desert scrub	
	Disturbed, Road	barren	
MP 271.2	Non-native grassland	annual grassland	Composed of nonnative grassland and compacted graveled area widened from the road and adjacent check structure. An ephemeral creek is south of the site.
	Disturbed, Road	barren	
MP 279.1	Non-native grassland	annual grassland	Composed of nonnative grassland but native species present, such as bluecurls. The site is within a transition of low-lying valley to southern foothill ecoregions.
	Disturbed, Development	barren	

5.1.2 Habitat Descriptions

Alkali desert scrub. Characterized by open stands of very low to moderately high (0.25–2.0 m; 0.8–6.6 ft) grayish, spinescent, leptophyllous to microphyllous subshrubs and shrubs, which are physically uniform, widely spaced, and occur on relatively dry soils.

Annual grassland. Characterized by open grasslands composed of annual grasses and forbs. Often occur as an understory to other habitats. Species diversity and structure depends largely on weather patterns and grazing. Great physical differences are characterized between seasons.

Barren. Characterized by the absence of vegetation. Any habitat with <2% total vegetation cover by herbaceous, desert, or nonwildland species and <10% cover by tree or shrub species is defined this way. May consist of sparse growth, rock, gravel, and soil.

5.2 Sensitive Natural Communities

5.2.1 Sensitive Natural Communities

None of the habitat types and associated alliances present at the sites meet the criteria for sensitive or rare natural communities. The lack of species diversity and isolation from surrounding agricultural practices are typical obstacles and inhibit habitat ecosystems from flourishing or existing in a natural state.

5.2.2 Aquatic Resources Results

Aquatic resources do not occur at the sites, only one ephemeral creek or drainage is identified near MP 271.2. A branch of Pleitito Creek intersects the California Aqueduct where a confined channel carries flow over a siphoned portion of the Aqueduct. Pleitito Creek's source is from the San Emigdio Mountains. The area consists of desert riparian habitat dominated by tamarisk (*Tamarix spp.*)

5.3 Habitat Connectivity

All proposed sites offer the same level of habitat connectively from generally a north and south direction and as an open water source as discussed in section 4.3. At MP 213.0 only east to west connection is at MP 212.64 in the form of a pipeline and cement structure and an overchute at MP 213.4. At MP 230.6 connectivity is an overchute at MP 230.44 and a pipeline at MP 230.7. At MP 259.5 and 279.1 a road intersection is within 400 feet of the proposed sites. MP 271.2 is connected by a siphon that allows Pleitito Creek as mentioned in the section above.

5.4 Special-Status Animal Species

Preliminary analysis for special-status animal species described in Section 4.1 in combination with surveys conducted from 2018 through 2023 resulted in the following findings (**Figure 16** through **Figure 20**).

5.4.1 Special-Status Animal Species Results

Western Spadefoot

Western spadefoot is not known to occur at any of the sites, however an occurrence was recorded in CNDDB with three miles of MP 259.5. They are assumed present wherever habitat occurs, such as sites with areas of ponding that fill during high rainfall events that persist for at least 11 weeks, typically between October to May. This species lives in a wide range of habitats, including lowlands to foothills, grasslands, open chaparral, and pine-oak woodlands. It prefers shortgrass plains, sandy or gravelly soil (e.g., alkali flats, washes, alluvial fans). It is fossorial and breeds in temporary rain pools and slow-moving streams (e.g., areas flooded by intermittent streams). At MP 259.5 ponding has not been observed in 2024 however examination of aerial maps shows a pond present in March 2023. Due to the lack of ponding in 2024, it has been determined that suitable habitat is not currently present at MP 259.5, therefore, there is no potential for the species to occur.

Blunt-nosed Leopard Lizard

The blunt-nosed leopard lizard is not known to occur at any of the sites. MP 230.6 has suitable habitat present however no blunt-nosed leopard lizards were observed during any surveys in 2018 and 2022. The surveys adhered to seasonal timing and weather windows necessary for aboveground lizard activity.

Other Protected Reptiles

Two other State-protected reptiles occur or potentially occur at sites: California glossy snake and the San Joaquin coachwhip. The California glossy snake inhabits arid scrub, rocky washes, grasslands, and chaparral habitats, and generally prefers microhabitats of open areas with friable soils for burrowing. Although some diurnal activity has been reported, glossy snakes are most active at night (Zeiner et al. 1988–1990). Individuals are most commonly encountered in May and June in the southern portion of their California range (Zeiner et al. 1988–1990). In the interior Coast Ranges, another activity peak occurs prior to the first rains of fall (Zeiner et al. 1988–1990). Periods of winter inactivity occur at all localities. Suitable habitat is present at MP 259.5 and MP 271.2.

The San Joaquin coachwhip inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub, where they take refuge in rodent burrows, under shaded vegetation, and under surface objects (Zeiner et al. 1988–1990). This species is diurnal and is usually active mid-morning and late afternoon from March through October (Zeiner et al. 1988–1990). Observations have been made at MP 230.6, MP 272.1, and MP 279.1. Suitable habitat is present at MP 259.5.

Burrowing Owl

Burrowing owl habitat is present at MP 230.6 and marginal habitat is present at MP 213.0 and MP 259.5. There have been no occurrence of the species at the sites, however occurrences have been recorded in CNDDB within three miles at all three sites. The sites located at MP 213.0 and MP 259.5 have had nearby occurrences, however, the potential habitat within the sites is severely degraded and therefore is not considered suitable for the species. The California Aqueduct consists of a strip of land known as the right of way that neighbors the entire structure. The right of way provides cover and food for small mammals, which are important prey sources. Numerous ground squirrel burrows and dens large enough for burrowing owl occupation exist in the California Aqueduct embankment. The embankment can be an ideal location for the species since it offers vantage points of its surrounding area for hunting and security.

Swainson's Hawk

Swainson's hawks have been observed in the proximity of MP 213.0, 230.6, and 259.5. There have been no occurrences of nesting within 2 miles of any of the locations. Swainson's hawks are observed throughout the Central Valley during the spring and summer. The species depends on annual grasslands and agricultural fields for foraging. The species also requires structures or trees for nesting opportunities. All three sites do not offer sufficient nesting opportunities, only small power poles and adjacent orchards. All five sites do offer foraging habitat for the species.

Tricolored Blackbird

Tricolored black bird is not known to occur at any of the sites, however an occurrence was recorded in CNDDB with three miles of MP 279.1. The species requires wetlands, freshwater marshes, or swamps and the sites do not contain any of those features.

Other Migratory Birds and Raptors

Special-status species California horned lark and loggerhead shrike occur at the sites. Foraging and breeding habitat is available to the species. Loggerhead shrike was observed at MP 213.0, MP 230.6, MP 259.5, and MP 271.2. Horned lark was observed at MP 259.5.

A diversity of other migratory birds are found at the sites. Northern harrier (*Circus hudsonius)*, red-tailed hawks (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), greater road runner (*Geococcyx californianus*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), lesser nighthawk (*Chordeiles acutipennis)*, rock wren (*Salpinctes obsoletus)*, and killdeer (*Charadrius vociferus*) were all recently observed throughout the sites. Annual grassland provides nesting and foraging habitat for this species, as well as the adjacent agricultural fields and fallowed lands. See other sections regarding targeted avian species for further discussion.

Cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) are known to occur wherever nesting structures such as bridges or overhangs are present. At MP 271.2 and MP 297.2 bridges are located approximately 500 feet from the proposed project footprints where swallow nesting has been recorded.

San Joaquin Kit Fox

San Joaquin kit fox is known to occur at MP 230.6 and potentially use all the sites for foraging. CNDDB contains records for occurrences within three miles of all sites. Dens suitable in size for the species are observed at all sites, however no signs of use, such as, scat, small mammal remains, paw prints, oblong or keyhole entrances of the den. Canid scat or prints observed was typical of coyote or dog based on sizing and shape. In 2019 a San Joaquin kit fox was recorded on a trail camera at MP 230.6, but an occupied burrow was never identified.

American Badger

American badger is known to occur at MP 230.6 and 271.2 and due to similar signs, such as crescent shaped entrances and scratch marked dens present, occurrence is highly likely at MP 259.5. An American badger was recorded on a trail camera at both 230.6 and 271.2. At MP 230.6 no dens were observed in the proposed project footprint during surveys conducted in 2019 and 2023. During general assessments in 2023 and 2024, potential active dens were observed within the proposed footprint of MP 259.5 and 271.2.

Small Mammals

Tipton kangaroo rat, giant kangaroo rat, and Tulare grasshopper mouse occur at MP 230.6 and were recorded during 2018 and 2022 trapping efforts. Tipton kangaroo rat and Tulare grasshopper mouse have a low potential to occur at MP 213.0, MP 259.5, MP 271.2. Extremely marginal habitats, such as high density of shrubs or highly disturbed non-native grassland without shrubs present occur on the sites. However, small mammal burrows were observed at the sites. The bulk of burrows within the project area were California ground squirrel and gopher burrows along the embankments of the right-of-way or at the fence line. Giant kangaroo rats have not been documented within three miles of the sites except MP 230.6. No signs of the species at those sites, such as groomed vegetation or vertical vents, were observed.

San Joaquin antelope squirrel does occur at MP 213.0, MP 230.6, and MP 259.5 and has the potential to occur at MP 271.2. At MP 213.0 and MP 259.5 observations within the proposed project footprint were infrequent, furthermore, the habitat is marginal as discussed in the paragraph above.

Bats

A diversity of bat species is documented using bridges along the California Aqueduct. Pallid bat was detected during acoustic surveys conducted in 2021 and an unknown bat species was observed in the bridge crevices during the 2023 general assessment. Roosting habitat does not occur within the proposed project footprint, there is only foraging habitat present. California myotis (*Myotis californicus)* was also recorded at MP 271.2. Western mastiff was recorded at a bridge a little under a mile from MP 230.6, but roosting habitat is not available at the site.

Crotch Bumble Bee

CNDDB records of Crotch bumble bees occur within three miles of MP 271.2 and MP 279.1. Both sites consist of grassland and flowering herbaceous vegetation. The sites are dominated by nonnative grasses and ruderal herbs offering marginal habitat to the species.

5.5 Special-Status Plant Species

The sites provide suitable habitat for sixteen special-status plant species that have a moderate to high potential to occur. Although habitat may be present at all sites, this is not the only factor when determining the potential for a species to occur. Past records, current observations, and species range were all considered when calculating the potential to occur. Preliminary analysis for special-status plant species is described in Section 4.2.

5.5.1 Special-Status Plant Species Results

Bakersfield catus

Bakersfield cactus is not known to occur within any of the proposed project footprints. The species is observed on the property directly to the east of MP 279.1 and is an established population. Several occurrences have been recorded in CNDDB within the three-mile radius of the site. Although the other sites consists of either valley grassland or chenopod scrub there is very little potential that the species is present since there are no known nearby populations.

California alkaligrass

California alkaligrass is not known to occur within any of the proposed project footprints. No observations were recorded in CNDDB within three miles of the sites. However, CNPS's estimated range overlaps with MP 213.0 and follows the base of the foothills south to Tupman and present again in the southern San Joaquin Valley. The species prefers saline moist soils. Marginal habitat for the species is present at the sites.

California Jewelflower

California jewelflower is not known to occur within any of the proposed project footprints. No observations were recorded in CNDDB within three miles of the sites. However, CNPS's

estimated range overlaps with MP 213.0, MP 230.6, and MP 279.1. There are three known regions where the species is known to occur: the Carrizo Plain, Santa Barbara Canyon in Santa Barbara County, and the Kreyenhagen Hills (CSU Stanislaus). Habitat for the species is present at the sites, but are not located near any known populations.

Lemmon's jewelflower

Lemmon's jewel flower is not known to occur within any of the proposed project footprints. An occurrence of the species has been recorded in CNDDB within approximately 350 meters of MP 279.1. Although the other sites consist of either valley grassland or chenopod scrub there is very little potential that the species is present since there are no known nearby populations.

Comanche Point layia

Comanche Point layia is not known to occur within any of the proposed project footprints. An occurrence has been recorded in CNDDB within 2.25 miles of MP 271.2. CNPS's estimated range also overlaps with MP 271.2.

Cottony buckwheat

Cottony buckwheat is not known to occur within any of the proposed project footprints. In 2021, the species was observed on the opposite side of the Aqueduct from MP 279.1. No observations were recorded in CNDDB within three miles of the sites. The species CNPS estimated range overlaps with all sites and prefers clay soil.

Crownscale

Crownscale is not known to occur within any of the proposed project footprints. No observations were recorded in CNDDB within three miles of the sites. However, CNPS's estimated range overlaps with all sites. Habitat is present at all sites and the species prefers alkali soils.

Lost Hills crownscale

Lost Hills crownscale is not known to occur within any of the proposed project footprints. Observations have been recorded in CNDDB within three miles of MP 213.0. CNPS's estimated range overlaps with MP 213.0 and MP 230.6. Habitat is present at all sites and the species prefers alkali soils.

Douglas' fiddleneck

Douglas' fiddleneck is not known to occur within any of the proposed project footprints. In 2021, the species was observed on the opposite side of the Aqueduct from MP 279.1. No observations were recorded in CNDDB within three miles of the sites. The species CNPS estimated range overlaps with all sites. The species is known to inhabit the transverse range.

Hoover's eriastrum

Hoover's eriastrum is known to occur within the proposed project footprint at MP 230.6. In 2020 through 2022 the species was observed during floral surveys. No other observations were recorded in CNDDB within three miles of the sites. The species CNPS estimated range overlaps

with MP 213.0, 230.6, and MP 259.5. The species has been well documented in the Lost Hill's oilfields.

Horn's milk-vetch

Horn's milk-vetch is not known to occur within any of the proposed project footprints. No observations were recorded in CNDDB within three miles of the sites. However, CNPS's estimated range overlaps with MP 259.5, MP 271.2, and MP 279.1. Habitat is present at the mentioned sites and the species has been documented in the Tejon area.

Kern mallow

Kern mallow is not known to occur within any of the proposed project footprints. Observations have been recorded in CNDDB within three miles of MP 230.6, MP 259.5, and MP 279.1. CNPS's estimated range overlaps with all sites and at minimum marginal habitat is present. The species was documented in 2019 during general assessments approximately one mile east. In 2021 it was documented in 2021 during floristic surveys one mile west of MP 230.6.

Oil neststraw

Oil neststraw is known to occur within the proposed project footprint at MP 230.6. In 2020 through 2022 the species was observed during floral surveys. No other observations were recorded in CNDDB within three miles of the sites. The species CNPS estimated range overlaps with all sites and habitat is present. The species has been documented in the Elk Hills oilfields.

Recurved Larkspur

Recurved larkspur is not known to occur within any of the proposed project footprints. Observations have been recorded in CNDDB within three miles of MP 230.6 however, multiple floristic surveys in the project footprint the species has never been observed. CNPS's estimated range overlaps with all sites and at marginal habitat is present.

San Joaquin bluecurls

San Joaquin bluecurls is known to occur within the proposed project footprint at MP 230.6 and MP 279.1. No other observations were recorded in CNDDB within three miles of the sites. The species CNPS estimated range overlaps with all sites and habitat is present.

San Joaquin Woollythreads

San Joaquin woollythreads is not known to occur within any of the proposed project footprints. No observations were recorded in CNDDB within three miles of the sites. However, CNPS's estimated range overlaps with all sites, and habitat is present. The largest population is documented in the Carrizo Plains, but smaller metapopulations are found in Kern County near Lost Hills.

6.0 Discussion

This section describes the potential impacts to protected biological resources at each site.

6.1 Habitats, Sensitive Natural Communities, and Aquatic Resources

6.1.1 Terrestrial Habitats and Agricultural Lands

Implementation of the proposed project may impact annual grassland and alkali desert scrub.

6.1.2 Sensitive Natural Communities

Sensitive natural communities will not be impacted by the proposed project.

6.1.3 Aquatic Resources

Aquatic resources will not be impacted by the proposed project. The only identified Water of the State, Pleitito Creek, will be avoided by a minimum of 300 feet. No direct or indirect impacts will occur, no activities will take place in or near the channel.

6.2 Special-Status Animal and Plant Species

6.2.1 Species

The following species have the potential to be impacted by project activities.

Blunt-nosed Leopard Lizard

Blunt-nosed leopard lizard is not known to occur and has a low potential to occur. Future projects have little to no potential for impacts to occur to blunt-nosed leopard lizards. Permanent loss of habitat would not occur from the implementation of future projects.

