Initial Study / Mitigated Negative Declaration

Firebaugh Flood Risk Reduction Feasibility Study

Prepared for:

City of Firebaugh
1133 P Street
Firebaugh, CA 93622
559.659.2043
Contact: Ben Gallegos

Prepared by:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291
(559) 840-4414
Contact: Travis Crawford, AICP

November 2020

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PROJECT INFORMATION

This document is the Initial Study for the potential environmental effects of the City of Firebaugh's (City) Flood Risk Reduction Feasibility Study (Project). The City of Firebaugh will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines. Copies of all materials referenced in this report are available for review in the project file during regular business hours at 1133 P Street, Firebaugh, CA 93622.

Project title

Firebaugh Flood Risk Reduction Feasibility Study

Lead agency name and address

City of Firebaugh
1133 P Street
Firebaugh, CA 93622

Contact person and phone number

Ben Gallegos, City Manager: 559.659.2043
Noe Martinez, PE: 209.854.3300

Project location

The City of Firebaugh (City) lies in the San Joaquin Valley's central-western region, along the west side of the San Joaquin River in Fresno County. The City is adjacent to State Route 33 and is approximately 30 miles west of the City of Fresno city limits (Figure 1). The Project site consists of three separate areas along the San Joaquin River within the City limits (Figure 2). Area 1 is at the southeast edge of the City, north of North Helm Canal Road, and just north of the existing wastewater treatment plant; Area 2 is at a sharp northward bend in the San Joaquin River, just north of the intersection of 9th Street and Q Street; and Area 3 includes two discrete areas, one at the northern terminus of Vasquez Drive, east of Hazel M. Bailey Primary School, and one just north of the school and east of Dunkle Park. Additional levee segments (i.e. Firebaugh rodeo grounds) could be added in the future, depending on the results of a flood elevation modeling study.

Figure 1 – Location Map

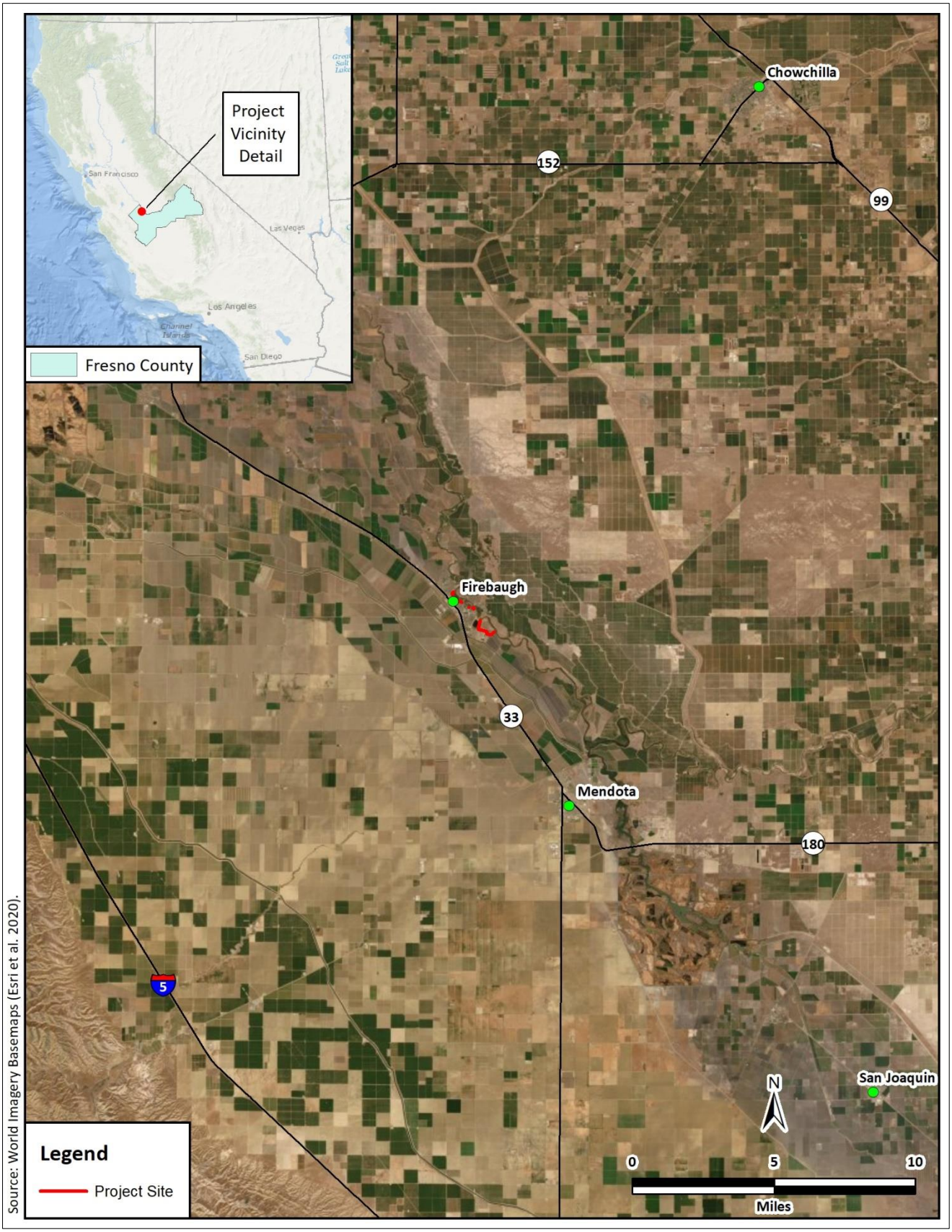

Figure 2 – Project Site Map

Project sponsor's name/address

City of Firebaugh
1133 P Street
Firebaugh, CA 93622

General plan designation

Open Space

Zoning

O (Open Space Recreation District)

Project Description

The Firebaugh Flood Risk Deduction Project will occur in three areas. In Area 1, about 1.1 miles of new levee will be built, the existing levee might be breached and possibly removed within the space contained by the new levee, and that space could be restored or otherwise enhanced to provide riparian woodland habitat in the new floodplain. In Area 2, a severely eroded riverbank will be reinforced to protect adjacent City infrastructure from flooding by the San Joaquin River. In Area 3, a new levee will be built around the existing water treatment plant infrastructure to protect it against flooding. In addition, the existing levee might be enhanced at other areas such as the Firebaugh rodeo grounds, although those plans are contingent on the results of a flood modeling study. Final design of the flood protection measures will be determined following this feasibility analysis.

Surrounding Land Uses/Existing Conditions

The proposed Project site is located in the central-western portion of the San Joaquin Valley of California. The valley is a large, nearly flat alluvial plain bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coast ranges to the west, and the Sacramento-San Joaquin Delta to the north.

The City of Firebaugh lies at an elevation of approximately 140 feet on the southwest side of the San Joaquin River. Surrounding terrain is nearly flat with drainage toward the river. The Friant Dam at Millerton controls the San Joaquin River's flow, creating scenic and recreation resources as well as providing drainage and irrigation. According to the Custom Soil Resource Report for Fresno County, California, Western Part published by the United States Department of Agriculture Natural Resources Conservation Service, the most prevalent soil series in the area are Westhaven loam, Westhaven clay loam, Cerini sandy loam, and Excelsior sandy loam, all of which are sandy with relatively high permeability.

Like most of California, the central/southern San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. According to the Western Regional Climate Center, annual precipitation in the vicinity of the project sites is about 12 inches, about 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

The City of Firebaugh is located in the Delta-Mendota subbasin (subbasin 5-22.07) within the San Joaquin Valley Groundwater Basin. The Delta-Mendota subbasin is located between the Coastal Ranges, and on the north by the Stanislaus/San Joaquin county line. The geologic units that comprise the groundwater reservoir in the Delta-Mendota subbasin consist of the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. Groundwater in the subbasin occurs in three water-bearing zones. These include: the lower zone, which contains confined fresh water in the lower section of the Tulare Formation; an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits; and a shallow zone which contains unconfined water within about 25 feet of the land surface.

The principal drainage of the project vicinity is the San Joaquin River. The San Joaquin River initiates near the crest of the Sierra Nevada from three major tributaries, the Middle Fork, North Fork, and South Fork. From its headwaters, it flows generally south through the Sierra foothills, passing four hydroelectric dams along the way. Below Friant Dam, it enters the San Joaquin Valley. At this point, much of its water is diverted into aqueducts, such that the river is sporadically dry along the 150-mile reach between Friant Dam and the Merced River confluence. Water releases from the Friant Dam under the SJRRP have been ongoing since 2009. Downstream of the Merced River confluence, the San Joaquin River flows generally north before entering the Sacramento-San Joaquin Delta, the San Francisco Bay, and ultimately the Pacific Ocean.

Land uses in the project vicinity include cotton fields, industrial development, and the residential outskirts of Firebaugh.

Other Public Agencies Involved

- State of California Native American Heritage Commission
- San Joaquin Valley Air Pollution Control District
- Central Valley Regional Water Quality Control Board

Tribal Consultation

The City of Firebaugh has not received any project-specific requests from any Tribes in the geographic area with which it is traditionally and culturally affiliated with or otherwise to be notified about projects in the City of Firebaugh. See Section 3.18 – Tribal Cultural Resources.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☐ Aesthetics	☐ Agriculture Resources and Forest 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

On the basis of this initial evaluation:

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

☒ I find that although the proposed project could have a significant effect on the environment,

there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier 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.

11/17/20

Travis Crawford — Date

(Environmental Consultant for the City of Firebaugh)

ENVIRONMENTAL CHECKLIST

I. AESTHETICS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The City of Firebaugh (City) lies in the San Joaquin Valley's central-western region, along the west side of the San Joaquin River in Fresno County. The City is adjacent to State Route 33 and is approximately 30 miles west of the City of Fresno city limits. The Project sites are along the southwest bank of the San Joaquin River, which is nearly flat with drainage toward the river. Area 1 supports dry, recently disked fields, irrigated annual crops, barren levees, and the San Joaquin River and adjacent riparian woodland. Area 2 consists of an eroded riverbank that supported herbaceous and woody vegetation including narrowleaf willow, California bulrush (*Schoenoplectus californicus*), and Goodding's willow. Area 3 includes two separate pieces of infrastructure, each bordered by the San Joaquin River and associated

riparian woodland to the north; a paved walking trail, residential neighborhood, and a school to the south; and a solar array and community garden to the east and west. Additional levee improvements may occur at the Firebaugh Rodeo Grounds which is bordered by the San Joaquin River to the north, urban development to the south and west, and a community park (associated with the rodeo grounds) to the east.

Other land uses in the project vicinity include cotton fields, industrial development, and the residential outskirts of Firebaugh. There are no scenic resources or scenic vistas in the area. State Routes (SR) in the proposed Project vicinity include SR 33.

RESPONSES

a. Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure.

The City of Firebaugh and Fresno County General Plans do not identify any scenic vistas within the Project area; however, the foothills to the west could be considered scenic. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The Project will not impede any views of the foothills.

Construction activities will occur over a 12-month period and will be visible from the adjacent roadsides; however, the construction activities will be temporary in nature and will not affect a scenic vista, as none exist in the Project area. The impact will be ***less than significant***.

Mitigation Measures: None are required.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant Impact. There are no state designated scenic highways within the immediate proximity to the Project site. California Department of Transportation Scenic Highway Mapping System identifies SR 198 west of Interstate 5 as an Eligible State Scenic Highway. This is the closest scenic highway, located approximately 43 miles south of the Project site; however, the Project site is both

physically and visually separated from SR 198 by intervening land uses. In addition, no scenic highways or roadways are listed within the Project area in the City of Firebaugh's General Plan or Fresno County's General Plan. The proposed Project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor. Any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?

Less than Significant Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure. The proposed Project site will be similar in visual character to the existing landscape, as flood protection infrastructure is found commonly in the area along the banks of the San Joaquin River. As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings. As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings.

The impact will be ***less than significant***.

Mitigation Measures: None are required.

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

Currently the sources of light in the project area are from street lights, the vehicles traveling along surrounding roads, and security lights at the existing WWTP. The proposed Project may include a minimal amount of additional security lighting; however, any additional lighting would not be expected to appreciably change any existing glare or lighting conditions because the visibility of the site from residential areas and public spaces and roadways is limited. Accordingly, the proposed Project would not create substantial new sources of light or glare. Potential impacts are ***less than significant***.

Mitigation Measures: None are required.

II. AGRICULTURE AND FOREST RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment 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 site is located in an area of the City considered Nonagricultural and Natural Vegetation by the State Farmland Mapping and Monitoring Program (FMMP).[1] Other land uses in the project vicinity include cotton fields, industrial development, and the residential outskirts of Firebaugh.

RESPONSES

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?

No Impact. There are no agricultural resources or forest lands present on the Project site, which currently consists of open space utilized for flood protection along the southwest bank of the San Joaquin River. The proposed Project would not convert prime farmland, conflict with an existing agricultural use, or result in the conversion of existing farmland. Additionally, no Williamson Act contracted lands would be impacted due to the Project, and the Project site is not subject to a Williamson Act contract.

The proposed Project does not conflict with any forest land or Timberland Production or result in any loss of forest land. The proposed Project does not include any changes which will affect the existing environment by conversion of farmland or forest land. Therefore, the Project has *no impact* to agricultural and forest resources.

Mitigation Measures: None are required.

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[1] California Department of Conservation. California Important Farmland Finder. https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed September 2020.

III. AIR QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors or adversely affecting a substantial number of people)?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The climate of the City of Firebaugh and the San Joaquin Valley is characterized by long, hot summers and stagnant, foggy winters. Precipitation is low and temperature inversions are common. These characteristics are conducive to the formation and retention of air pollutants and are in part influenced by the surrounding mountains which intercept precipitation and act as a barrier to the passage of cold air and air pollutants.

The proposed Project lies within the San Joaquin Valley Air Basin, which is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD or Air District). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

Air quality plans or attainment plans are used to bring the applicable air basin into attainment with all state and federal ambient air quality standards designed to protect the health and safety of residents

within that air basin. Areas are classified under the Federal Clean Air Act as either "attainment", "non-attainment", or "extreme non-attainment" areas for each criteria pollutant based on whether the NAAQS have been achieved or not. Attainment relative to the State standards is determined by the California Air Resources Board (CARB). The San Joaquin Valley is designated as a State and Federal extreme non-attainment area for O3, a State and Federal non-attainment area for PM2.5, a State non-attainment area for PM10, and Federal and State attainment area for CO, SO2, NO2, and Pb.

Standards and attainment status for listed pollutants in the Air District can be found in Table 1. Note that both state and federal standards are presented.

Table 1 - Standards and Attainment Status for Listed Pollutants in the Air District

	Federal Standard	**California Standard**
Ozone	0.075 ppm (8-hr avg)	0.07 ppm (8-hr avg) 0.09 ppm (1-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg)	0.30 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	0.03 ppm (annual avg) 0.14 ppm (24-hr avg) 0.5 ppm (3-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1hr avg)
Lead	1.5 µg/m3 (calendar quarter) 0.15 µg/m3 (rolling 3-month avg)	1.5 µg/m3 (30-day avg)
Particulate Matter (PM10)	150 µg/m3 (24-hr avg)	20 µg/m3 (annual avg) 50 µg/m3 (24-hr avg)
Particulate Matter (PM2.5)	15 µg/m3 (annual avg)	35 µg/m3 (24-hr avg) 12 µg/m3 (annual avg)

µg/m3 = micrograms per cubic meter

Additional State regulations include:

CARB Portable Equipment Registration Program – This program was designed to allow owners and operators of portable engines and other common construction or farming equipment to register their equipment under a statewide program so they may operate it statewide without the need to obtain a permit from the local air district.

U.S. EPA/CARB Off-Road Mobile Sources Emission Reduction Program – The California Clean Air Act (CCAA) requires CARB to achieve a maximum degree of emissions reductions from off-road mobile sources to attain State Ambient Air Quality Standards (SAAQS); off- road mobile sources include most construction equipment. Tier 1 standards for large compression-ignition engines used in off-road mobile sources went into effect in California in 1996. These standards, along with ongoing rulemaking, address emissions of nitrogen oxides (NOX) and toxic particulate matter from diesel engines. CARB is currently developing a control measure to reduce diesel PM and NOX emissions from existing off-road diesel equipment throughout the state.

California Global Warming Solutions Act – Established in 2006, Assembly Bill 32 (AB 32) requires that California's GHG emissions be reduced to 1990 levels by the year 2020. This will be implemented through a statewide cap on GHG emissions, which was phased in beginning in 2012. AB 32 requires CARB to develop regulations and a mandatory reporting system to monitor global warming emissions levels.