Other Protected Reptiles

The San Joaquin coachwhip is known to occur and the California glossy snake has a potential to occur. The San Joaquin coachwhip inhabits open, dry, treeless areas with little or no cover, including valley grassland and saltbush scrub where they take refuge in rodent burrows, under shaded vegetation, and under surface objects (Zeiner et al. 1988–1990). This species is diurnal and usually is active mid-morning and late afternoon from March through October (Zeiner et al. 1988–1990), making them susceptible to daytime construction activities. Periods of winter inactivity occur; however, these snakes may still be present in the AOI hibernating in burrows.

The California glossy snake generally prefers microhabitats of open areas with friable soils for burrowing. Although some diurnal activity has been reported, glossy snakes are most active at night (Zeiner et al. 1988–1990), which may explain the lack of their detection, and making them susceptible to evening construction activities. Individuals are most commonly encountered in May and June, with another activity peak prior to the first rains of fall (Zeiner et al. 1988–1990). Periods of winter inactivity occur at all localities; however, these snakes may be present in the AOI hibernating in burrows.

Both San Joaquin coachwhip and California glossy snake may be directly impacted by construction activities, both during periods of activity and inactivity. Indirect impacts may occur from site alterations that could degrade habitat along the California Aqueduct or through reductions in prey species availability.

Burrowing Owl

Burrowing owl is not known to occur and has a low potential to occur. Future projects have little to no potential for impacts to occur to burrowing owl. Permanent loss of habitat would not occur from the implementation of future projects.

Other Migratory Birds and Raptors

Nesting migratory birds, raptors, and state-protected species are present or occur nearby; however, known nest sites (e.g., trees, bridges) and suitable nest locations are limited and generally spatially predictable. For example, areas of shrubs and trees where many species of birds would potentially nest are well documented, as are the location of bridges where two swallow species nest.

Impacts due to potential future project activities may occur to various protected bird species if constructed activities occur during the nesting season. If construction occurs outside the nesting season, little to no direct impacts may occur, as no vulnerable eggs or young would be present. Although disturbance can flush and stress non-breeding adults, it is anticipated that they would be able to move away from mortal situations. Indirect impacts may occur if activities impact resources important to supporting these species, including the availability of nest sites or food sources.

San Joaquin Kit Fox

San Joaquin kit fox active dens are not known to occur; therefore, there is little to no potential for impacts to occur directly to San Joaquin kit fox. Indirect impacts from site alterations may degrade migratory corridors along the California Aqueduct or reduce prey species availability; however, there is a lack of evidence of use of the sites by this species.

American Badger

American badger is known to occur. American badger was photographed and evidence of hunting such as claw marks at small mammal burrows were observed and may inhabit the areas. Other individuals likely range more widely in low densities through the Aqueduct corridor. Direct impacts to burrows used by the species may occur, and indirect impacts may be from any decrease in the availability of prey species.

Special-status Small Mammals

Special-status small mammals have a low potential to occur. If surveys results in an absence of species use in the project footprints there is no potential for impacts to occur directly to special-status small mammals. Indirect impacts from site exclusion may reduce foraging ability in the area. If the survey results in presence of the species, potential impact would occur from burrow destruction.

Special-Status Plants

Rare plant species are present within some project footprints; however, threatened or endangered plant species have low to no potential to occur. Direct and temporary potential impacts would occur to rare plant species. There is little to no potential for impacts to occur directly to threatened or endangered plant species.

6.2.2 Location Specific Impacts

MP 213.0

Installation of the monitoring well would result in potential impacts to the following species, only if present: San Joaquin antelope squirrel, California alkaligrass, California jewelflower, cottony buckwheat, crownscale, Hoover's eriastrum, Lost Hills crownscale, Kern mallow, recurved larkspur, San Joaquin bluecurls, and San Joaquin woollythreads.

Loggerhead shrike is present and has the potential to nest on site.

MP 230.6

Installation of the monitoring well would be within the footprint of an existing proposed project. Significant impacts to species will be strategized and mitigated through CDFW and USFWS Endangered Species Act permits.

The following species are present or high probability: American badger, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, Tipton kangaroo rat, Tulare grasshopper mouse, western mastiff bat, burrowing owl, loggerhead shrike, California glossy snake, San Joaquin coachwhip, California alkaligrass, California jewelflower, Comanche Point layia, cottony buckwheat, crownscale, Hoover's eriastrum, Kern mallow, oil neststraw, recurved larkspur, San Joaquin bluecurls, and San Joaquin woollythreads.

MP 259.5

Installation of the monitoring well would result in potential impacts to the following species, only if present: California glossy snake, San Joaquin coachwhip, California alkaligrass, California jewelflower, Comanche Point layia, cottony buckwheat, crownscale, Hoover's eriastrum, Horn's milk-vetch, Kern mallow, Lost Hills crownscale, recurved larkspur, San Joaquin woollythreads, San Joaquin bluecurls, and San Joaquin woollythreads.

The following species are present or high probability: American badger, San Joaquin antelope squirrel, loggerhead shrike, and California horned lark.

MP 271.2

Installation of the monitoring well would result in potential impacts to the following species, only if present: California glossy snake, Crotch bumble bee, California alkaligrass, California jewelflower, cottony buckwheat, crownscale, Hoover's eriastrum, Horn's milk-vetch, Kern mallow, Lost Hills crownscale, recurved larkspur, San Joaquin woollythreads, San Joaquin bluecurls, and San Joaquin woollythreads.

The following species are present or high probability: American badger, loggerhead shrike, San Joaquin coachwhip, and Comanche Point layia.

MP 279.1

Installation of the monitoring well would result in potential impacts to the following species, only if present: Crotch bumble bee, California alkaligrass, California jewelflower, Comanche Point layia, crownscale, Hoover's eriastrum, Horn's milk-vetch, Kern mallow, Lost Hills crownscale, recurved larkspur, and San Joaquin woollythreads.

The following species are present or high probability: pallid bat, San Joaquin coachwhip, San Joaquin bluecurls, Bakersfield cactus, cottony buckwheat, Douglas' fiddleneck, and Lemmon's jewelflower.

7.0 References

Audubon Society (Audubon). 2021. Swallows. Accessed: 14 June 2021. Available: https://www.audubon.org/bird-family/swallows.

California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database (CNDDB) – Government version. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

Calflora. 2024. What Grows Here electronic database. Available online at: https://www.calflora.org/entry/wgh.html.

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2019. Approved Survey Methodology for the Blunt-nosed Leopard Lizard.

California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. March 20, 2019.

California Department of Water Resources (DWR). 2017. *California San Luis Canal Subsidence Study*.

California Native Plant Society (CNPS), Rare Plant Program. 2024. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website https://www.rareplants.cnps.org [accessed December 2021].

California Native Plant Society (CNPS). 2019. CDFW-CNPS Rapid Assessment/Releve Field Protocol. Available: https://www.cnps.org/wp-content/uploads/2019/03/veg-releve-field-protocol.pdf.

Erickson, G.A. and E.D Pierson. 2000. Microchiropteran Bridge Utilization (Hitchhiker Guide to Bat Roosts), California Department of Transportation, Sacramento CA. 2000. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/bats-and-bridges-tech-bulletin-a11y.pdf.

Keeley, B. 2020. Bats in Bridges. Bat Conservation International. Bats Magazine, Volume 15, Issue 3. Available: https://www.batcon.org/article/bats-in-bridges/.

National Oceanic and Atmospheric Administration (NOAA), 2024. Fresno County, Lemoore Station, Monthly Climatological Data, NOAA Regional Climate Centers. Available: http://agacis.rcc-acis.org/.

Natural Resources Conservation Service (NRCS). USDA. Geomorphic Description System Version 5. 2017. Available online at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051068.pdf

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*, Second Edition. California Native Plant Society, Sacramento, CA. 1300 pp.

Swainson's Hawk Technical Advisory Committee. 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.

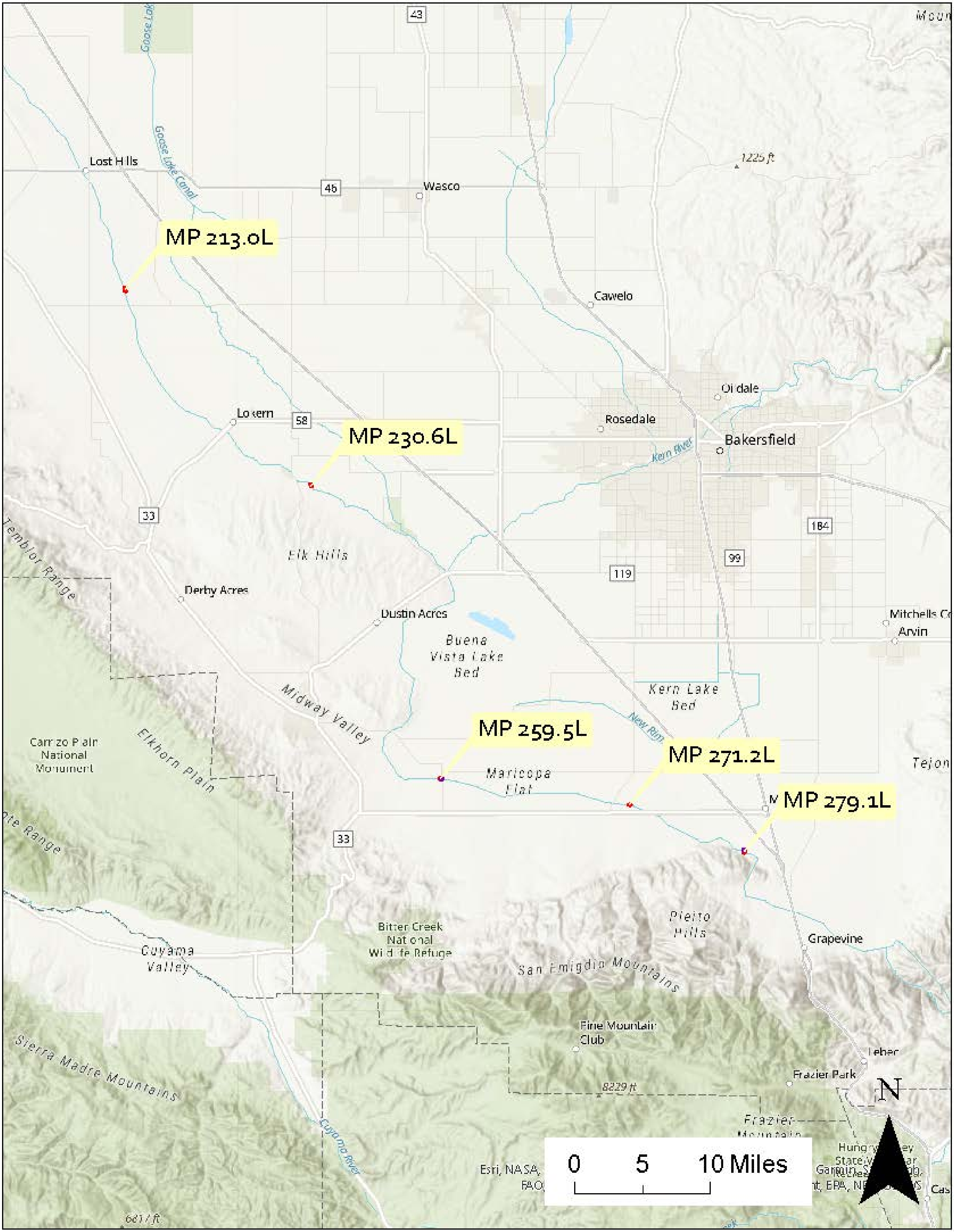
United States Fish and Wildlife Service. 2023. IPac: Information for Planning and Consultation. Available: https://ecos.fws.gov/ipac/

United States Fish and Wildlife Service. 2011. United States Fish and Wildlife Service Standardized Recommendations for Protection of Endangered San Joaquin Kit Fox prior to or during Ground Disturbance. Sacramento, California.

United States Fish and Wildlife Service. 1999. United States Fish and Wildlife Service San Joaquin kit fox survey protocol for the northern range. Sacramento, California.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988–1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California.