RESPONSES

a. Conflict with or obstruct implementation of the applicable air quality plan?

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

c. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. The proposed Project lies within the San Joaquin Valley Air Basin (SJVAB). At the Federal level, the SJVAB is designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM_{10} and CO, and nonattainment fort $PM_{2.5}$. At the State level, the SJVAB is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Although the Federal 1-hour ozone standard was revoked in 2005, areas must still attain this standard, and the SJVAPCD recently requested an EPA finding that the SJVAB has attained the standard based on 2011-2013 data[2]. To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard (2004);

[2] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 28. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed September 2020.

- 2008 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and
- 2018 $PM_{2.5}$ Plan.

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the project uses would be considered to conflict with the attainment plans. In addition, if the project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

The annual significance thresholds to be used for the Project for construction and operational emissions are as follows[3]:

- 10 tons per year ROG;
- 10 tons per year NOx;
- 15 tons per year PM_{10}; and
- 15 tons per year $PM_{2.5}$.

As described above, there are three pollutants of concern for this impact; $PM_{2.5}$, PM_{10} and ROG.

The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure. Since the Project does not include any building construction or demolition, the emissions were not estimated for building activity. The project type is not well represented by the activity assumptions in the California Emissions Estimator Model (CalEEMod) and activities during the restoration period would involve only minor use of internal combustion off-road equipment.

Localized PM10 would be generated by Project construction activities, which would include earth-disturbing activities. The proposed Project would comply with any applicable dust control measures during restoration period as required by the SJVAPCD. Compliance with this regulation would reduce the potential for significant localized PM10 impacts to less than significant levels.

The SJVAPCD provides screening criteria for determining when project-specific operational emissions analysis is required. The 'Small Project Analysis Level' (SPAL) criteria are based on pre-calculated emissions for various types of projects, below which projects have no possibility of exceeding the ozone

[3] San Joaquin Valley Air Control District – Air Quality Threshold of Significance – Criteria Pollutants. http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf. Accessed June 2020.

precursor regional significance thresholds.[4] The proposed Project is designated as Open Space in the City's General Plan. Although Open Space is not listed on the SPAL threshold list, it could be determined that this Project is far less intensive than the types of projects that are listed on the SPAL list. For example, a single-family development consisting of 152-units and generating 1,453 trips/day would be considered to qualify as a SPAL project. By contrast, it is estimated that this Project would not generate an increase in vehicle trips per day beyond what already exists in the adjacent areas. A temporary minimal increase in vehicle trips would occur during construction and as-needed on an on-going basis for maintenance purposes. Therefore, the Project is less than the applicable SPAL thresholds, and would not generate a significant quantity of ozone precursors.

As a result, the Project uses would not conflict with emissions inventories contained in regional air quality attainment plans and would not result in a significant contribution to the region's air quality non-attainment status[5]. Likewise, the Project would not result in a cumulatively considerable net increase of any criteria pollutant within the SJVAPCD jurisdiction. Finally, the Project would not expose sensitive receptors to substantial pollutant concentrations as substantial pollutant concentrations will not be generated. It will not cumulatively increase any criteria pollutant and will not result in substantial pollutant concentrations.

Any impacts to air resources would be considered ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. The proposed Project is located at various locations along the San Joaquin River. During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the Project site. As such, the proposed Project is not expected to produce any offensive odors that would result in frequent odor complaints. Any impacts would be ***less than significant.***

[4] San Joaquin Valley Air Pollution Control District. Small Project Analysis Level. Revised June 2012. https://www.valleyair.org/transportation/CEQA%20Rules/SPALTables61912.pdf. Accessed September 2020.
[5] San Joaquin Valley Air Pollution Control District. Guide to Assessing and Mitigating Air Quality Impacts. March 19, 2015. Page 65. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed June 2020.

Mitigation Measures: None are required.

IV. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Colibri Ecological Consulting, LLC. was retained to conduct a reconnaissance survey to describe the biotic resources of the proposed Project site and to evaluate potential impacts to those resources that could result from proposed Project development. Field surveys were conducted on August 26, 2020. The results of these surveys are summarized herein and the full reports are included in Appendix A – Biological Evaluation Report.

Land Use and Habitat

The proposed Project will occur over three main areas, Areas 1 through 3 (see Figure 2). Site photos of all three areas are provided in Appendix A.

Area 1 supported dry, recently disked fields, irrigated annual crops, barren levees, and the San Joaquin River and adjacent riparian woodland. Small sections of riparian woodland supported native woody plants including Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), narrowleaf willow (*Salix exigua*), common buttonbush (*Cephalanthus occidentalis*), and Northern California black walnut (*Juglans hindsii*). A large canal, the Firebaugh Wasteway, bordered Area 1 to the east, sharing a levee with Area 1 on the east boundary; it included a dense cover of water hyacinth (*Eichhornia crassipes*) for most of its length. Land cover surrounding Area 1 included the San Joaquin River to the north, an existing wastewater treatment plant and a residential neighborhood to the south, the Firebaugh Wasteway canal and cotton fields to the east, and Lake Joallan to the west.

Area 2 consisted of an eroded riverbank that supported herbaceous and woody vegetation including narrowleaf willow, California bulrush (*Schoenoplectus californicus*), and Goodding's willow. Area 2 was bordered to the north and east by the San Joaquin River and to the south and west by residential and commercial development, including an immediately adjacent hotel.

Area 3 included two separate pieces of infrastructure, each bordered by the San Joaquin River and associated riparian woodland to the north; a paved walking trail, residential neighborhood, and a school to the south; and a solar array and community garden to the east and west.

Additional levee improvements may occur at the Firebaugh Rodeo Grounds. This area was bordered by the San Joaquin River to the north, urban development to the south and west, and a community park (associated with the rodeo grounds) to the east.

Observed Plant and Animal Species

A total of 81 plant species (39 native and 42 nonnative), three reptile species, 38 bird species, and four mammal species were observed during the survey (the full species list is provided in Appendix A).

No active nests were found during the reconnaissance survey. However, migratory birds could nest on or near the Project site. Such species include, but are not limited to, mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, and California scrub-jay (*Aphelocoma californica*).

Special Status Plants and Animals

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own lists of native plants considered rare, threatened or endangered. Collectively, these plants and animals are referred to as "special status species."

The USFWS species list for the Project site includes nine species listed as threatened or endangered under the FESA.[6] One species, giant garter snake (*Thamnophis gigas*), could occur on or near the Project site. The remaining eight species have no potential to occur due to either a lack of habitat, the Project site being outside the current range of the species, or the presence of development that would otherwise preclude occurrence.

[6] Appendix A. Table 1.

Searching the California Natural Diversity Database (CNDDB) for records of special-status species from within the Firebaugh 7.5-minute USGS topographic quad and the eight surrounding quads produced 203 records of 47 species.[7] Of those species, seven are not considered further because state or federal regulatory agencies or other groups do not recognize them through special designation. One of the remaining 40 species, 15 are known from within 5 miles of the Project site. Of those 15 species, seven could occur on or near the Project site, and are discussed in greater detail below.

Searching the CNPS Inventory of Rare and Endangered Plants of California for records of special-status plant species from within the Firebaugh 7.5-minute USGS topographic quad and the eight surrounding quads yielded 14 taxa,[8] 11 of which have of a California Rare Plant Rank (CRPR) of 1B. One species, Sanford's arrowhead (*Sagittaria sanfordii*), could occur on or near the Project site. The remaining 10 species are not expected to occur due to a lack of habitat.[9]

Sanford's arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is an aquatic emergent, rhizomatous perennial herb in the family Alismataceae with a CRPR of 1B.2. It is endemic to the Central Valley of California where it occupies ponds, ditches, sloughs, marshes, and slow-moving rivers below 984 feet elevation; it flowers May–October.[10]

One CNDDB record, from 1948, is known from within 5 miles of the Project site. Although this species was not detected during the reconnaissance survey, which was conducted during the blooming period, aquatic habitat on and near the Project site could support this species. Due to the lack of the detection during the appropriately timed survey, however, its potential to occur is low.

Giant garter snake (*Thamnopsis gigas*)

Giant garter snake is a federally and state-listed as threatened reptile in the family Colubridae. Giant garter snake is the largest of the garter snake species, with mature adults growing to lengths of nearly 5.5 feet.[11] Other than its large size, it has a similar color pattern to other garter snake species, having a brown, olive, or black back, a light-yellow dorsal stripe, and a light-yellow stripe on each side. Giant garter snake typically occurs only near in and near sources of freshwater such as canals, marshes, sloughs, and slow-moving rivers, where it feeds primarily on fish, frogs, and tadpoles. It can be active during both the day and night. During the day it basks on grassy banks and openings close to water and forages and seeks cover from predators in vegetation such as bulrush (*Schoenoplectus* sp.) and cattail

[7] Appendix A, Table 1.
[8] Ibid.
[9] Ibid. Page 11.
[10] Ibid. Page 33.
[11] Ibid. Page 34.

(*Typha* sp.); during hotter parts of the day it uses animal burrows and vegetation piles for cover. It overwinters in animal burrows. Giant garter snake mates in the spring, usually between April and March, and bears live young between July and September. The young are generally born in protected sites such dense wetland vegetation or large woody debris.

Two CNDDB records, from 1987, are known from within 5 miles of the Project site. The nearest known population of giant garter snake is from Mendota Wildlife Area, about nine miles south of the Project site. It also was not detected during the reconnaissance survey, which occurred during its active period. However, recent work with environmental DNA (eDNA) suggests this species is more widespread than generally known[12], and aquatic habitat near the Project site could support this species. Therefore, its potential to occur remains low.

Northwestern pond turtle (*Actinemys marmorata*)

Northwestern pond turtle (family Emydidae) is California's only native freshwater turtle. It is recognized as a species of special concern by the CDFW. This species is long-lived, diurnal, and aquatic. It occurs in ponds, lakes, rivers, creeks, marshes, and irrigation ditches and requires exposed banks, logs, rocks, or cattail mats for basking.[13] This species has experienced historic population declines owing to commercial harvesting beginning in the 19th century, wetland destruction and degradation in the 20th century, and introduction of nonnative species including other turtle species and bullfrogs. Mating occurs in April and May, after which females travel onto land to dig a nest, usually within 300 feet of aquatic habitat.

This species is considered present on the Project site based on the observation during the reconnaissance survey of an individual basking on woody debris in the San Joaquin River. One CNDDB record with an unknown observation date is known from within 5 miles of the Project site. The San Joaquin River, the Firebaugh Wasteway, and Lake Joallan provide aquatic habitat for this species, and the low terrace floodplain adjacent to the San Joaquin River provides upland nesting habitat.

Burrowing owl (*Athene cunicularia*)

Burrowing owl is a member of the family Strigidae recognized as a species of special concern by the CDFW. Burrowing owl depends on burrow systems excavated by other species such as California ground squirrel (*Otospermophilus beecheyi*) and American badger (*Taxidea taxus*). Burrowing owl uses burrows for protection from predators and weather, as roosting sites, and dwellings to raise young. It

[12]Appendix A, Page 34.
[13] Ibid.

commonly perches outside burrows on mounds of soil or on nearby fence posts. Prey types includes insects, especially grasshoppers and crickets, frogs, toads, lizards, and small mammals.[14] The nesting season begins in March, and incubation lasts about 28–30 days. Females incubate the eggs, and males forage and deliver food items to the burrow/nest. Young fledge between 44 and 53 days after hatching. Adults can live up to 8 years in the wild.

One CNDDB record, from 2006, is known from within 5 miles of the Project site. Several California ground squirrel burrows were found along a levee near the Project site in Area 1, although no evidence of use of the burrows by owls (e.g., feathers, white-wash, pellets) was observed. Nevertheless, this species has a low potential to occur on the Project site.

Swainson's hawk (*Buteo swainsoni*)

Swainson's hawk is a state-listed as threatened raptor in the family Accipitridae. Swainson's hawk is a gregarious, migratory, breeding resident of Central California where it uses open areas including grassland, sparse shrubland, pasture, open woodland, and annual agricultural fields such as grain and alfalfa to forage on small mammals, birds, and reptiles. After breeding, it eats mainly insects, especially grasshoppers. Swainson's hawk builds a small to medium-sized nest in medium to large trees near foraging habitat. The nesting season begins in March or April in Central California when this species returns to its breeding grounds from wintering areas in Mexico and Central and South America. Nest building commences within one to two weeks of arrival to the breeding area and lasts about one week. One to four eggs are laid and incubated for about 35 days. Young typically fledge in about 38–46 days and tend to leave the nest territory within 10 days of fledging. Swainson's hawks depart for the non-breeding grounds between August and September.[15]

Eleven CNDDB records for Swainson's hawk, ranging from 1983 to 2017, are known from within 5 miles of the Project site. Two adults were seen soaring over the Project site during the reconnaissance survey, potential nest trees were on and within 0.5 miles of the Project site, and open grassland and agricultural fields nearby could support foraging. Therefore, this species is considered present on the Project site.

Tricolored blackbird (*Agelaius tricolor*)

The tricolored blackbird is a state-listed as threatened, colonially nesting passerine in the family Icteridae. This species nests in freshwater marshes, where it forms colonies in emergent vegetation such as cattails or bulrushes (*Schoenoplectus* spp.). In recent years, annual crops including triticale (wheat/rye hybrid) associated with dairy farms have been used in the San Joaquin Valley. Less frequently it nests in prickly

[14] Appendix A. Page 35.
[15] Ibid.

or thorny vegetation such as blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* spp.), and sometimes black mustard (*Brassica nigra*). It forages for seeds and insects in wetlands, irrigated pastures, grasslands, some agricultural fields (especially alfalfa), and other areas. Nesting is initiated in March or April and rarely as early as February in the San Joaquin Valley. Females begin laying a clutch of 3–4 eggs about four days after the birds settle at a breeding site. Incubation lasts 11–12 days, and young fledge 12–14 days after hatching.[16]

One CNDDB record, from 1964, is known from within 5 miles of the Project site. Although this species was not detected during the reconnaissance survey, a limited amount of marsh nesting habitat is present along the margins of Lake Joallan. Therefore, its potential to occur is low.

Western mastiff bat (*Eumops perotis californicus*)

Western mastiff bat is a member of the family Molossidae and recognized as a species of special concern by the CDFW. Also known as the greater mastiff bat, this species is the largest bat in the United States, with a wingspan that can reach nearly two feet (20–23 inches). This species is active throughout the year and roosts in crevices, overhangs on vertical cliff faces, buildings, tunnels, and trees, although reproduction typically occurs in tight rock crevices or buildings. Mating is thought to occur in early spring with young born April–September.[17]

Although no CNDDB records are known from within 5 miles of the Project site (CNDDB 2020), riparian woodland and adjacent buildings could provide roosting habitat for this species. Therefore, its potential to occur is low.

Western red bat (*Lasiurus blossevillii*)

Western red bat is a member of the family Vespertilionidae recognized as a species of special concern by the CDFW. Western red bat is a medium-sized bat that has an average wingspan of about 12 inches. Its fur is rusty to brown red with white tips giving it a frosted appearance. Detailed information on roosting habits is lacking, but it is generally known to roost in trees, among foliage; minimal woody groundcover is required to facilitate flight from the roost, which is generally near edges of open space that provide foraging habitat. Western red bat roosts in riparian woodland near water. Mating typically occurs from August–September, and young are born from late May through early July, flying by three to six weeks old.[18]

[16] Appendix A. Page 36.
[17] Ibid.
[18] Appendix A. Page 36-37.

One CNDDB record, from 1999, is known from within 5 miles of the Project site. Riparian woodland on and near the Project site provides roosting and foraging habitat for this species; therefore, its potential to occur is moderate.

Regulated Habitats

Three regulated habitats were found in the survey area, all of which could be impacted by Project activities. These include the San Joaquin River, the Firebaugh Wasteway (canal), and Lake Joallan. The San Joaquin River and Firebaugh Wasteway are hydrologically connected. Lake Joallan is isolated from the San Joaquin River but is presumably connected via groundwater as it was observed to rise with river-associated floodwaters as analyzed through Google imagery; restoration activities associated with the Project could impact the lake and/or riparian vegetation associated with the floodplain. Each feature is regulated by the US Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (DFW).

RESPONSES

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?

Less than Significant Impact with Mitigation.