Appendix A
Figures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Carrizo Plain National Monument
Elkhorn Plain
Temblor Range
Cuyama Valley
Bitter Creek National Wildlife Refuge
Pleito Hills
San Emigdio Mountains
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Pine Mountain Club
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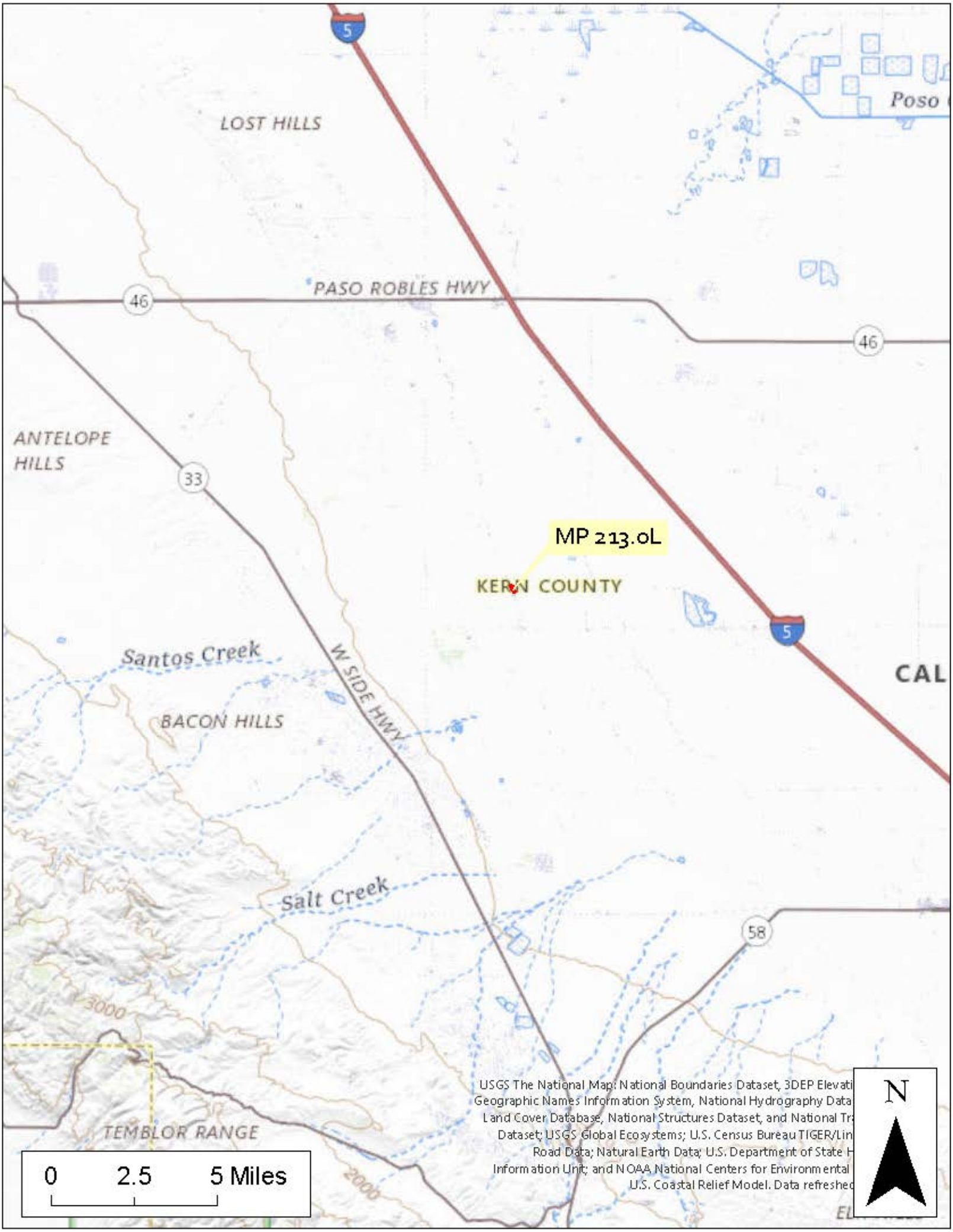
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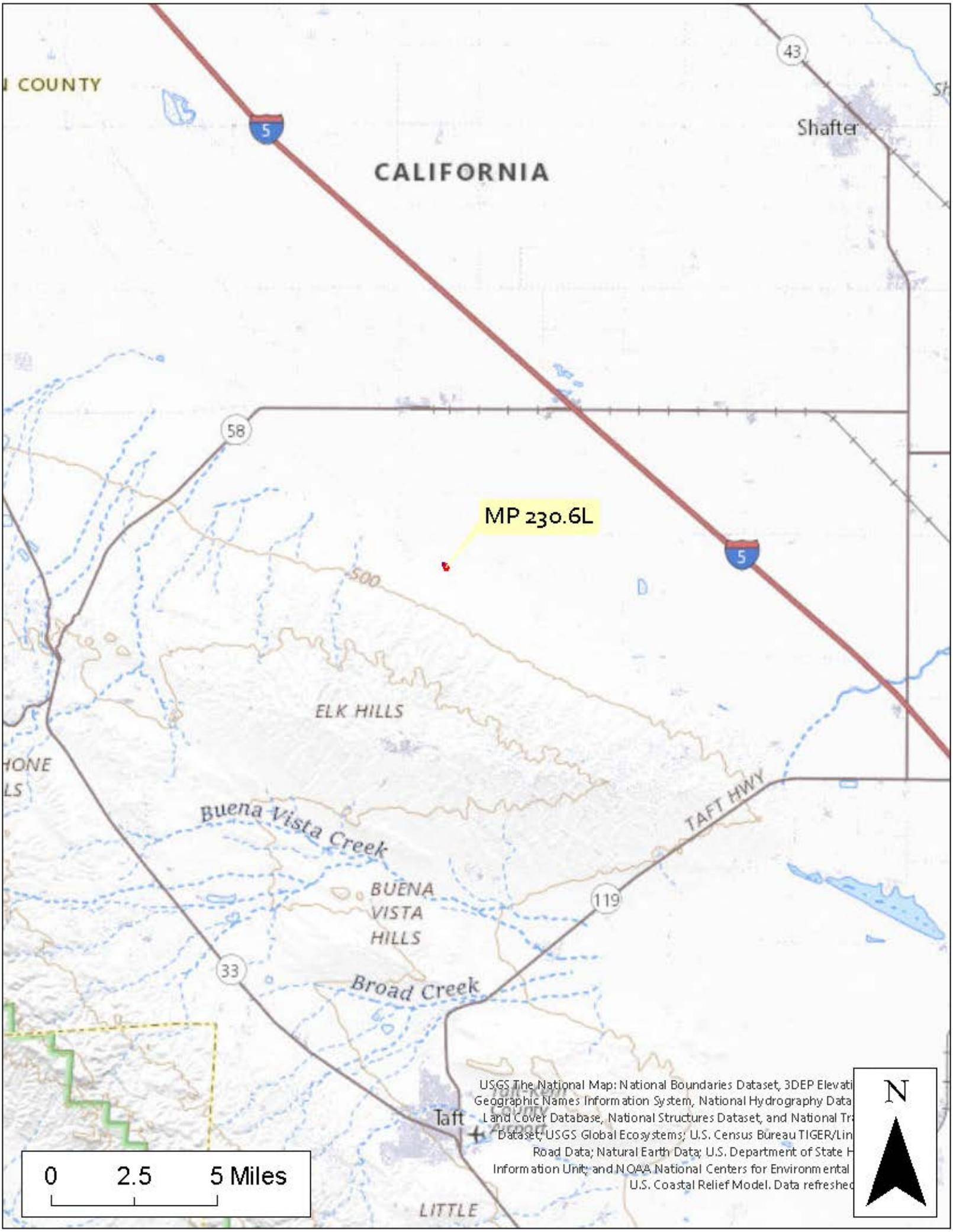
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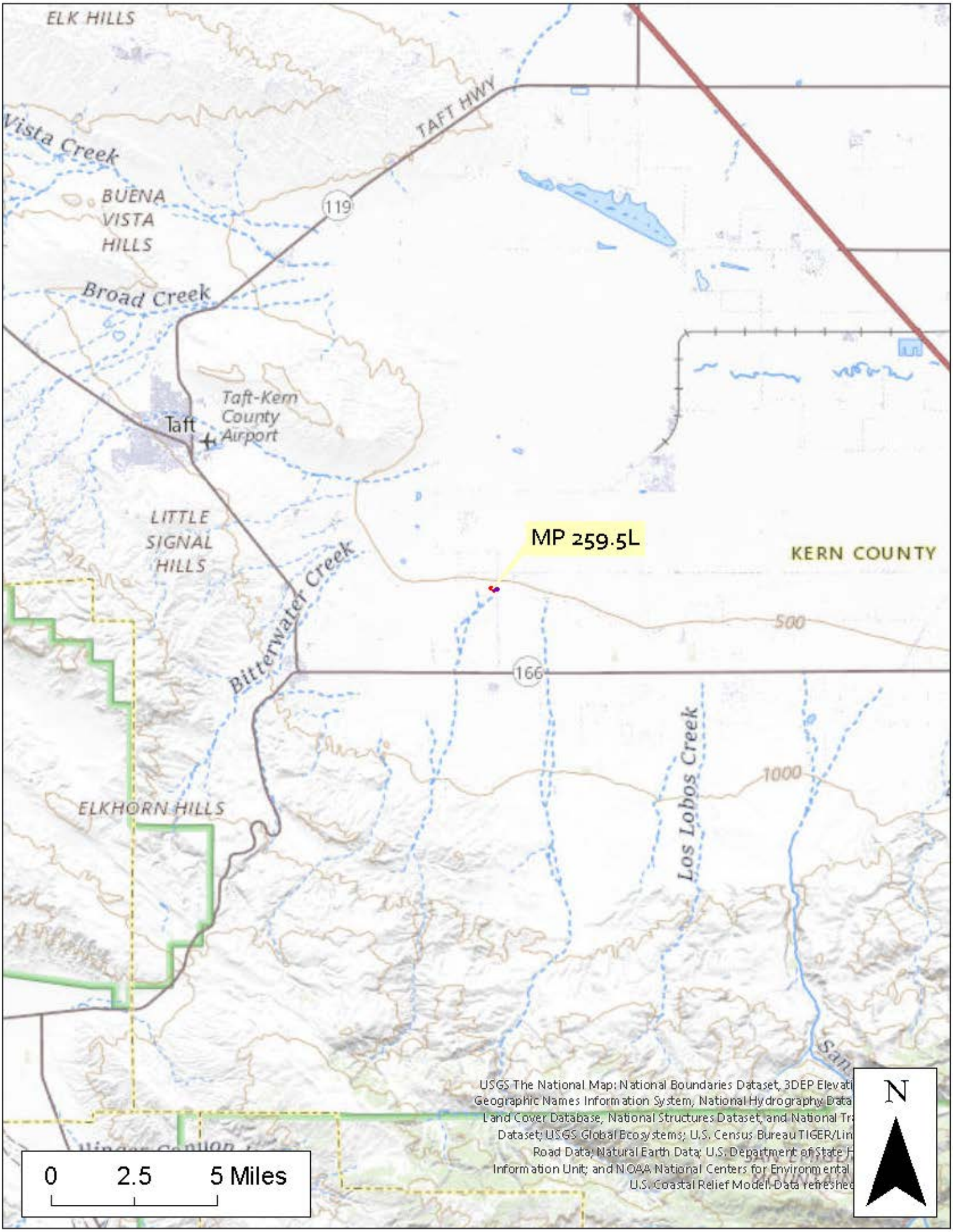
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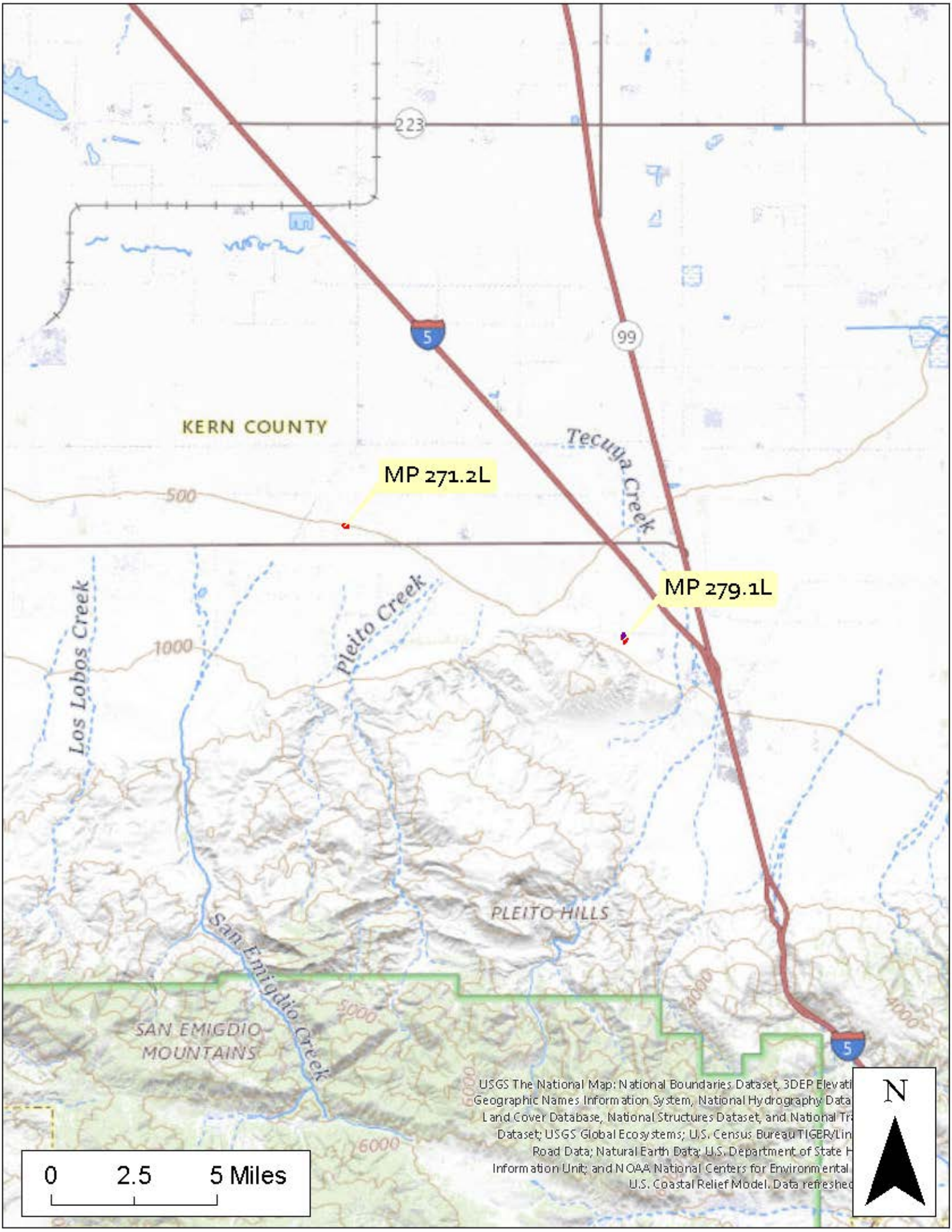
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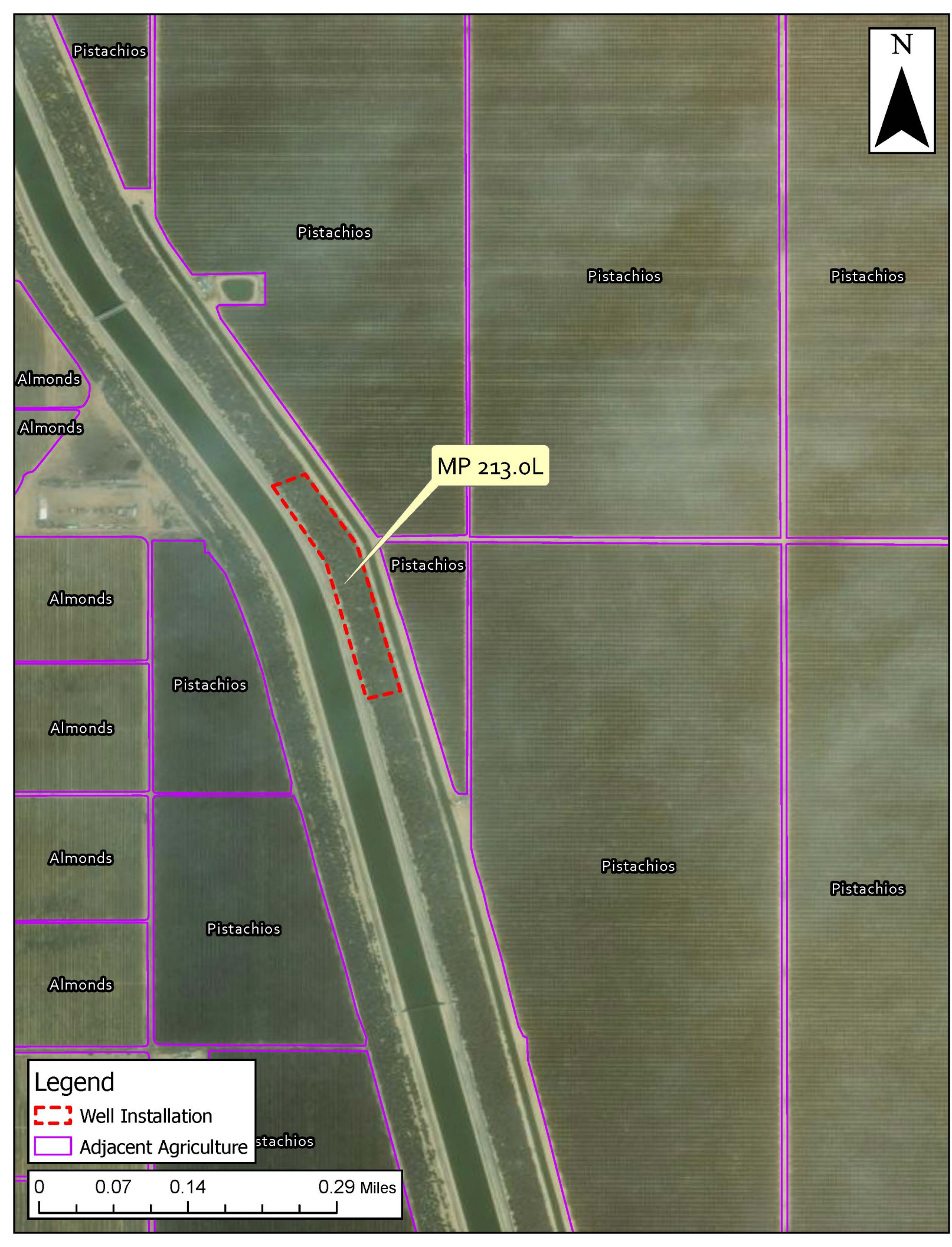