The Project could substantially impact the CRPR 1B.2 Sanford's arrowhead, the federally and state-listed as threatened giant garter snake, the state-listed as threatened Swainson's hawk, the state-listed as threatened tricolored blackbird, and four state species of special concern: northwestern pond turtle, burrowing owl, red bat, and western mastiff bat.

Construction impacts to the banks of the San Joaquin River and Firebaugh Wasteway could affect local populations of Sanford's arrowhead, resulting in a significant impact. Although floodplain and wetland restoration in Area 1 could enhance habitat for giant garter snake, northwestern pond turtle, and tricolored blackbird, temporary construction disturbance could result in injury or mortality to animals and result in the incidental loss of fertile eggs, nestlings, or young, or otherwise lead to nest abandonment, constituting a significant impact. Likewise, the Project, through riparian floodplain restoration, would likely result in more large riparian trees that could be used for nesting by Swainson's hawk and roosting by red bat and western mastiff bat; however, temporary construction disturbance could result in the incidental loss of fertile eggs, nestlings, or young, or otherwise lead to nest abandonment (hawks) or maternal colony abandonment (bats), constituting significant impacts.

Construction disturbance or impacts related to levee enhancement could affect burrowing owl as California ground squirrel (*Otospermophilus beecheyi*) burrows found along existing levees could serve as nesting habitat for this species, constituting a significant impact. As such, potential significant impacts could occur. Implementation of Mitigation Measures BIO-1 through BIO-7 will reduce potentially significant impacts to a ***less than significant level.***

Mitigation Measures:

BIO-1 **Protect Sanford's arrowhead.** To protect Sanford's arrowhead, a qualified biologist shall conduct a pre-construction survey within 50 feet of the Project site along the banks of the San Joaquin River and the Firebaugh Wasteway no more than 14 days prior to the start of construction. If Sanford's arrowhead is detected, the qualified biologist shall establish an exclusion zone of 50 feet between any population and the work area. If a 50-foot exclusion zone cannot be established, a site-specific plan to minimize the potential for Project activities to affect individual plants shall be developed by the qualified biologist and implemented in consultation with the CDFW.

BIO-2 **Protect giant garter snake.** To the extent practicable, construction shall be scheduled to coincide with the giant garter snake active season, which extends from May through September, when snakes, if present, are readily avoidable. If it is not possible to schedule work between May and September, a qualified biologist shall conduct a pre-construction survey for giant garter snake no more than 14 days prior to the initiation of construction activities. They survey shall be performed by searching upland areas of the worksite within 200 feet of aquatic habitat that could support giant garter snake, specifically looking for potential underground refugia (i.e., animal burrows). If burrows are present, the qualified biologist will identify and flag such features, which all construction activities will avoid by a minimum of 50 feet. If animal burrows found within 200 feet of aquatic habitat cannot be avoided by a minimum of 50 feet during the giant garter snake inactive season (October through April), the City shall seek technical assistance from CDFW and USFWS to determine whether other methods may be used to avoid impacts to giant garter snake. If no such methods are available, and CDFW and USFWS determine project activities are likely to impact giant garter snake, the City shall formally consult with those agencies and obtain incidental take coverage under CESA and FESA if warranted.

BIO-3 **Protect northwestern pond turtle.** A qualified biologist shall conduct a pre-construction survey for northwestern pond turtle on the worksite within 300 feet of aquatic habitat, including the San Joaquin River, the Firebaugh Wasteway, and Lake Joallan. The survey shall be conducted no more than 14 days prior to the initiation of construction activities

to determine if turtles are occupying the Project site. During the survey, the qualified biologist shall inspect all sections of aquatic habitat within 300 feet of planned work activities, including adjacent upland areas, for turtles and nests. If a turtle or nest is found within 300 feet of the worksite, a qualified biological monitor shall remain on site during construction to ensure that no turtles or turtle nests are impacted by work activities. Any turtle found on or adjacent to the worksite shall be allowed to leave on its own.

BIO-4 **Protect nesting burrowing owl.** Conduct focused burrowing owl surveys to assess the presence/absence of burrowing owl in accordance with guidelines in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). If a burrowing owl or sign of burrowing owl use (e.g., feathers, guano, pellets) is detected on or within 500 feet of the Project site, and the qualified biologist determines that Project activities would disrupt the owl(s), a construction-free buffer, limited operating period, or passive relocation shall be implemented in consultation with the CDFW.

BIO-5 **Protect nesting Swainson's hawk.** To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August. If it is not possible to schedule work between September and February, a qualified biologist shall conduct surveys for active Swainson's hawk nests within 0.5 miles of the Project site following methods developed by the Swainson's Hawk Technical Advisory Committee (2000). If an active nest is found within 0.5 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

BIO-6 **Protect western red bat.** To the extent practicable, construction shall be scheduled to avoid the western red bat pupping season, which extends from May through July. If it is not possible to schedule work between August and March, a qualified biologist shall conduct a survey for active red bat maternal colonies in large trees on the Project site no more than 14 days prior to the start of construction. If an active maternal colony is found, and the qualified biologist determines that Project activities would disrupt breeding, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

BIO-7 **Protect western mastiff bat.** To the extent practicable, construction shall be scheduled to avoid the western mastiff bat pupping season, which extends from April through August. If it is not possible to schedule work between September and March, a qualified biologist shall conduct a survey for active western mastiff bat maternal colonies in crevices in trees and buildings on the Project site no more than 14 days prior to the start of construction. If an active maternal colony is found, and the qualified biologist determines that Project

activities would disrupt breeding, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

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?

Less Than Significant Impact with Mitigation. The Project could impact riparian habitat along four sections of the San Joaquin River and one section of the Firebaugh Wasteway in Areas 1–3. Construction activities including new levee installation in Areas 1 and 3, levee removal in Area 1, riverbank fortification in Area 2, and restoration activities could substantially impact riparian vegetation, constituting a significant impact. An element of the Project involves exploring restoration opportunities in Area 1, which currently supports annual crops and a narrow strip of riparian woodland along the San Joaquin River. In addition, the City seeks to explore restoration opportunities and implement active restoration on the Project site in Area 1, which comprises about 135 acres. These future restoration activities and the resulting increase in riparian floodplain habitat would effectively offset any Project-related impacts to riparian land cover but could impact riparian vegetation during Project implementation; however, impacts to riparian habitat could occur and as such, significant impacts could occur. To ensure that impacts remain less than significant, implementation of Mitigation Measure BIO-8 will ensure impacts remain ***less than significant.***

Mitigation Measures:

BIO-8 **Riparian habitat protection**. The City shall to the extent practicable, avoid impacting riparian vegetation. If impacts to riparian vegetation are unavoidable, the City must obtain a CDFW §1600 Lake and Streambed Alteration Agreement for work that impacts riparian vegetation along the San Joaquin River, Firebaugh Wasteway, and, if applicable, Lake Joallan. The City shall mitigate any impacts to riparian woodland by planting at least three native riparian trees for every riparian tree impacted or as otherwise specified in the Project's Lake and Streambed Alteration Agreement.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact with Mitigation. Construction activities associated with levee creation, levee removal, and riverbank stabilization in Areas 1–3 of the Project will permanently impact the banks and/or floodplain of the San Joaquin River, the Firebaugh Wasteway, and possibly, Lake Joallan. These features are under the jurisdiction of the USACE and therefore subject to provisions of the Clean Water Act (CWA). The extent or details of specific construction-related impacts near wetlands are not currently known, but such a loss to wetlands would constitute a significant effect. Implementation of Mitigation Measure BIO-9 will ensure impacts remain at a ***less than significant level***.

Mitigation Measures:

BIO-9 **Wetland protection.** The City shall obtain a CWA Section 404 Nationwide Permit in consultation with the USACE for work impacting the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan. The City shall obtain a CWA Section 401 water quality certification from the SWRCB for work impacting the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan. The City shall obtain a CDFW §1600 Lake and Streambed Alteration Agreement for work impacting the bed and banks of the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan.

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?

Less Than Significant Impact with Mitigation. The Project has the potential to impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant effect. Implementation of Mitigation Measure BIO-10 will ensure potential impacts to protected bird species remains ***less than significant.***

Mitigation Measures:

BIO-10 **Nesting birds protection.** To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August. If it is not possible to schedule construction between September and January, a pre-construction

clearance survey for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction clearance survey shall be conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 100 feet for non-listed passerines, within 250 feet for non-listed raptors, and within 500 feet for tricolored blackbird. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has failed for non-construction related reasons.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. Proposed project design is consistent with the goals and policies of the City of Firebaugh General Plan. The project will be consistent with the goals and policies of the Fresno County General Plan with implementation of the mitigation measures presented earlier.

As such, the proposed Project would not conflict with any of the adopted policies and there is ***no impact.***

Mitigation Measures: None are required.

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?

No Impact. The proposed Project site is not within an area set aside for the conservation of habitat or sensitive plant or animal species pursuant to a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. As such, there is ***no impact***.

Mitigation Measures: None are required.

V. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

A record search of site files and maps was conducted at the Southern San Joaquin Valley Archaeological Information Center (IC), California State University, Bakersfield (see Appendix B). A Sacred Lands File Request was also submitted to the Native American Heritage Commission (NAHC). These investigations determined that seven cultural resource studies have been conducted within the Project area and 20 additional studies conducted within the one-half mile radius.

There are two known resources within the Project area and five recorded resources within the one-half mile radius, including a historic era ferry, four historic era canals, a historic era railroad, and a prehistoric era lithic scatter with burials. There are no recorded resources within the proposed Project area.

RESPONSES

a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less than Significant Impact with Mitigation. As discussed above, no historic resources were identified within or adjacent to the Project site; however, unidentified cultural resources could be uncovered during proposed Project construction which could result in a potentially significant impact; however, implementation of Mitigation Measure CUL-1 would ensure that significant impacts remain ***less than significant with mitigation incorporation.*** In addition, as part of the biological permitting process (See

Mitigation Measures BIO-8 and BIO-9), the City will be required to prepare Section 106 (of the National Historic Preservation Act) documentation. Proof of Section 106 compliance is required in order to submit the necessary biological permits. This will include a cultural survey, tribal notification, and the resulting Section 106 study.

Mitigation Measures:

CUL-1: In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery and take appropriate actions as necessary.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact with Mitigation. The possibility exists that subsurface construction activities may encounter undiscovered archaeological resources. This would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 would require inadvertently discovery practices to be implemented should previously undiscovered archeological resources be located. As such, impacts to undiscovered archeological resources would be ***less than significant with mitigation incorporation.***

Mitigation Measures: CUL-1

c. Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. Although unlikely given the highly disturbed nature of the site and the records search did not indicate the presence of such resources, subsurface construction activities associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on-site, no further disturbance shall occur until the Fresno County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. The NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work,

for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites, however compliance with regulations would reduce this impact to ***less than significant***.

Mitigation Measures: None are required.

VI. ENERGY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

California's total energy consumption is second-highest in the nation, but, in 2016, the state's per capita energy consumption ranked 48th, due in part to its mild climate and its energy efficiency programs. In 2017, California ranked second in the nation in conventional hydroelectric generation and first as a producer of electricity from solar, geothermal, and biomass resources while also in 2017, solar PV and solar thermal installations provided about 16% of California's net electricity generation.[19]

Energy usage is typically quantified using the British thermal unit (BTU). As a point of reference, the approximately amounts of energy contained in common energy sources are as follows:

Energy Source	BTUs[20]
Gasoline	120,429 per gallon
Natural Gas	1,037 per cubic foot
Electricity	3,412 per kilowatt-hour

[19] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed September 2020.
[20] U.S. Energy Information Administration. Energy Units and Calculators Explained. https://www.eia.gov/energyexplained/index.php?page=about_energy_units. Accessed September 2020.

California electrical consumption in 2016 was 7,830.8 trillion BTU[21], as provided in Table 2, while total electrical consumption by Fresno County in 2018 was 26.109 trillion BTU.[22]

Table 2 – 2016 California Energy Consumption[23]

End User	BTU of energy consumed (in trillions)	Percentage of total consumption
Residential	1,384.4	17.7
Commercial	1,477.2	18.9
Industrial	1,854.3	23.7
Transportation	3,114.9	39.8
Total	**7,830.8**	--

The California Department of Transportation (Caltrans) reports that approximately 25.1 million automobiles, 5.7 million trucks, and 889,024 motorcycles were registered in the state in 2017, resulting in a total estimated 339.8 billion vehicles miles traveled (VMT).[24]

Applicable Regulations

California Energy Code (Title 24, Part 6, Building Energy Efficiency Standards)

California Code of Regulations Title 24, Part 6 comprises the California Energy Code, which was adopted to ensure that building construction, system design and installation achieve energy efficiency. The California Energy Code was first established in 1978 by the CEC in response to a legislative mandate to reduce California's energy consumption, and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and non-residential buildings. The standards are updated periodically to increase the baseline energy efficiency requirements. The 2013 Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings and include requirements to enable both demand reductions during critical peak periods and future solar electric and thermal system installations. Although it was not originally intended to reduce greenhouse gas (GHG) emissions, electricity production

[21] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed September 2020.
[22] California Energy Commission. Electricity Consumption by County. http://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed September 2020.
[23] U.S. Energy Information Administration. Independent Statistics and Analysis. California Profile Overview. https://www.eia.gov/state/?sid=CA#tabs-1. Accessed September 2020.
[24] Caltrans. 2017. California Transportation Quick Facts. http://www.dot.ca.gov/drisi/library/qf/qf2017.pdf. Accessed September 2020.

by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

California Green Building Standards Code (Title 24, Part II, CALGreen)

The California Building Standards Commission adopted the California Green Buildings Standards Code (CALGreen in Part 11 of the Title 24 Building Standards Code) for all new construction statewide on July 17, 2008. Originally a volunteer measure, the code became mandatory in 2010 and the most recent update (2019) will go into effect on January 1, 2020. CALGreen sets targets for energy efficiency, water consumption, dual plumbing systems for potable and recyclable water, diversion of construction waste from landfills, and use of environmentally sensitive materials in construction and design, including eco-friendly flooring, carpeting, paint, coatings, thermal insulation, and acoustical wall and ceiling panels. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; water use; weather resistance and moisture management; construction waste reduction, disposal, and recycling; building maintenance and operation; pollutant control; indoor air quality; environmental comfort; and outdoor air quality. Mandatory measures for residential development pertain to green building; planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; environmental quality; and installer and special inspector qualifications.

RESPONSES

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

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure. The Project at build-out will consume low amounts of energy in the short-term during Project construction; however, is not expected to consume energy during long-term operations.

During construction, the Project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. Title 24 Building Energy Efficiency Standards provide guidance on construction techniques to maximize energy conservation and it is expected that contractors and owners have a strong financial incentive to

use recycled materials and products originating from nearby sources in order to reduce materials costs. As such, it is anticipated that materials used in construction and construction vehicle fuel energy would not involve the wasteful, inefficient, or unnecessary consumption of energy.

Therefore, any impacts are ***less than significant***.

Mitigation Measures: None are required.

VII. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating	☐	☐	☒	☐

	substantial direct or indirect risks to life or property?			
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative 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

Firebaugh is located in the west center of the Great Valley of California, a nearly flat northwest-southeast trending basin approximately 450 miles long by 50 miles wide. The basin is bordered by Mesozoic platonic, volcanic, and metamorphic rocks of the Sierra Nevada mountains on the east and by the Mesozoic and Cenozoic metamorphic and sedimentary rocks of the Coast Ranges on the west.

The Firebaugh area is subject to ground shaking from earthquakes generated by California's numerous faults. The closest significant fault is located near Coalinga and Panoche and is designated as the Alquist-Priolo Fault Line, approximately 50 miles west Firebaugh.

RESPONSES

a-i. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

a-ii. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a-iii. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

a-iv. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Less Than Significant Impact. The proposed Project site is not located in an earthquake fault zone as delineated by the 1972 Alquist-Priolo Earthquake Fault Zoning Map Act. The nearest known potentially active fault is the San Andreas Fault, located over fifty miles west of the site. No active faults have been mapped within the project boundaries, so there is no potential for fault rupture. It is anticipated that the proposed Project site would be subject to some ground acceleration and ground shaking associated with seismic activity during its design life. The Project site would be engineered and constructed in strict accordance with the earthquake resistant design requirements contained in the latest edition of the California Building Code (CBC) for seismic zone II, as well as Title 24 of the California Administrative Code, and therefore would avoid potential seismically induced hazards on planned structures. The Project site has a generally flat topography, and is not at risk of landslide. The impact of seismic hazards on the project would be ***less than significant.***

Mitigation Measures: None are required.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The proposed Project site has a generally flat topography and does not include any Project features that would result in soil erosion or loss of topsoil. Therefore, the impact is ***less than significant***.