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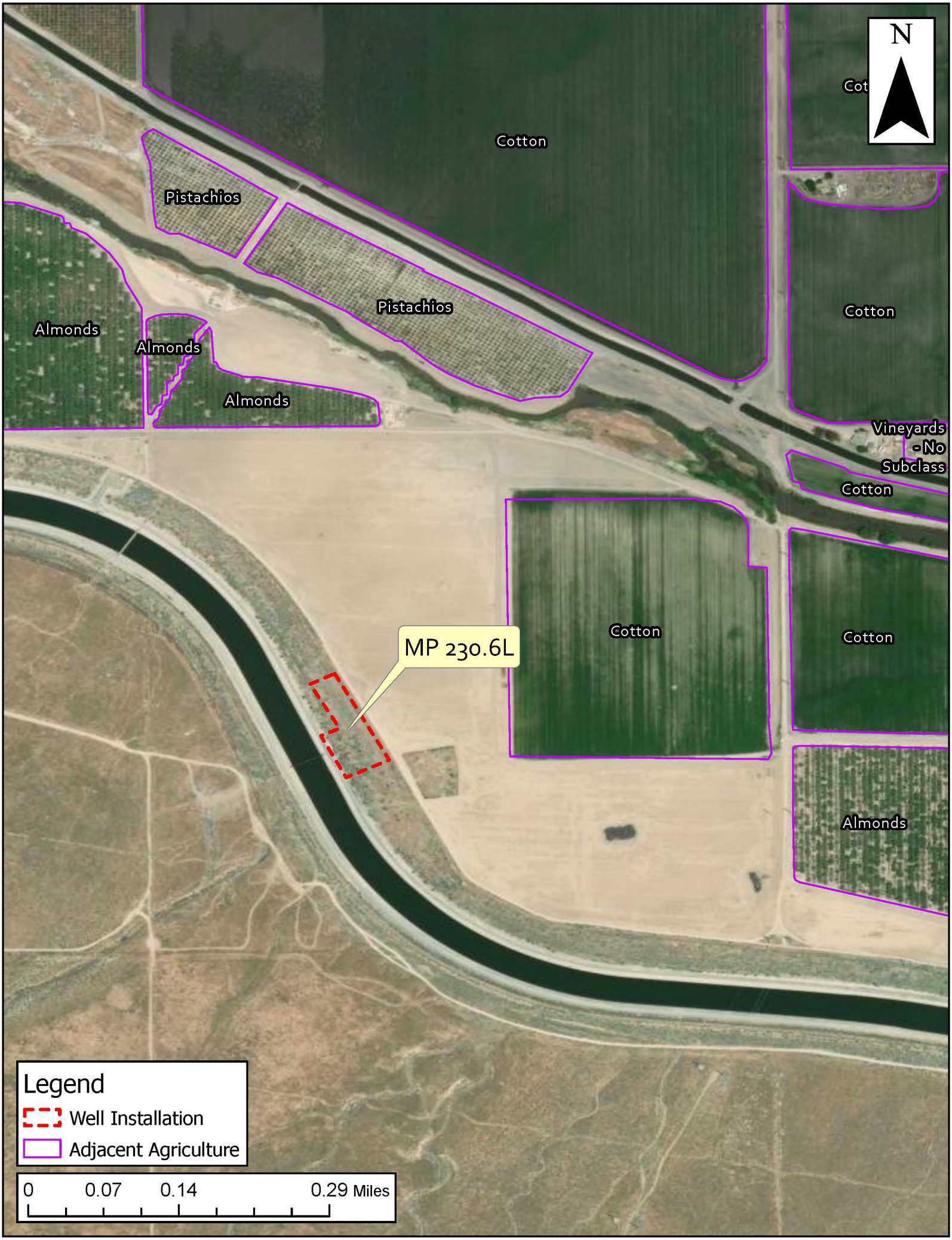
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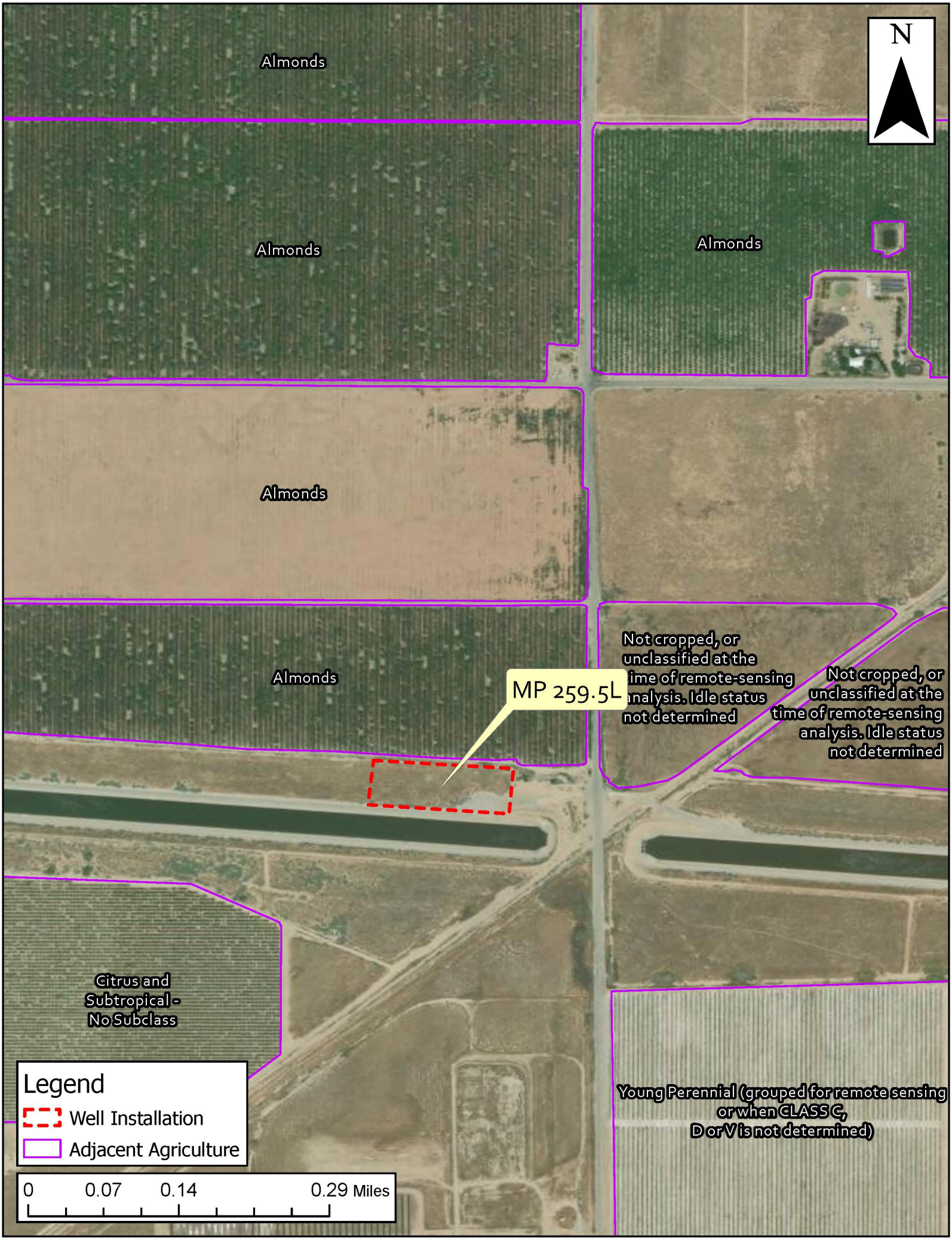
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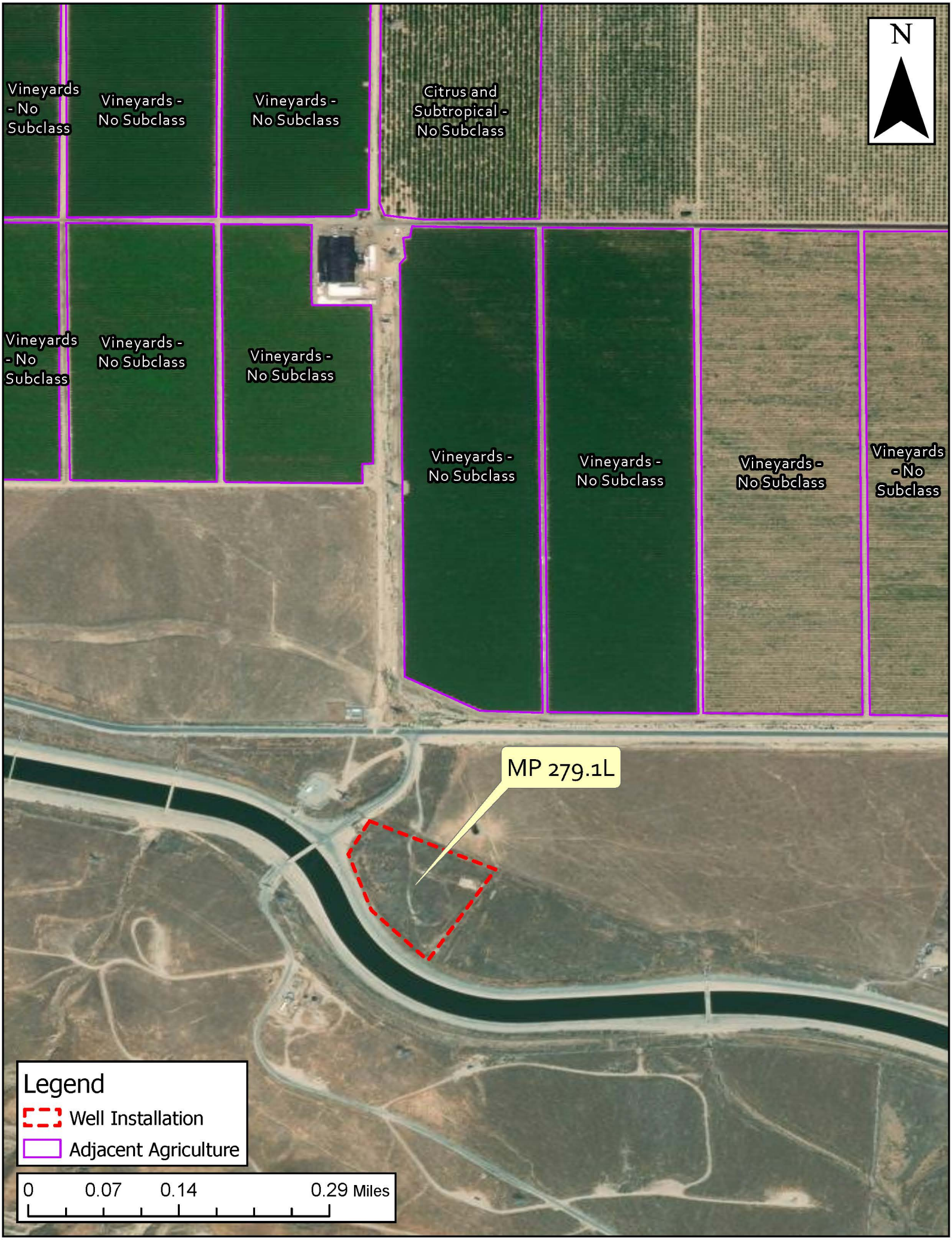
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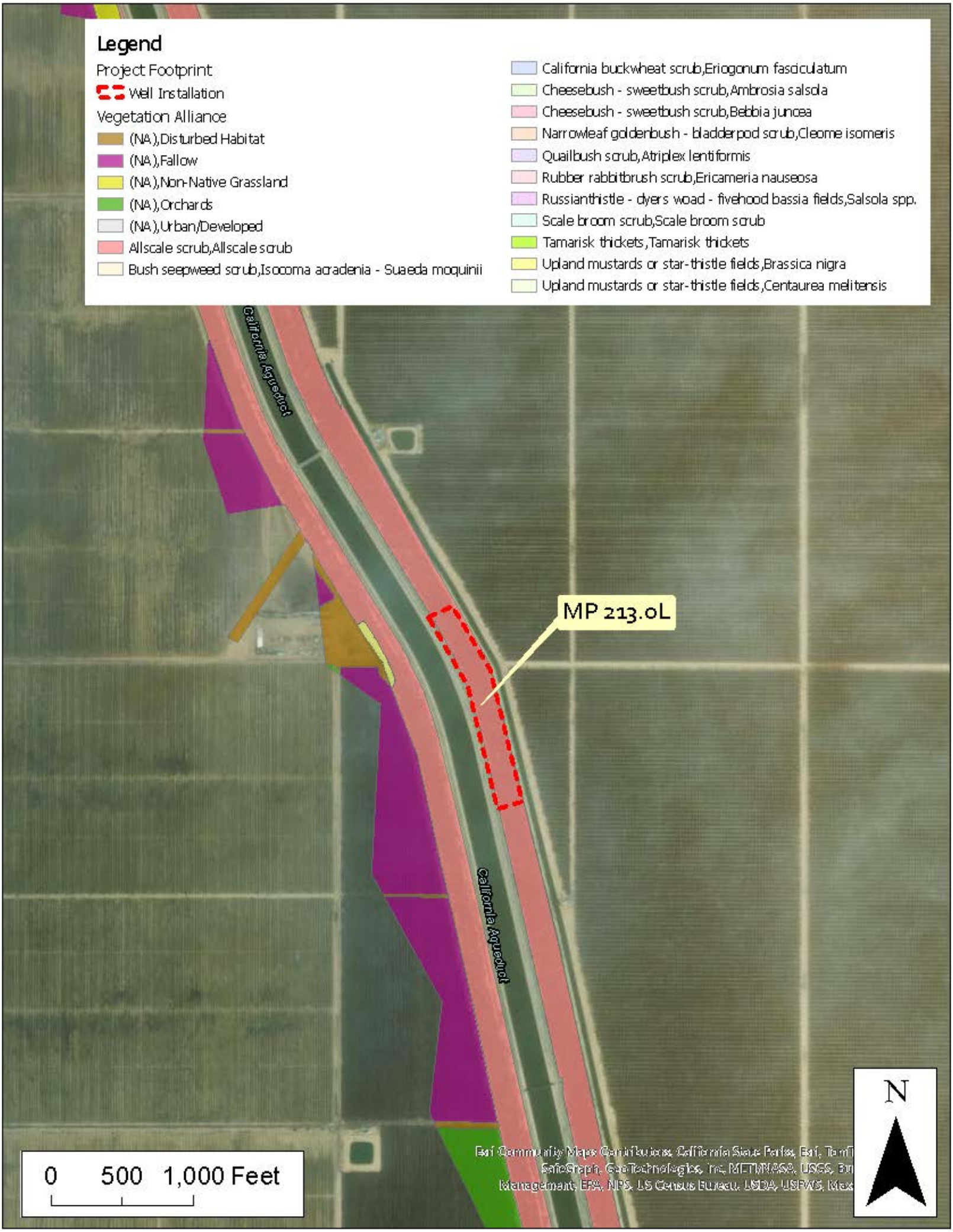
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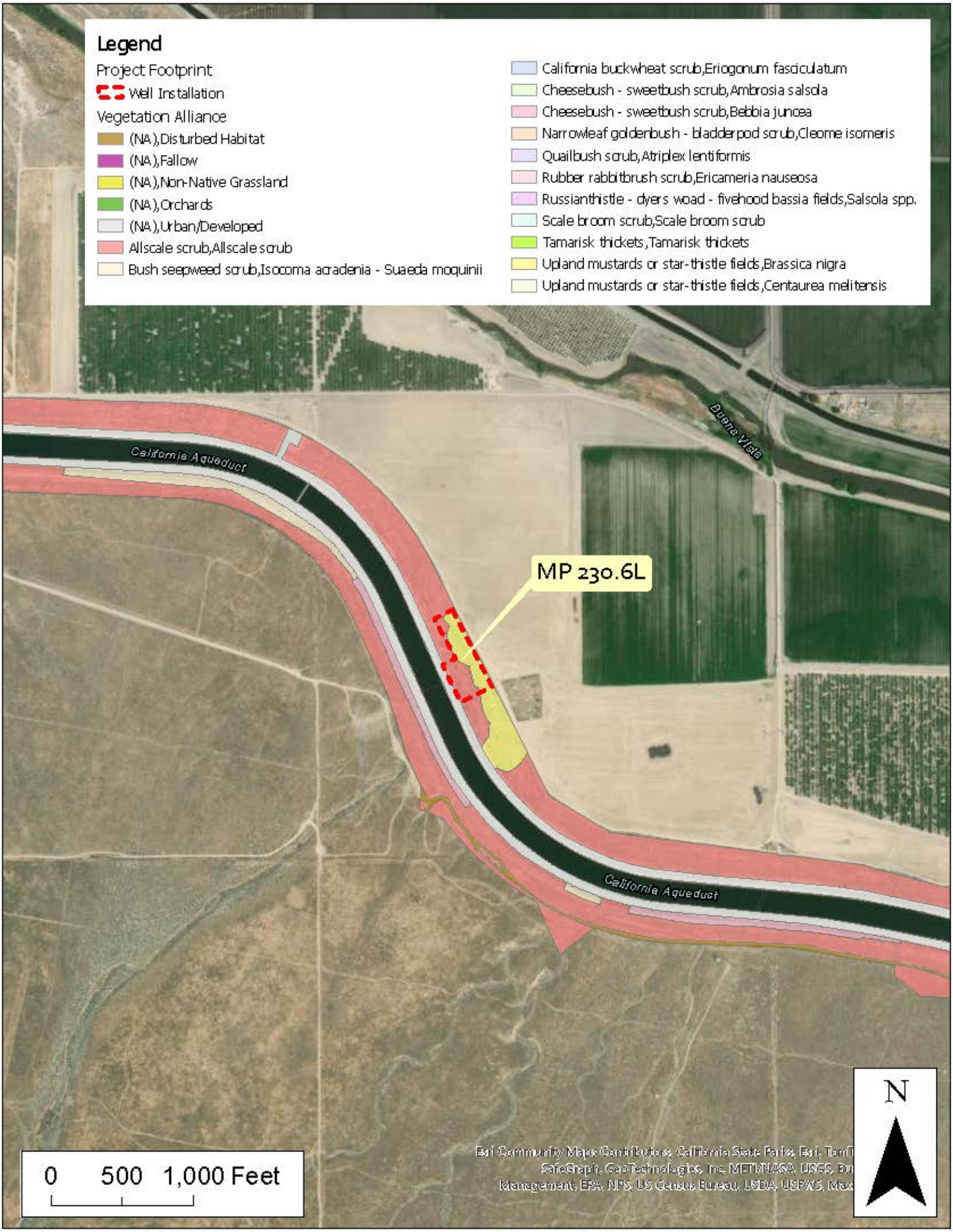
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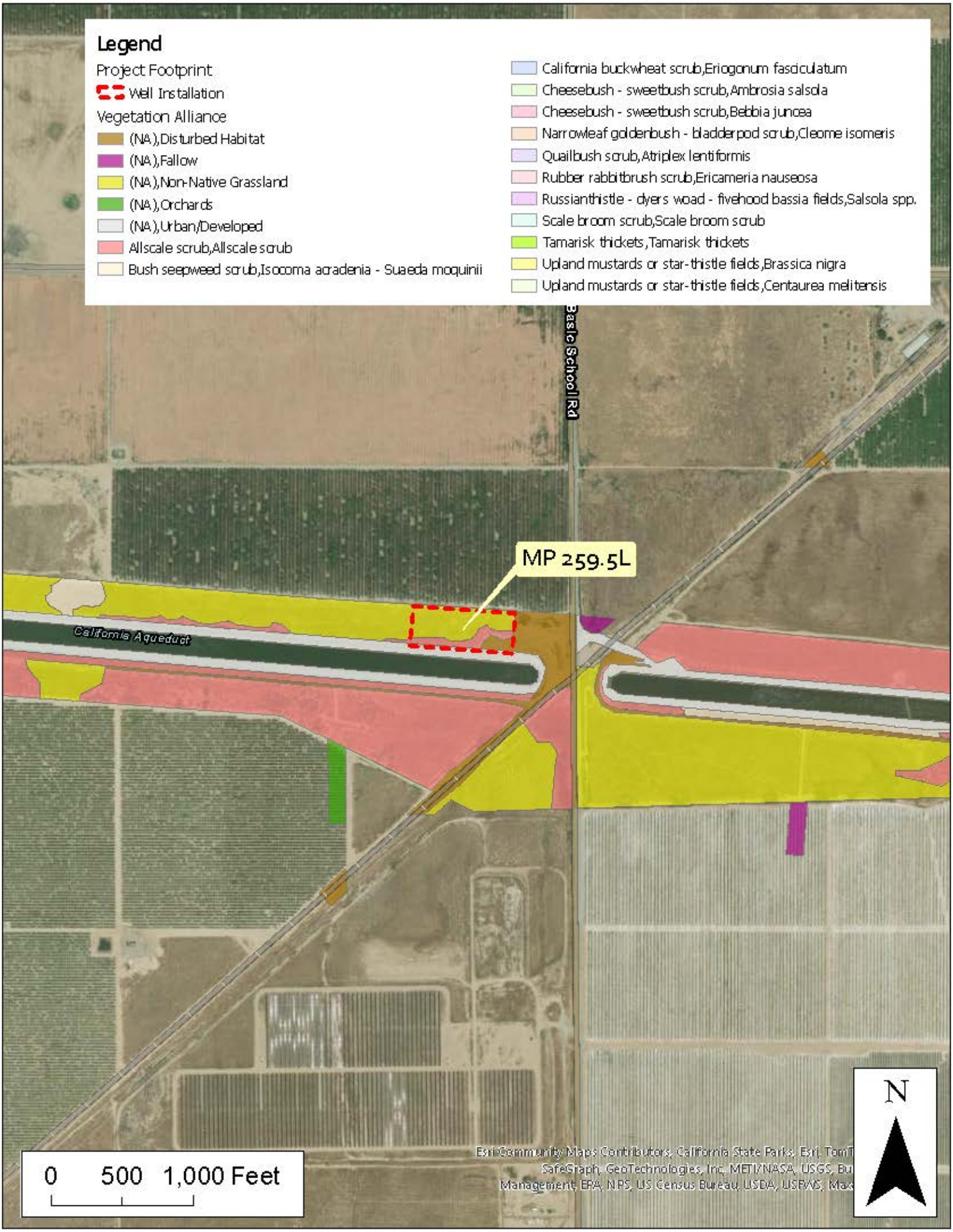
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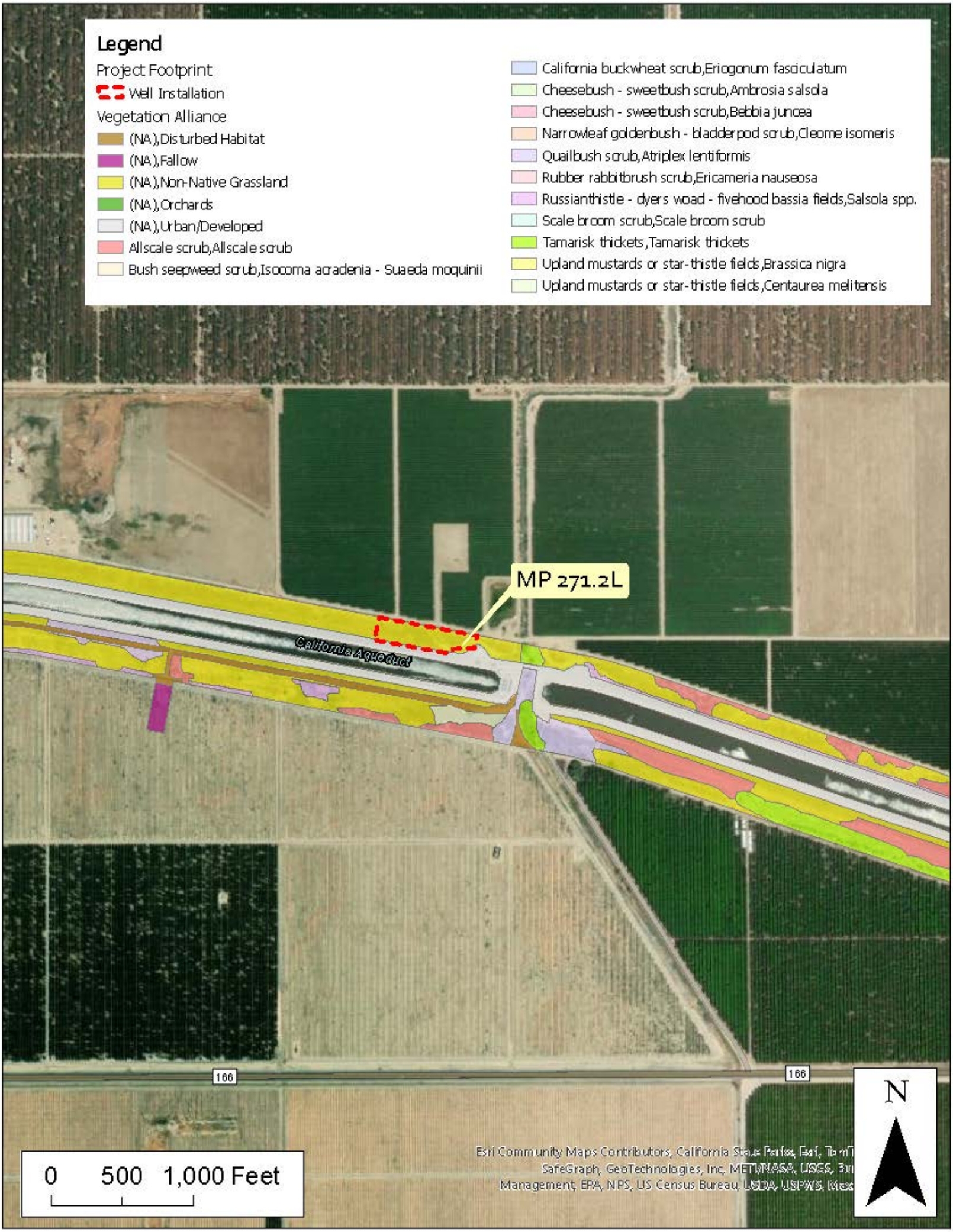
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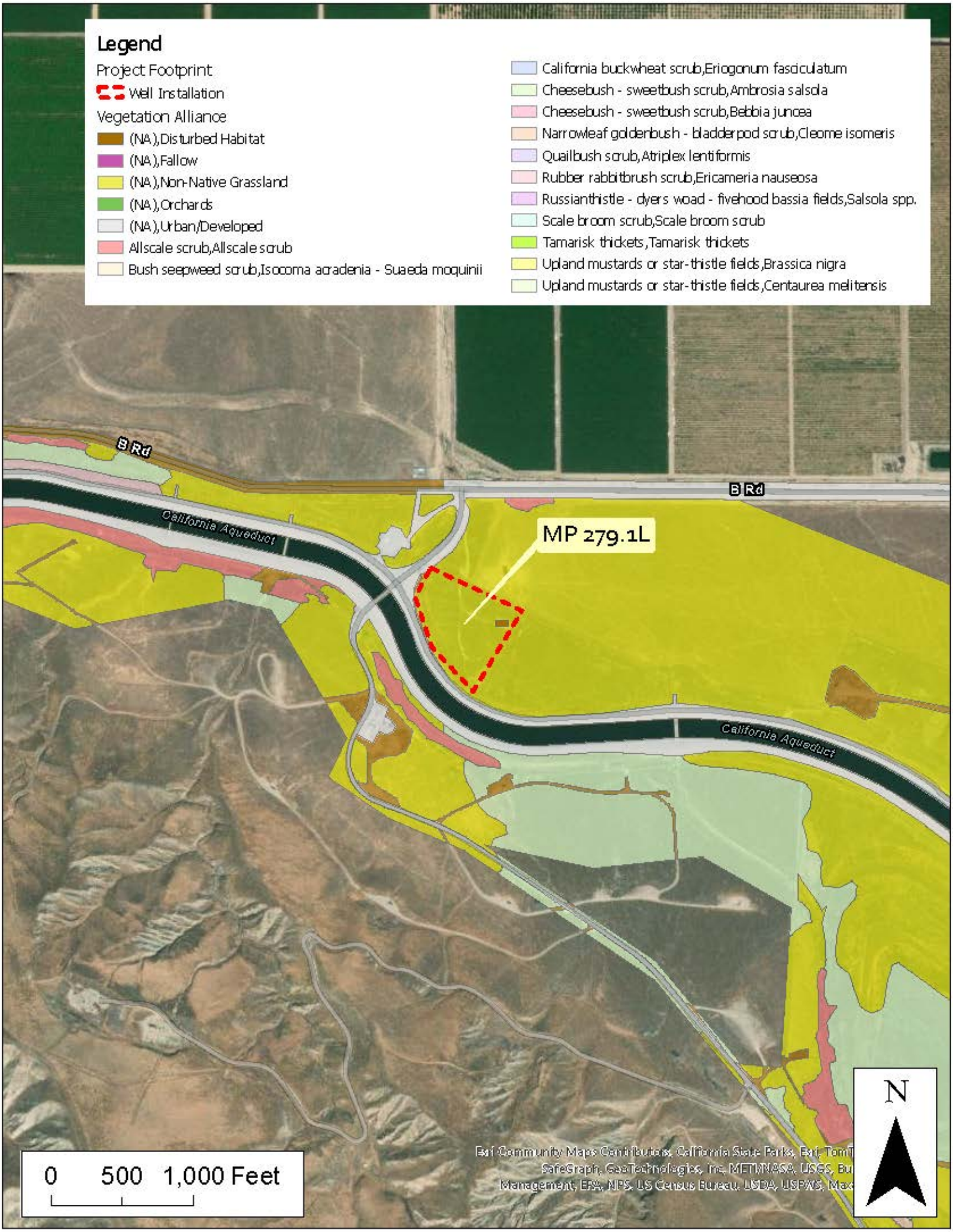
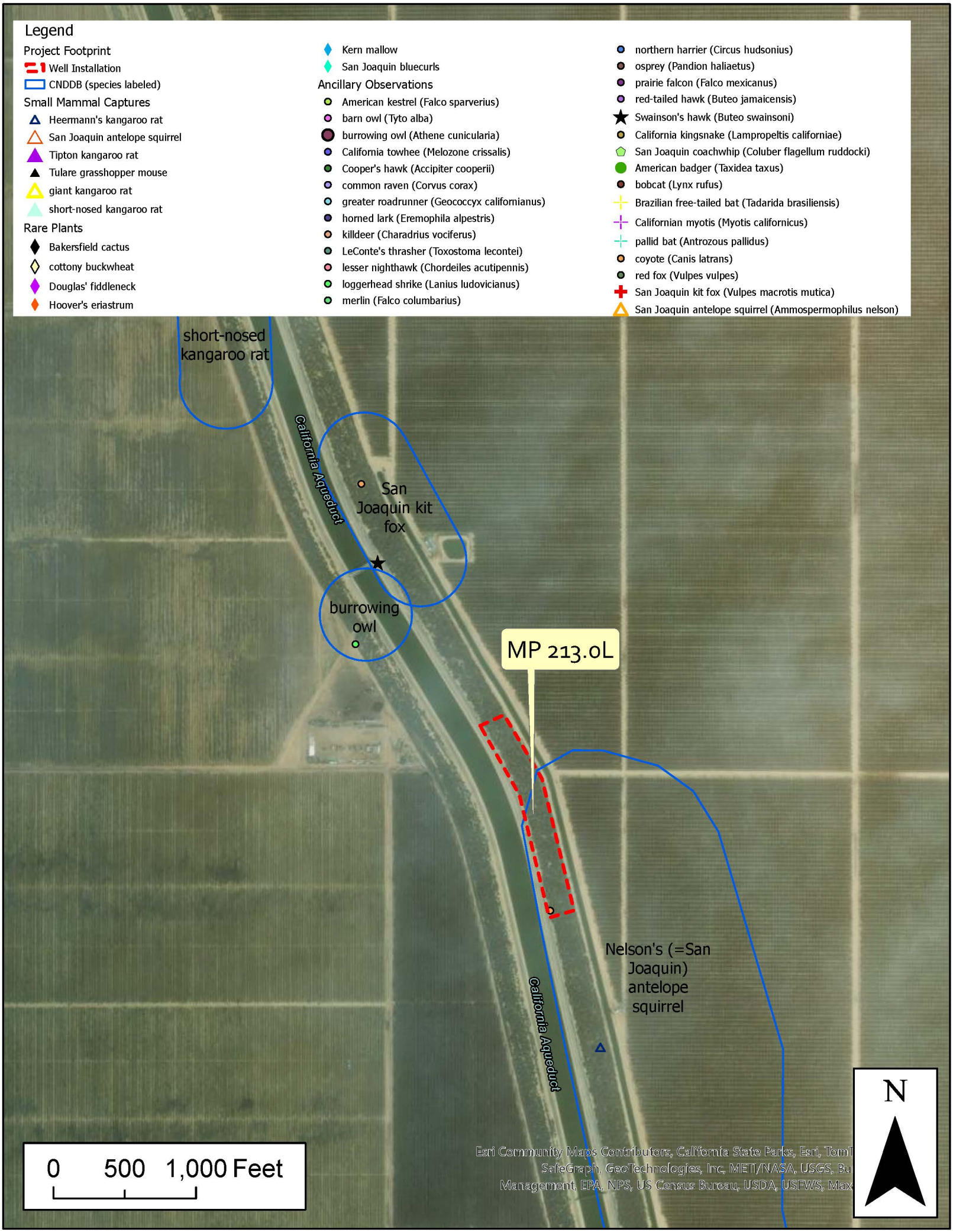
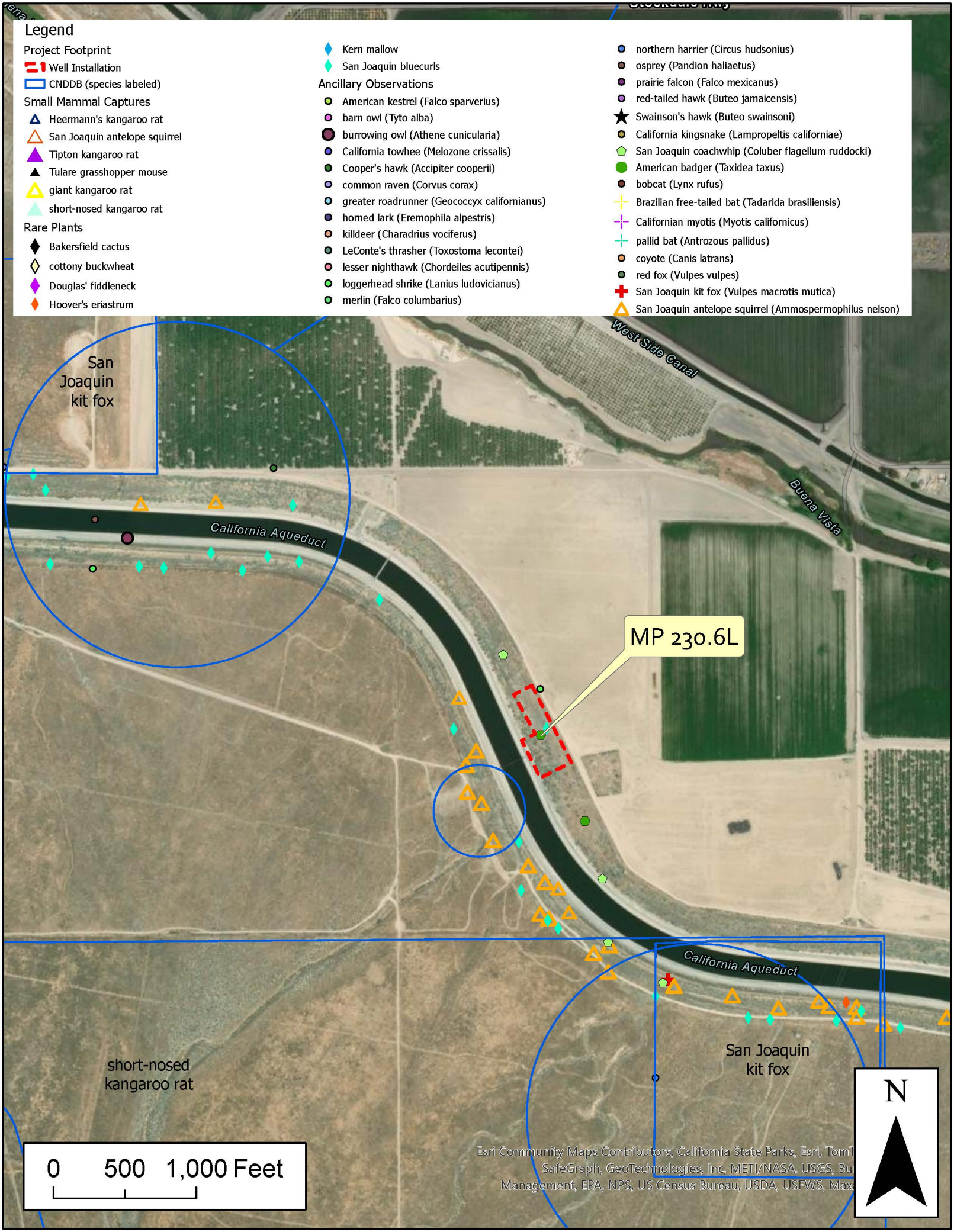

Legend
Project Footprint
Well Installation
Vegetation Alliance
(NA),Disturbed Habitat
(NA),Fallow
(NA),Non-Native Grassland
(NA),Orchards
(NA),Urban/Developed
Allscale scrub,Allscale scrub
Bush seepweed scrub,Isocoma acradenia - Suaeda moquinii
California buckwheat scrub,Eriogonum fasciculatum
Cheesebush - sweetbush scrub,Ambrosia salsola
Cheesebush - sweetbush scrub,Bebbia juncea
Narrowleaf goldenbush - bladderpod scrub,Cleome isomeris
Quailbush scrub,Atriplex lentiformis
Rubber rabbitbrush scrub,Ericameria nauseosa
Russianthistle - dyers woad - fivehood bassia fields,Salsola spp.
Scale broom scrub,Scale broom scrub
Tamarisk thickets,Tamarisk thickets
Upland mustards or star-thistle fields,Brassica nigra
Upland mustards or star-thistle fields,Centaurea melitensis
B Rd
B Rd
California Aqueduct
California Aqueduct
MP 279.1L
0 500 1,000 Feet
N
Esri Community Maps Contributors, California State Parks, Esri, TomT
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bu
Management, EPA, NPS, US Census Bureau, USDA, USFWS, Ma


Legend
Project Footprint
Well Installation
CNDDB (species labeled)
Small Mammal Captures
Heermann's kangaroo rat
San Joaquin antelope squirrel
Tipton kangaroo rat
Tulare grasshopper mouse
giant kangaroo rat
short-nosed kangaroo rat
Rare Plants
Bakersfield cactus
cottony buckwheat
Douglas' fiddleneck
Hoover's eriastrum
Kern mallow
San Joaquin bluecurls
Ancillary Observations
American kestrel (Falco sparverius)
barn owl (Tyto alba)
burrowing owl (Athene cunicularia)
California towhee (Melozone crissalis)
Cooper's hawk (Accipiter cooperii)
common raven (Corvus corax)
greater roadrunner (Geococcyx californianus)
horned lark (Eremophila alpestris)
killdeer (Charadrius vociferus)
LeConte's thrasher (Toxostoma lecontei)
lesser nighthawk (Chordeiles acutipennis)
loggerhead shrike (Lanius ludovicianus)
merlin (Falco columbarius)
northern harrier (Circus hudsonius)
osprey (Pandion haliaetus)
prairie falcon (Falco mexicanus)
red-tailed hawk (Buteo jamaicensis)
Swainson's hawk (Buteo swainsoni)
California kingsnake (Lampropeltis californiae)
San Joaquin coachwhip (Coluber flagellum ruddocki)
American badger (Taxidea taxus)
bobcat (Lynx rufus)
Brazilian free-tailed bat (Tadarida brasiliensis)
Californian myotis (Myotis californicus)
pallid bat (Antrozous pallidus)
coyote (Canis latrans)
red fox (Vulpes vulpes)
San Joaquin kit fox (Vulpes macrotis mutica)
San Joaquin antelope squirrel (Ammospermophilus nelson)
short-nosed kangaroo rat
California Aqueduct
San Joaquin kit fox
burrowing owl
MP 213.0L
Nelson's (=San Joaquin) antelope squirrel
California Aqueduct
0 500 1,000 Feet
N
Esri Community Maps Contributors, California State Parks, Esri, TomT
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bu
Management, EPA, NPS, US Census Bureau, USDA, USFWS, Max