Mitigation Measures: None required.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

d. Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial risks to life or property?

Less than Significant Impact. The proposed Project site has a generally flat topography. The most prevalent soil series in the area are Westhaven loam, Westhaven clay loam, Cerini sandy loam, and

Excelsior sandy loam, all of which are sandy with relatively high permeability.[25] None of these soils are subject to landslides, lateral spreading, subsidence, liquefaction or collapse.

Mitigation Measures: None required.

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?

No Impact. The Project does not include the construction, replacement, or disturbance of septic tanks or alternative wastewater disposal systems. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with Mitigation. There are no unique geologic features in the Project vicinity. Although there are no known paleontological resources located in the Project area, site development does have the potential to directly or indirectly destroy an unknown paleontological resource. Mitigation measure CUL-1 is included to reduce any impacts to a less than significant level.

Mitigation Measures: CUL-1

[25] WWTP Planning Study, page 9.

VIII. GREENHOUSE GAS EMISSIONS

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

ENVIRONMENTAL SETTING

Various gases in the earth's atmosphere play an important role in moderating the earth's surface temperature. Solar radiation enters earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs are transparent to solar radiation but are effective in absorbing infrared radiation. Consequently, radiation that would otherwise escape back into space is retained, resulting in a warming of the earth's atmosphere. This phenomenon is known as the greenhouse effect. Scientific research to date indicates that some of the observed climate change is a result of increased GHG emissions associated with human activity. Among the GHGs contributing to the greenhouse effect are water vapor, carbon dioxide (CO_2), methane (CH_4), ozone, Nitrous Oxide (NO_x), and chlorofluorocarbons. Human-caused emissions of these GHGs in excess of natural ambient concentrations are considered responsible for enhancing the greenhouse effect. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Global climate change is, indeed, a global issue. GHGs are global pollutants, unlike criteria pollutants and TACs (which are pollutants of regional and/or local concern). Global climate change, if it occurs, could potentially affect water resources in California. Rising temperatures could be anticipated to result in sea-level rise (as polar ice caps melt) and possibly change the timing and amount of precipitation, which could alter water quality. According to some, climate change could result in more extreme weather patterns; both heavier precipitation that could lead to flooding, as well as more extended drought periods. There is uncertainty regarding the timing, magnitude, and nature of the potential changes to water resources as a result of climate change; however, several trends are evident.

Snowpack and snowmelt may also be affected by climate change. Much of California's precipitation falls as snow in the Sierra Nevada and southern Cascades, and snowpack represents approximately 35 percent of the state's useable annual water supply. The snowmelt typically occurs from April through July; it provides natural water flow to streams and reservoirs after the annual rainy season has ended. As air temperatures increase due to climate change, the water stored in California's snowpack could be affected by increasing temperatures resulting in: (1) decreased snowfall, and (2) earlier snowmelt.

RESPONSES

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?

Less Than Significant Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure. None of the Project components will generate greenhouse gas emissions once they are constructed. Therefore, the proposed Project would not generate significant greenhouse gas emissions, conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions, or result in significant global climate change impacts. Impacts would be ***less than significant.***

Mitigation Measures: None are required.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency	☐	☐	☐	☒

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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

The proposed Project is located at several locations along the southwest bank of the San Joaquin River within the City limits. The nearest sensitive receptors to the proposed Project site are residential houses located immediately adjacent to each Project area, and Hazel M Bailey Primary School adjacent to Area 3. Firebaugh Municipal Airport is a general aviation airport owned and operated by the City of Firebaugh approximately 0.46 miles to the southwest of Project Area 2. This facility is primarily used by agricultural spraying services and also houses several private aircrafts.

RESPONSES

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?

Less than Significant Impact. This impact is associated with hazards caused by the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Proposed Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. Therefore, no significant impacts would

occur during construction activities. Once construction activities, the flood protection infrastructure is passive and will not create a hazard to the public.

Therefore, the proposed Project will not create a significant hazard to the public or the environment and any impacts would be ***less than significant***.

Mitigation Measures: None are required.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. Hazel M Bailey Primary School is located immediately adjacent to Project Area 3; however, the proposed Project includes the construction of flood protection infrastructure in the form of levees and reinforced riverbanks. Proposed Project activities will not emit hazardous emissions or hazardous materials, substances, or waste. Impacts are ***less than significant.***

Mitigation Measures: None are required.

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?

No Impact. The proposed Project site is not located on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5.[26] The nearest Department of Toxic Substances Control listed site is Tri-Air Incorporated located at 915 Tenth Street, approximately 0.65 miles southwest of the proposed Project site. There are no hazardous materials sites that impact the Project. As such, ***no impacts*** would occur that would create a significant hazard to the public or the environment.

Mitigation Measures: None are required.

[26] California Department of Toxic Substance Control. EnviroStor. https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=10070021. Accessed September 2020.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The Firebaugh Municipal Airport is located approximately 0.46 miles southwest of the Project site, while the Fresno-Yosemite International Airport is the closest regional airport, approximately 40 miles west. There are no structures associated with the Project that would impede or impact airport functions. The Project will have ***no impact*** to airport operations.

Mitigation Measures: None are required.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. The Project will not interfere with any adopted emergency response or evacuation plan. Emergency access will be maintained at all times during construction and operation of the Project. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

g. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. There are no wildlands on or near the Project site. There is ***no impact***.

Mitigation Measures: None are required.

X. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☒	☐	☐
i. Result in substantial erosion or siltation on- or off- site;	☐	☒	☐	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☒	☐	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☒	☐	☐

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
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

Like most of California, the southern San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. According to the Western Regional Climate Center, annual precipitation in the vicinity of the project sites is about 12 inches, about 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

The City of Firebaugh is located in the Delta-Mendota subbasin (subbasin 5-22.07) within the San Joaquin Valley Groundwater Basin. The Delta-Mendota subbasin is located between the Coastal Ranges, and on the north by the Stanislaus/San Joaquin county line. The geologic units that comprise the groundwater reservoir in the Delta-Mendota subbasin consist of the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. Groundwater in the subbasin occurs in three water-bearing zones. These include: the lower zone, which contains confined fresh water in the lower section of the Tulare Formation; an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits; and a shallow zone which contains unconfined water within about 25 feet of the land surface.

The principal drainage of the Project vicinity is the San Joaquin River, which passes within 0.3 mile of the site's northern boundary. The San Joaquin River initiates near the crest of the Sierra Nevada from

three major tributaries, the Middle Fork, North Fork, and South Fork. From its headwaters, it flows generally south through the Sierra foothills, passing four hydroelectric dams along the way. Below Friant Dam, it enters the San Joaquin Valley. At this point, much of its water is diverted into aqueducts, such that the river is sporadically dry along the 150-mile reach between Friant Dam and the Merced River confluence. This reach of the river is the subject of the San Joaquin River Restoration Program (SJRRP), a collaborative effort between several state and federal agencies to restore flows and native fish populations. Water releases from the Friant Dam under the SJRRP have been ongoing since 2009. Downstream of the Merced River confluence, the San Joaquin River flows generally north before entering the Sacramento-San Joaquin Delta, the San Francisco Bay, and ultimately the Pacific Ocean.

RESPONSES

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact With Mitigation. The Firebaugh Flood Risk Deduction Project will occur in three areas. In Area 1, about 1.1 miles of new levee will be built, the existing levee might be breached and possibly removed within the space contained by the new levee, and that space could be restored or otherwise enhanced to provide riparian woodland habitat in the new floodplain. In Area 2, a severely eroded riverbank will be reinforced to protect adjacent City infrastructure from flooding by the San Joaquin River. In Area 3, a new levee will be built around the existing water treatment plant infrastructure to protect it against flooding. In addition, the existing levee might be enhanced at the Firebaugh rodeo grounds, although those plans are contingent on the results of a flood modeling study.