Legend
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Well Installation
CNDDB (species labeled)
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bobcat (Lynx rufus)
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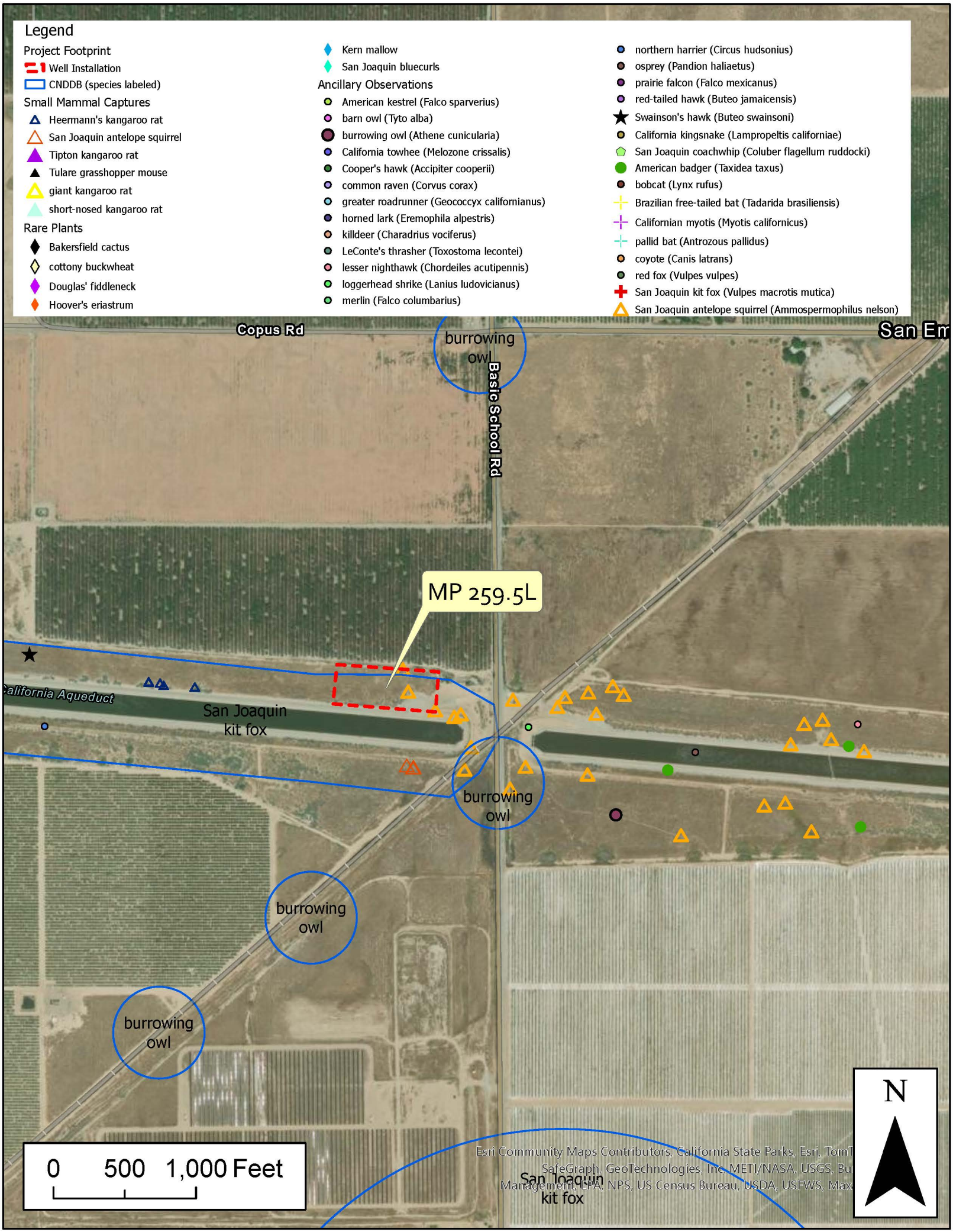
Californian myotis (Myotis californicus)
pallid bat (Antrozous pallidus)
coyote (Canis latrans)
red fox (Vulpes vulpes)
San Joaquin kit fox (Vulpes macrotis mutica)
San Joaquin antelope squirrel (Ammospermophilus nelson)
West Side Canal
Buena Vista
San Joaquin kit fox
California Aqueduct
MP 230.6L
California Aqueduct
San Joaquin kit fox
short-nosed kangaroo rat
0 500 1,000 Feet
N
Esri Community Maps Contributors, California State Parks, Esri, TomT
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bu
Management, EPA, NPS, US Census Bureau, USDA, USFWS, Max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Douglas' fiddleneck
Hoover's eriastrum
Kern mallow
San Joaquin bluecurls
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bobcat (Lynx rufus)
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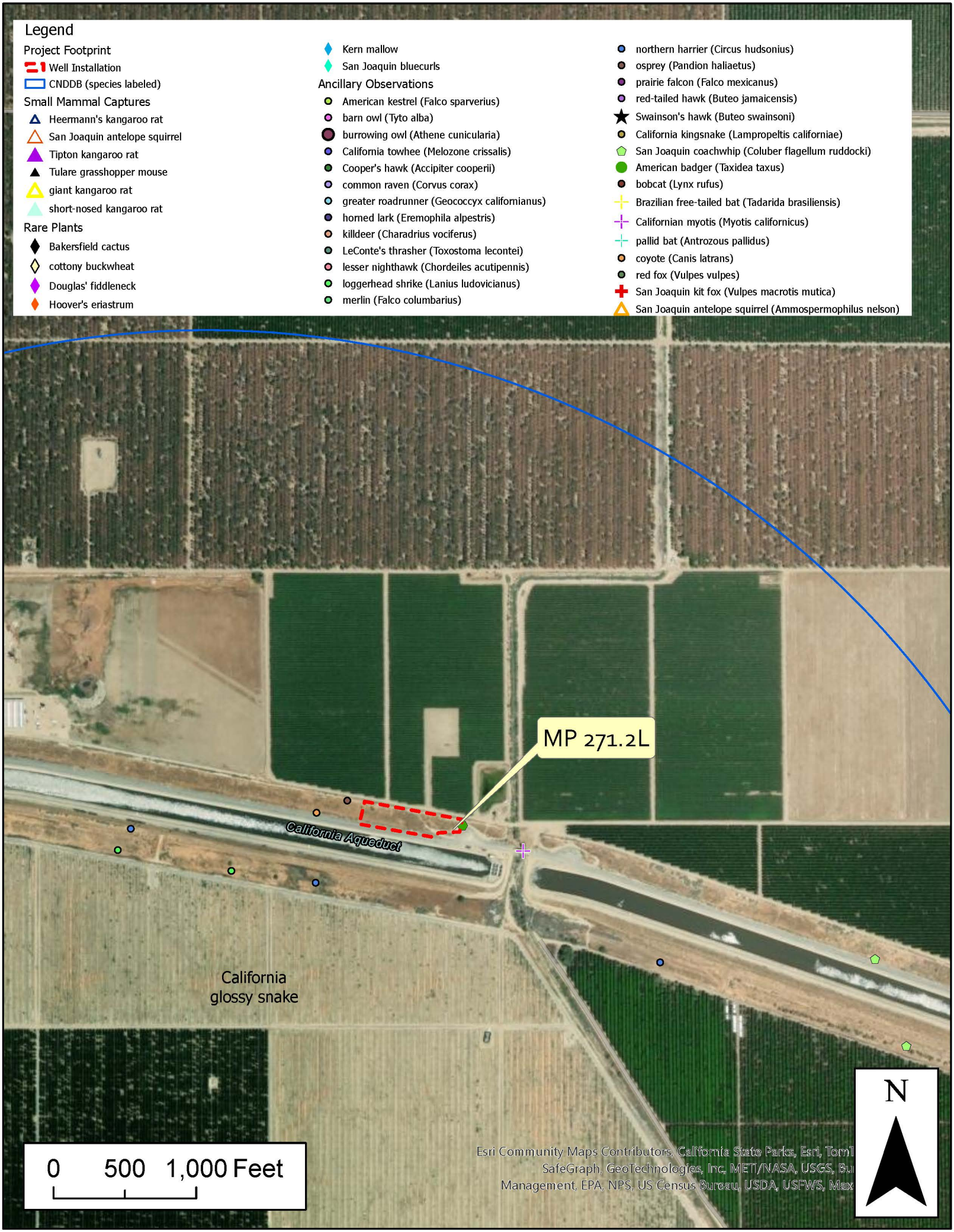
Californian myotis (Myotis californicus)
pallid bat (Antrozous pallidus)
coyote (Canis latrans)
red fox (Vulpes vulpes)
San Joaquin kit fox (Vulpes macrotis mutica)
San Joaquin antelope squirrel (Ammospermophilus nelson)
Copus Rd
Basic School Rd
San Em
burrowing owl
MP 259.5L
California Aqueduct
San Joaquin kit fox
burrowing owl
burrowing owl
burrowing owl
San Joaquin kit fox
0 500 1,000 Feet
N
Esri Community Maps Contributors, California State Parks, Esri, TomT
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bu
Management, EPA, NPS, US Census Bureau, USDA, USFWS, Max


Legend
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Well Installation
CNDDB (species labeled)
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bobcat (Lynx rufus)
Brazilian free-tailed bat (Tadarida brasiliensis)
Californian myotis (Myotis californicus)
pallid bat (Antrozous pallidus)
coyote (Canis latrans)
red fox (Vulpes vulpes)
San Joaquin kit fox (Vulpes macrotis mutica)
San Joaquin antelope squirrel (Ammospermophilus nelson)
MP 271.2L
California Aqueduct
California glossy snake
0 500 1,000 Feet
N
Esri Community Maps Contributors, California State Parks, Esri, TomT
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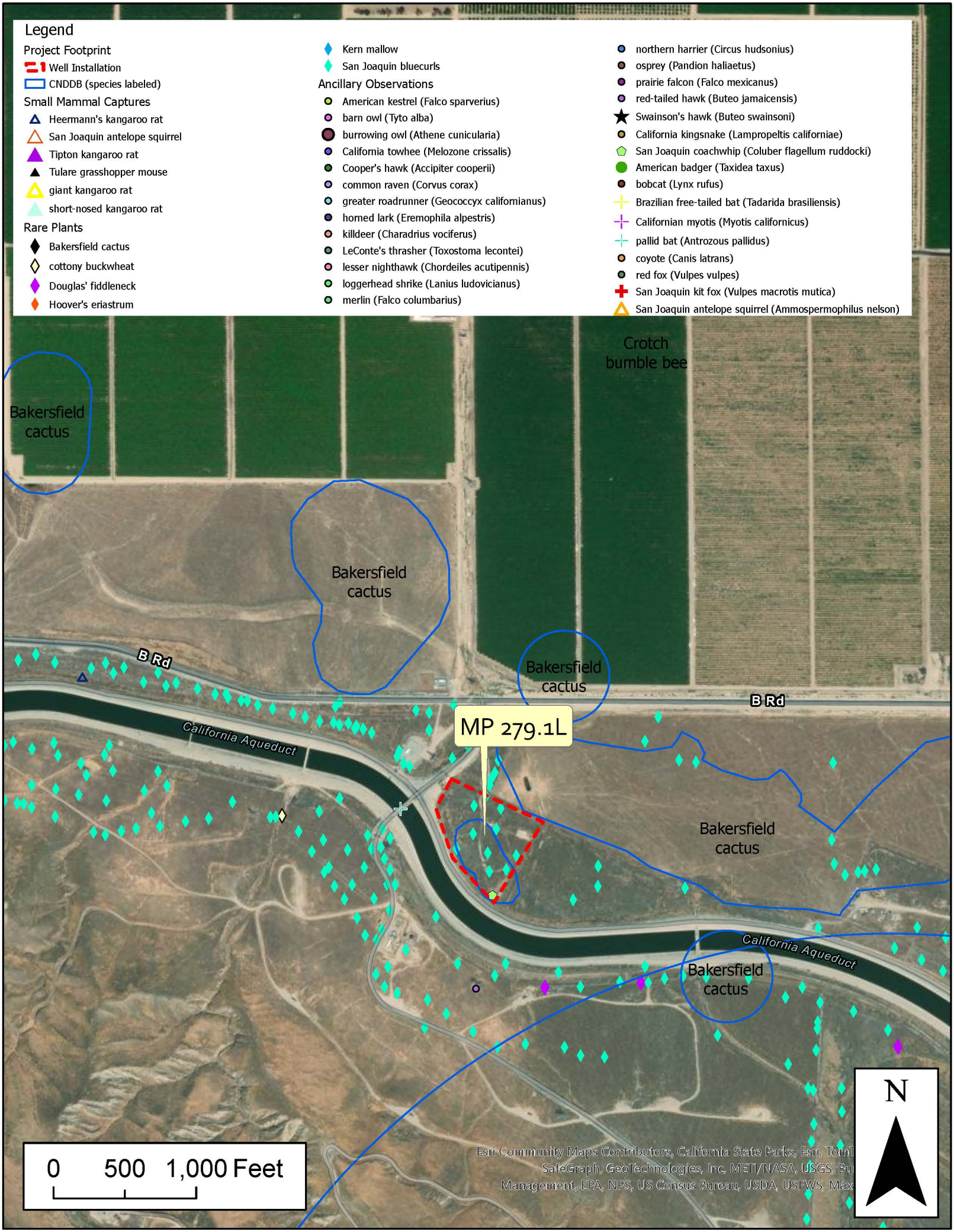
Management, EPA, NPS, US Census Bureau, USDA, USFWS, Max


Legend
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Well Installation
CNDDB (species labeled)
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Heermann's kangaroo rat
San Joaquin antelope squirrel
Tipton kangaroo rat
Tulare grasshopper mouse
giant kangaroo rat
short-nosed kangaroo rat
Rare Plants
Bakersfield cactus
cottony buckwheat
Douglas' fiddleneck
Hoover's eriastrum
Kern mallow
San Joaquin bluecurls
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American badger (Taxidea taxus)
bobcat (Lynx rufus)
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pallid bat (Antrozous pallidus)
coyote (Canis latrans)
red fox (Vulpes vulpes)
San Joaquin kit fox (Vulpes macrotis mutica)
San Joaquin antelope squirrel (Ammospermophilus nelson)
Crotch bumble bee
Bakersfield cactus
Bakersfield cactus
Bakersfield cactus
Bakersfield cactus
Bakersfield cactus
Bakersfield cactus
B Rd
B Rd
California Aqueduct
California Aqueduct
MP 279.1L
0 500 1,000 Feet
N
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Management, EPA, NPS, US Census Bureau, USDA, USFWS, Max

Appendix B

CNDDB Records Within 3 Miles of the AOI

CNDDB

Scientific Name	Common Name
MP 213	
Buteo swainsoni	Swainson's hawk
Athene cunicularia	burrowing owl
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat
Vulpes macrotis mutica	San Joaquin kit fox
Gambelia sila	blunt-nosed leopard lizard
Monolopia congdonii	San Joaquin woollythreads
Atriplex coronata var. vallicola	Lost Hills crownscale
MP 231	
Athene cunicularia	burrowing owl
Sorex ornatus relictus	Buena Vista Lake ornate shrew
Eumops perotis californicus	western mastiff bat
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel
Dipodomys ingens	giant kangaroo rat
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat
Onychomys torridus tularensis	Tulare grasshopper mouse
Vulpes macrotis mutica	San Joaquin kit fox
Taxidea taxus	American badger
Gambelia sila	blunt-nosed leopard lizard
Thamnophis gigas	giant gartersnake
Valley Saltbush Scrub	Valley Saltbush Scrub
Stylocline citroleum	oil neststraw
Eremalche parryi ssp. kernensis	Kern mallow
Eschscholzia lemmonii ssp. kernensis	Tejon poppy
Eriastrum hooveri	Hoover's eriastrum
Delphinium recurvatum	recurved larkspur
MP 259	
Spea hammondii	western spadefoot
Athene cunicularia	burrowing owl
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel
Perognathus inornatus	San Joaquin pocket mouse
Dipodomys nitratoides nitratoides	Tipton kangaroo rat
Onychomys torridus tularensis	Tulare grasshopper mouse
Vulpes macrotis mutica	San Joaquin kit fox
Taxidea taxus	American badger
Gambelia sila	blunt-nosed leopard lizard
Arizona elegans occidentalis	California glossy snake
Eremalche parryi ssp. kernensis	Kern mallow

MP 271	
Athene cunicularia	burrowing owl
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel
Dipodomys nitratoides nitratoides	Tipton kangaroo rat
Onychomys torridus tularensis	Tulare grasshopper mouse
Vulpes macrotis mutica	San Joaquin kit fox
Gambelia sila	blunt-nosed leopard lizard
Arizona elegans occidentalis	California glossy snake
Bombus crotchii	Crotch bumble bee
Layia leucopappa	Comanche Point layia

MP 279	
Athene cunicularia	burrowing owl
Agelaius tricolor	tricolored blackbird
Antrozous pallidus	pallid bat
Perognathus inornatus	San Joaquin pocket mouse
Vulpes macrotis mutica	San Joaquin kit fox
Gambelia sila	blunt-nosed leopard lizard
Arizona elegans occidentalis	California glossy snake
Masticophis flagellum ruddocki	San Joaquin coachwhip
Bombus crotchii	Crotch bumble bee
Caulanthus lemmonii	Lemmon's jewelflower
Opuntia basilaris var. treleasei	Bakersfield cactus
Eremalche parryi ssp. kernensis	Kern mallow
Eschscholzia lemmonii ssp. kernensis	Tejon poppy

Appendix C

USFWS Listed Species and Sensitive Resources of Considered for Potential Impact

IPaC resource list

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

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

Location

Kern County, California

Local office

Sacramento Fish And Wildlife Office

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

Federal Building

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

Endangered species

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

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

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

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

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

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

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

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Buena Vista Lake Ornate Shrew Sorex ornatus relictus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1610	Endangered
Fisher Pekania pennanti There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3651	Endangered
Giant Kangaroo Rat Dipodomys ingens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat Dipodomys nitratoides nitratoides Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7247	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered

Southwestern Willow Flycatcher Empidonax traillii extimus — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6749

Western Snowy Plover Charadrius nivosus nivosus — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/8035

Yellow-billed Cuckoo Coccyzus americanus — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/3911

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard Gambelia silus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Bakersfield Cactus *Opuntia treleasei* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7799	Endangered
California Jewelflower *Caulanthus californicus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4599	Endangered
Kern Mallow *Eremalche kernensis* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1731	Endangered
San Joaquin Wooly-threads *Monolopia (=Lembertia) congdonii* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3746	Endangered

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Condor *Gymnogyps californianus* https://ecos.fws.gov/ecp/species/8193#crithab	Final

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

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

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

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

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

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

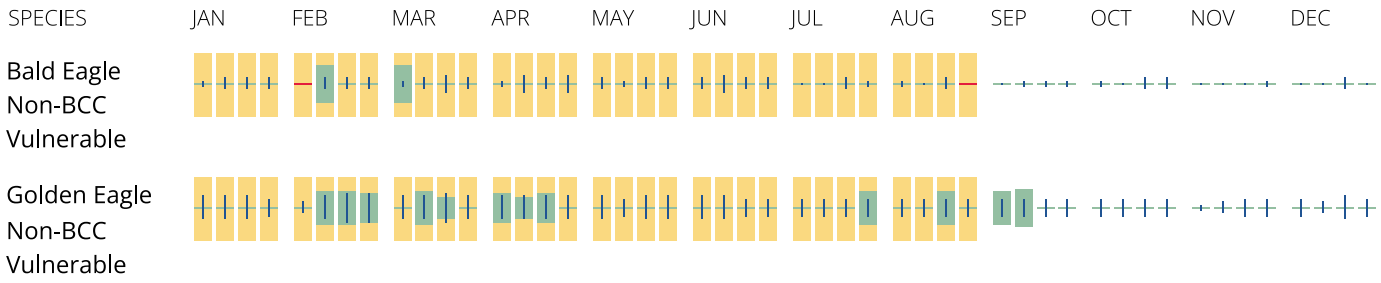
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

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

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

▪ probability of presence ▪ breeding season | survey effort – no data



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

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

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

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

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

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Cassin's Finch Carpodacus cassinii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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

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

Mountain Plover Charadrius montanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

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

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

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

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

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

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

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

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

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

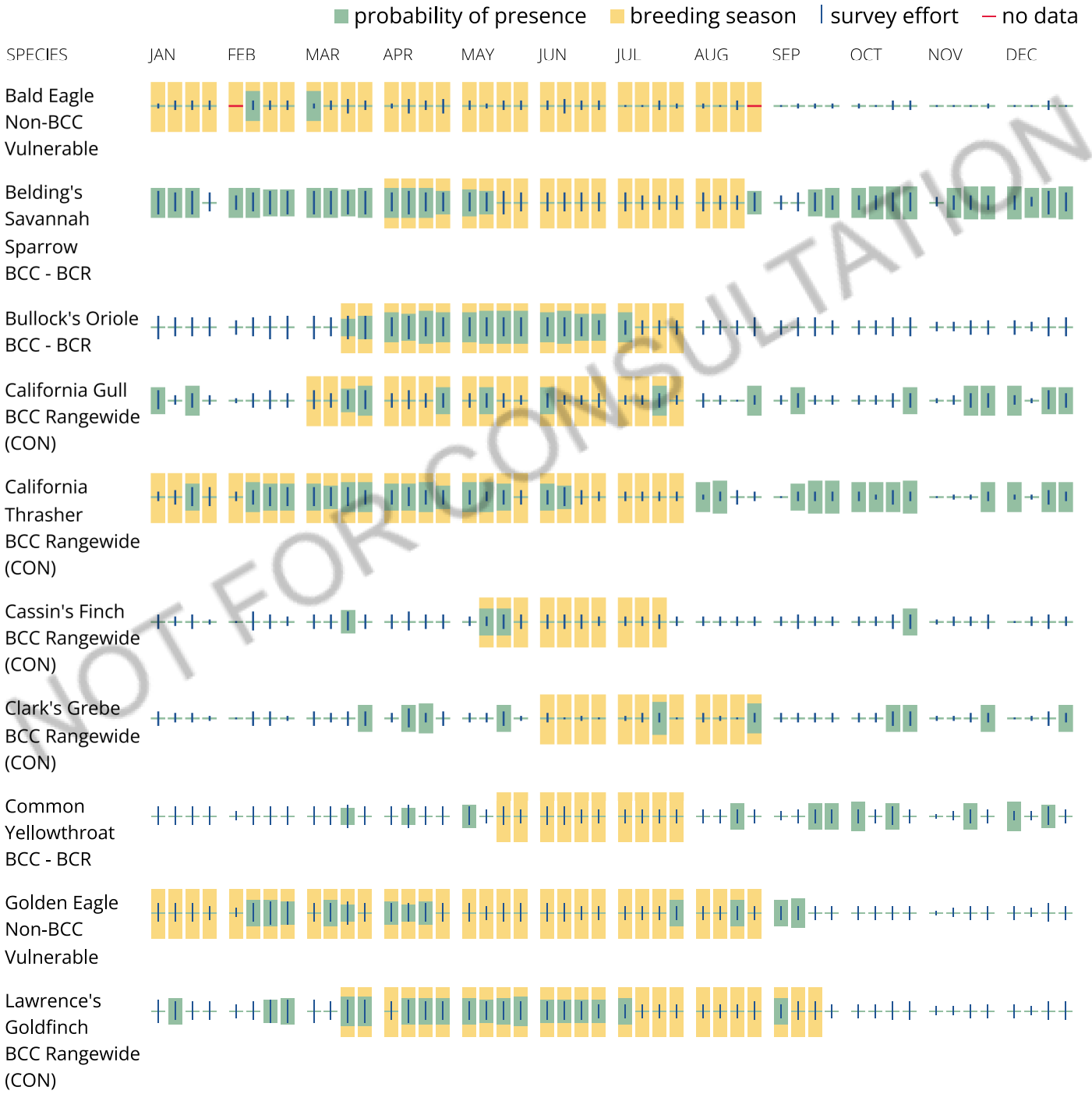
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

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



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

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

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

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

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

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

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

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

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

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

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

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

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

Data exclusions

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

been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix D

CNPS Rare and Sensitive Plant Lists

CNPS search MP 213

ScientificName	CommonName	CRPR		CESA	FESA
Amsinckia furcata	forked fiddleneck		4.2	None	None
Antirrhinum ovatum	oval-leaved snapdragon		4.2	None	None
Astragalus hornii var. hornii	Horn's milk-vetch	1B.1		None	None
Atriplex cordulata var. cordulata	heartscale	1B.2		None	None
Atriplex cordulata var. erecticaulis	Earlimart orache	1B.2		None	None
Atriplex coronata var. coronata	crownscale		4.2	None	None
Atriplex coronata var. vallicola	Lost Hills crownscale	1B.2		None	None
Atriplex minuscula	lesser saltscale	1B.1		None	None
Caulanthus californicus	California jewelflower	1B.1		CE	FE
Cirsium crassicaule	slough thistle	1B.1		None	None
Delphinium recurvatum	recurved larkspur	1B.2		None	None
Eremalche parryi ssp. kernensis	Kern mallow	1B.2		None	FE
Eriastrum hooveri	Hoover's eriastrum		4.2	None	FD
Eriogonum gossypinum	cottony buckwheat		4.2	None	None
Eriogonum temblorense	Temblor buckwheat	1B.2		None	None
Fritillaria agrestis	stinkbells		4.2	None	None
Lasthenia chrysantha	alkali-sink goldfields	1B.1		None	None
Lasthenia ferrisiae	Ferris' goldfields		4.2	None	None
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1		None	None
Layia heterotricha	pale-yellow layia	1B.1		None	None
Layia munzii	Munz's tidy-tips	1B.2		None	None
Madia radiata	showy golden madia	1B.1		None	None
Monolopia congdonii	San Joaquin woollythreads	1B.2		None	FE
Puccinellia simplex	California alkali grass	1B.2		None	None
Trichostema ovatum	San Joaquin bluecurls		4.2	None	None
Tropidocarpum californicum	Kings gold	1B.1		None	None

CNPS search MP 230

ScientificName	CommonName	CRPR		CESA	FESA
Allium howellii var. howellii	Howell's onion		4.3	None	None
Amsinckia furcata	forked fiddleneck		4.2	None	None
Astragalus hornii var. hornii	Horn's milk-vetch	1B.1		None	None
Atriplex cordulata var. cordulata	heartscale	1B.2		None	None
Atriplex cordulata var. erecticaulis	Earlimart orache	1B.2		None	None
Atriplex coronata var. coronata	crownscale		4.2	None	None
Atriplex coronata var. vallicola	Lost Hills crownscale	1B.2		None	None
Atriplex minuscula	lesser saltscale	1B.1		None	None
Atriplex subtilis	subtle orache	1B.2		None	None
Azolla microphylla	Mexican mosquito fern		4.2	None	None
Caulanthus californicus	California jewelflower	1B.1		CE	FE
Cirsium crassicaule	slough thistle	1B.1		None	None
Delphinium recurvatum	recurved larkspur	1B.2		None	None
Eremalche parryi ssp. kernensis	Kern mallow	1B.2		None	FE
Eriastrum hooveri	Hoover's eriastrum		4.2	None	FD
Eriogonum gossypinum	cottony buckwheat		4.2	None	None
Eriogonum nudum var. indictum	protruding buckwheat		4.2	None	None
Eriogonum temblorense	Temblor buckwheat	1B.2		None	None
Eschscholzia lemmonii ssp. kernensis	Tejon poppy	1B.1		None	None
Lasthenia chrysantha	alkali-sink goldfields	1B.1		None	None
Lasthenia ferrisiae	Ferris' goldfields		4.2	None	None
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1		None	None
Madia radiata	showy golden madia	1B.1		None	None
Monolopia congdonii	San Joaquin woollythreads	1B.2		None	FE
Puccinellia simplex	California alkali grass	1B.2		None	None
Stylocline citroleum	oil neststraw	1B.1		None	None
Trichostema ovatum	San Joaquin bluecurls		4.2	None	None

CNPS search MP 259

ScientificName	CommonName	CRPR		CESA	FESA
Allium howellii var. howellii	Howell's onion		4.3	None	None
Androsace elongata ssp. acuta	California androsace		4.2	None	None
Astragalus hornii var. hornii	Horn's milk-vetch	1B.1		None	None
Atriplex cordulata var. cordulata	heartscale	1B.2		None	None
Atriplex coronata var. coronata	crownscale		4.2	None	None
Atriplex coronata var. vallicola	Lost Hills crownscale	1B.2		None	None
Atriplex tularensis	Bakersfield smallscale	1A		CE	None
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	1B.2		None	None
Calochortus striatus	alkali mariposa-lily	1B.2		None	None
Caulanthus californicus	California jewelflower	1B.1		CE	FE
Caulanthus lemmonii	Lemmon's jewelflower	1B.2		None	None
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	1B.1		None	None
Convolvulus simulans	small-flowered morning-glory		4.2	None	None
Deinandra paniculata	paniculate tarplant		4.2	None	None
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur		4.3	None	None
Diplacus pictus	calico monkeyflower	1B.2		None	None
Eremalche parryi ssp. kernensis	Kern mallow	1B.2		None	FE
Eriastrum hooveri	Hoover's eriastrum		4.2	None	FD
Eriogonum gossypinum	cottony buckwheat		4.2	None	None
Erythranthe inconspicua	small-flowered monkeyflower		4.3	None	None
Eschscholzia lemmonii ssp. kernensis	Tejon poppy	1B.1		None	None
Fritillaria agrestis	stinkbells		4.2	None	None
Gilia latiflora ssp. cuyamensis	Cuyama gilia		4.3	None	None
Layia heterotricha	pale-yellow layia	1B.1		None	None
Layia leucopappa	Comanche Point layia	1B.1		None	None
Layia munzii	Munz's tidy-tips	1B.2		None	None
Microseris sylvatica	sylvan microseris		4.2	None	None
Monolopia congdonii	San Joaquin woollythreads	1B.2		None	FE
Navarretia setiloba	Piute Mountains navarretia	1B.1		None	None
Nemophila parviflora var. quercifolia	oak-leaved nemophila		4.3	None	None
Opuntia basilaris var. treleasei	Bakersfield cactus	1B.1		CE	FE
Oreocarya tumulosa	New York Mountains oreocarya		4.3	None	None
Perideridia pringlei	adobe yampah		4.3	None	None
Pseudobahia peirsonii	San Joaquin adobe sunburst	1B.1		CE	FT
Puccinellia simplex	California alkali grass	1B.2		None	None
Ribes menziesii var. ixoderme	aromatic canyon gooseberry	1B.2		None	None
Trichostema ovatum	San Joaquin bluecurls		4.2	None	None
Yucca brevifolia		CBR		CC	

CNPS search MP 271

ScientificName	CommonName	CRPR		CESA
Amsinckia douglasiana	Douglas' fiddleneck		4.2	None
Astragalus hornii var. hornii	Horn's milk-vetch	1B.1		None
Atriplex cordulata var. cordulata	heartscale	1B.2		None
Atriplex coronata var. coronata	crownscale		4.2	None
Atriplex coronata var. vallicola	Lost Hills crownscale	1B.2		None
Atriplex tularensis	Bakersfield smallscale	1A		CE
Calochortus striatus	alkali mariposa-lily	1B.2		None
Caulanthus lemmonii	Lemmon's jewelflower	1B.2		None
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	1B.1		None
Deinandra paniculata	paniculate tarplant		4.2	None
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur		4.3	None
Delphinium recurvatum	recurved larkspur	1B.2		None
Diplacus pictus	calico monkeyflower	1B.2		None
Eremalche parryi ssp. kernensis	Kern mallow	1B.2		None
Eriastrum hooveri	Hoover's eriastrum		4.2	None
Eriophyllum confertiflorum var. tanacetiflorum	tansy-flowered woolly sunflower		4.3	None
Eschscholzia lemmonii ssp. kernensis	Tejon poppy	1B.1		None
Fritillaria agrestis	stinkbells		4.2	None
Gilia latiflora ssp. cuyamensis	Cuyama gilia		4.3	None
Heuchera caespitosa	urn-flowered alumroot		4.3	None
Juglans californica	Southern California black walnut		4.2	None
Lasthenia ferrisiae	Ferris' goldfields		4.2	None
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1		None
Layia heterotricha	pale-yellow layia	1B.1		None
Layia leucopappa	Comanche Point layia	1B.1		None
Microseris sylvatica	sylvan microseris		4.2	None
Navarretia setiloba	Piute Mountains navarretia	1B.1		None
Opuntia basilaris var. treleasei	Bakersfield cactus	1B.1		CE
Oreocarya tumulosa	New York Mountains oreocarya		4.3	None
Perideridia pringlei	adobe yampah		4.3	None
Puccinellia simplex	California alkali grass	1B.2		None
Ribes menziesii var. ixoderme	aromatic canyon gooseberry	1B.2		None
Trichostema ovatum	San Joaquin bluecurls		4.2	None
Yucca brevifolia		CBR		CC

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CNPS search MP 279

ScientificName	CommonName	CRPR		CESA
Acanthomintha obovata ssp. cordata	heart-leaved thorn-mint		4.2	None
Allium howellii var. clokeyi	Mt. Pinos onion	1B.3		None
Allium howellii var. howellii	Howell's onion		4.3	None
Amsinckia douglasiana	Douglas' fiddleneck		4.2	None
Antirrhinum ovatum	oval-leaved snapdragon		4.2	None
Astragalus macrodon	Salinas milk-vetch		4.3	None
Atriplex cordulata var. cordulata	heartscale	1B.2		None
Atriplex coronata var. coronata	crownscale		4.2	None
Atriplex coronata var. vallicola	Lost Hills crownscale	1B.2		None
Calochortus striatus	alkali mariposa-lily	1B.2		None
Castilleja plagiotoma	Mojave paintbrush		4.3	None
Caulanthus californicus	California jewelflower	1B.1		CE
Caulanthus lemmonii	Lemmon's jewelflower	1B.2		None
Cordylanthus rigidus ssp. brevibracteatus	short-bracted bird's-beak		4.3	None
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur		4.3	None
Delphinium recurvatum	recurved larkspur	1B.2		None
Eremalche parryi ssp. kernensis	Kern mallow	1B.2		None
Eriastrum hooveri	Hoover's eriastrum		4.2	None
Eriogonum gossypinum	cottony buckwheat		4.2	None
Eriogonum nudum var. indictum	protruding buckwheat		4.2	None
Eriophyllum confertiflorum var. tanacetiflorum	tansy-flowered woolly sunflower		4.3	None
Eryngium spinosepalum	spiny-sepaled button-celery	1B.2		None
Eschscholzia hypecoides	San Benito poppy		4.3	None
Eschscholzia lemmonii ssp. kernensis	Tejon poppy	1B.1		None
Fritillaria agrestis	stinkbells		4.2	None
Gilia latiflora ssp. cuyamensis	Cuyama gilia		4.3	None
Heuchera caespitosa	urn-flowered alumroot		4.3	None
Juglans californica	Southern California black walnut		4.2	None
Lasthenia ferrisiae	Ferris' goldfields		4.2	None
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1		None
Layia heterotricha	pale-yellow layia	1B.1		None
Lupinus elatus	silky lupine		4.3	None
Mentzelia eremophila	solitary blazing star		4.2	None
Navarretia setiloba	Piute Mountains navarretia	1B.1		None
Opuntia basilaris var. treleasei	Bakersfield cactus	1B.1		CE
Perideridia pringlei	adobe yampah		4.3	None
Stylocline citroleum	oil neststraw	1B.1		None
Trichostema ovatum	San Joaquin bluecurls		4.2	None

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Appendix B

California Department of Water Resources, Climate Action Plan Phase 1 Greenhouse Gas Emissions Reduction Plan (GGERP), Update 2023

Greenhouse Gas Emissions Reduction Plan Consistency Determination

For Projects Using Contractors or Other Outside Labor

This form is to be used by DWR Project Managers to document a CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan (GGERP). This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at:
https://cawater.sharepoint.com/teams/prog/icc/SitePages/ClimateActionPlan.aspx

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at:
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-I-GGERP-Update-2020.pdf

Project Name:	CASP Ground Water Monitoring Instalation
Environmental Document Type:	Mitigated Negative Declaration
Project Manager's Name:	Constantin Mercea
Project Manager's E-mail:	Constantin.Mercea@water.ca.gov
Division:	Division of Engineering
Office, Branch, or Field Division:	California Aquaduct Subsidence Program

Short Project Description:

Project Geology Section – Department of Water Resources (Project Geology) shall perform drilling and installation of groundwater monitoring wells at five locations within the San Joaquin Field Division (SJFD). Each location will require the drilling of up to five wells. Project Geology proposes to drill to depths of about 600 to 2800 feet near Mile Posts (MP) 213, 230.6, 259.5, 271.2, and 279.1.

Project Greenhouse Gas (GHG) Emissions Summary:

Total Construction Emissions	420.5	$mtCO_2e$
Maximum Annual Construction Emissions	420.5	$mtCO_2e$ (For construction lasting 12 months or less the total and maximum annual construction emissions will be the same)

☒ All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

Extraordinary Construction Project Determination:

Do total project construction emissions exceed 25,000 $mtCO_2e$ for the entire construction phase or exceed 12,500 $mtCO_2e$ in any single year of construction?

☒ No – Additional analysis not required ☐ Yes – Project specific emissions mitigation measures have been included in the environmental analysis document for the project

Project GHG Reduction Plan Checklist:

☑ All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. (Project Level GHG Emissions Reduction Measures)

Or

☐ All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not to apply to the proposed project (include as an attachment)

☑ Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures (Specific Action GHG Emissions Reduction Measures)

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

☐ Yes ☑ No

If you answered Yes, attach a letter documenting that the project has consulted with the DWR SWP Power and Risk Office regarding the additional power requirements of the project.

Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

☐ Yes ☑ No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Project Manager Signature: Constantin Mercea Date: 3/21/2024

After the Project Manager has reviewed and signed above please use DocuSign to forward this form to the DWR Climate Change Program at ceqaclimatechange@water.ca.gov for final approval.

For DWR Climate Change Program Use Only:
Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR Climate Change Program has determined that:

☐ The entire proposed project is consistent with the DWR GGERP and the GHGs emitted by the project are covered by the plan's analysis.

☐ The operational and maintenance phase of the project is consistent with the DWR GGERP and the GHGs emitted by the project are covered by the plan's analysis. Emissions from the construction phase of the project are not covered by the DWR GGERP and will be mitigated as part of the project.

Climate Change Program Approval Signature: Tyler Anthony Date: 4/2/2024

Attachments:

☐ GHG Emissions Inventory ☐ List and Explanation of excluded Project level GHG Emissions Reduction Measures ☐ SWP Power and Risk Office Consultation Letter

Links:
https://cawater.sharepoint.com/teams/prog/icc/SitePages/HomePage.aspx
https://water.ca.gov/Programs/All-Programs/Climate-Change-Program

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technical memorandum

date	April 29, 2024
to	Philip Meyer, DWR
cc	
from	Stephanie Breeden, ESA Alan Sako, ESA
subject	List and Explanation of Excluded Project-Level GHG Emissions Reduction Measures

As required in the California Department of Water Resources, *Climate Action Plan Phase 1 Greenhouse Gas Emissions Reduction Plan, Update 2023* (January 2024), Appendix B – Assessment Form for Consistency with GHG Emissions Reduction Plan, this Technical Memorandum provides a list and explanation of excluded project-level greenhouse gas (GHG) emissions reduction measures.

TABLE 1
LIST AND EXPLANATION OF EXCLUDED PROJECT-LEVEL GHG EMISSIONS REDUCTION MEASURES

Best Management Practices (BMP) for Construction and Maintenance	Explanation for Exclusion
BMP 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.	The project would have limited and minimal on-site hauling of materials. This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
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.	The project would require concrete for the concrete-filled bollards at each corner of the well pad. However, due to the limited use of concrete for the project, a concrete batch plant would be impractical and would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 6. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.	The project would have limited and minimal off-site hauling of materials. The project would also result in no impacts to traffic congestion (refer to the Initial Study/Mitigated Negative Declaration [IS/MND], Issue XVII, *Transportation*). This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 7. 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.	The project would require concrete for the concrete-filled bollards at each corner of the well pad. However, due to the limited use of concrete for the project, this BMP would be impractical and would not reduce an identified significant impact or substantially reduce GHG impacts.

Best Management Practices (BMP) for Construction and Maintenance	Explanation for Exclusion
BMP 8. 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.	The project would have limited and minimal off-site hauling of materials. The project would also result in no impacts to traffic congestion (refer to the IS/MND, Issue XVII, *Transportation*). This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 11. Implement a tire inflation program on the job site 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.	The project would have limited and minimal use of on-road trucks. This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 12. Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.	The project would be anticipated to have approximately 6-8 construction workers during monitoring station installations. Due to the small number of workers, this BMP would be impractical. Furthermore, the project would result in no impacts to traffic congestion (refer to the IS/MND, Issue XVII, *Transportation*). This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 14. 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 SmartWay2 certified truck will be used to the maximum extent feasible.	The project would have limited and minimal on-site hauling of materials. This BMP would not reduce an identified significant impact or substantially reduce GHG impacts.
BMP 15. Develop a project specific construction debris recycling and diversion program to achieve a documented 50 percent diversion of construction waste.	The project would result in limited and minimal solid waste limited to trash and other construction-related materials. Statewide policies regarding solid waste have become progressively more stringent, reflecting Assembly Bill 939, which requires local government to develop waste reduction and recycling policies and meet mandated solid waste reduction targets. For the minor amount of solid waste anticipated to be produced by the proposed project, DWR would be required to comply with all laws and regulations related to the disposal and recycling of waste. Therefore, this BMP is duplicative of regulations and would not reduce an identified significant impact or substantially reduce GHG impacts.

SOURCE: California Department of Water Resources, *Climate Action Plan Phase 1 Greenhouse Gas Emissions Reduction Plan, Update 2023*, Appendix C – Assessment Form for Consistency with GHG Emissions Reduction Plan, 2024; ESA, 2024.