Several permits would be required to proceed with the proposed Project, as discussed in Mitigation Measures BIO-8 and BIO-9. Water quality objectives would be met during the construction phase through adherence to the following permits: RWQCB Section 401 CWA permit (Water Quality Certification), USACE Section 404 CWA permit, and CDFW Section 1600 SAA . The contractor will assign a water pollution control manager, who will train workers, and manage a project plan based on State and federal requirements, to reduce potential impacts to water quality, soils, and other resources. The contractor will perform water pollution control work in conformance with the requirements in the Storm Water Pollution Prevention Plan and the Water Pollution Control Program Preparation Manual (2011). BMPs based on a Storm Water Data Report will be incorporated into the design and conditions of approval for the Project. Compliance with these regulatory measures would ensure that the Project would not violate any water quality standard or waste discharge requirements, or otherwise substantially degrade water quality.

Therefore, any impacts are ***less than significant*** with implementation of Mitigation Measures BIO-8 and BIO-9.

Mitigation Measures: BIO-8 and BIO-9.

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

No Impact. The San Joaquin River is a primary source of groundwater recharge in Fresno County.[27] Once the flood protection infrastructure is in place, the Project would maintain the rivers existing groundwater recharge capacity. No groundwater supplies would be used or impacted by the Project and as such, there is ***no impact*** on groundwater supplies and the Project would not impede sustainable groundwater management of the basin.

Mitigation Measures: None are required.

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 offsite;

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. impede or redirect flood flows?

Less Than Significant Impact with Mitigation. The proposed Project includes flood protection infrastructure to the southwest bank of the San Joaquin River within the City of Firebaugh. As discussed in Impact X(a), the proposed Project would comply with regulatory standards (USACE Section 404 permit, RWQCB Water Quality Certification, and CDFW Section 1600 SAA) to ensure that the project

[27] Fresno Metropolitan Flood Control District. Groundwater-recharge. http://www.fresnofloodcontrol.org/water-resources/groundwater-recharge/. Accessed September 2020.

does not violate any water quality standard or waste discharge requirements, or otherwise substantially degrade water quality during the construction phase.

Compliance with regulatory standards would also ensure that the Project would not substantially alter the existing drainage pattern of the site or area through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite. As such, impacts are less than significant, with implementation of BIO-8 and BIO-9.

Mitigation Measures: BIO-8 and BIO-9**.**

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?

No Impact. There are no inland water bodies that could be potentially susceptible to a seiche in the Project vicinity. This precludes the possibility of a seiche inundating the Project site. The Project site is more than 100 miles from the Pacific Ocean, a condition that precludes the possibility of inundation by tsunami. There are no steep slopes that would be susceptible to a mudflow in the Project vicinity, nor are there any volcanically active features that could produce a mudflow in the City of Firebaugh. This precludes the possibility of a mudflow inundating the Project site. ***No impacts*** would occur.

Mitigation Measures: None are required.

XI. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The proposed Project sites are immediately adjacent to the southwest bank of the San Joaquin River. The Project areas are zoned O (Open Space Recreation District) and are designated as Open Space by the City's General Plan.

RESPONSES

a. Physically divide an established community?

No Impact. The proposed Project is located on the outer edge of the City, adjacent to the bank of the San Joaquin River. Project construction would not cause any land use changes in the surrounding vicinity nor would it divide an established community. ***No impacts*** would occur as a result of Project implementation.

Mitigation Measures: None are required.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area and does not conflict with any land use plans, policies or regulations. There are ***no impacts***.

Mitigation Measures: None are required.

XII. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the County. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone). Aggregate and petroleum are considered the County's most significant extractive mineral resources. No mineral resource locations are within the vicinity of the City of Firebaugh.[28]

RESPONSES

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?

[28] Fresno County General Plan Background Report. Adopted 2000. Page 7-66. Accessed September 2020 http://www.co.fresno.ca.us/viewdocument.aspx?id=5696

No Impact. The proposed Project area is not included in a State classified mineral resource zone and is not delineated on a local general plan, specific plan, or other land use plan as having importance regarding mineral resources. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

XIII. NOISE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Noise is most often described as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. The City of Firebaugh is impacted by a multitude of noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant sources of noise in most communities, and they are predominant sources of noise in the City. Commercial, industrial, and institutional land uses throughout the City (i.e., schools, fire stations, utilities) also generate stationary-source noise. The proposed Project sites are immediately adjacent to the southwest bank of the San Joaquin River. Other land uses in the project vicinity include cotton fields, industrial development, and the residential outskirts of Firebaugh. The predominant noise sources in the Project area include traffic on local roadways and noise associated with nearby commercial and industrial businesses.

RESPONSES

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact. The nearest sensitive receptors are located approximately 80 feet from the planned infrastructure at Area 3. The proposed Project includes various improvements to the existing levee infrastructure along the southwest bank of the San Joaquin River. The new infrastructure will not generate new sources of noise and once constructed, noise levels in the area will return to existing levels.

Neither the City of Firebaugh Municipal Code nor the Fresno County Municipal Code identifies a short-term, construction-noise-level threshold. The distinction between short-term construction noise impacts and long-term operational noise impacts is a typical one in both CEQA documents and local noise ordinances, which generally recognize the reality that short-term noise from construction is inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term noise at levels that they would not accept for permanent noise sources. A more severe approach would be impractical and might preclude the kind of construction activities that are to be expected from time to time in urban environments. Most residents of urban areas recognize this reality and expect to hear construction activities on occasion. As the construction period will be brief and periodic, and construction hours would be limited to those established in the City's Municipal Code, any impacts would be ***less than significant***.

Mitigation Measures: None are required.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous. Construction associated with the proposed Project is largely earthmoving activities associated with creating levees and reinforcing riverbanks.

The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day[29]. Table 3 describes the typical construction equipment vibration levels.

Table 3
Typical Construction Vibration Levels

Equipment	VdB at 25 ft
Small Bulldozer	58
Jackhammer	79

Vibration from construction activities will be temporary and not exceed the Federal Transit Authority threshold for the nearest residence which is located approximately 80 feet west of the Project site at Area 3. The impact will be ***less than significant***.

Mitigation Measures: None are required.

c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed Project includes flood protection infrastructure such as constructing new or enhancing existing levees and reinforcing an eroded area of the San Joaquin river. Such infrastructure will not expose people residing or working in the Project area to excessive noise levels. Therefore, there would be *no impact*.

Mitigation Measures: None are required.

[29] Transit Noise and Vibration Impact Assessment Manual. FTA Report No 0123. prepared for the U.S. Federal Transit Administration by John A. Volpe National Transportation Systems Center in September 2018. Page 113. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed September 2020.

XIV. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Induce substantial 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 housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City of Firebaugh's primary industry is agriculture, but there is sufficient labor force in the area to support many other types of industries, including manufacturing. According to the U.S. Census, as of July 1, 2015, the population of the City of Firebaugh was approximately 8,330.

RESPONSES

a. Induce substantial 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?

No Impact. There are no new homes associated with the proposed Project and there are no residential structures currently on-site. The proposed Project will not affect any regional population, housing, or employment projections anticipated by City policy documents. There is ***no impact***.

Mitigation Measures: None are required.

XV. PUBLIC SERVICES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City of Firebaugh Police Department and Fire Department provides services to the City of Firebaugh, including the Project areas. Hazel M. Bailey Primary School is approximately 0.15 miles to the west.

RESPONSES

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

No Impact. The proposed Project would improve the levees and reinforce eroded sections of the San Joaquin Rivers southwest bank. The proposed Project would not directly or indirectly induce population growth and thus would not require additional fire protection services. There is ***no impact.***

Police Protection?

No Impact. The proposed Project will continue to be served by the City of Firebaugh police department and the City's Fire Department. No additional police personnel or equipment is anticipated. There is ***no impact.***

Schools, Parks, Other Public Facilities?

No Impact. The proposed Project would not increase the number of residents in the City, as the Project does not include residential units. Because the demand for schools, parks, and other public facilities is driven by population, the proposed Project would not increase demand for those services. As such, the proposed Project would result in ***no impacts.***

Mitigation Measures: None are required.

XVI. RECREATION

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

There are several parks within the City of Firebaugh that are managed by the City. There are no parks impacted by the proposed Project.

RESPONSES

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed Project does not include the construction of residential uses and would not directly or indirectly induce population growth. Therefore, the proposed Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. The Project would have ***no impact*** to existing recreational facilities.

Mitigation Measures: None are required.

XVII. TRANSPORTATION/ TRAFFIC

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b. Would the 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

State Route 33 is the main highway through the City. The Firebaugh Airport is located on the western edge of the City, approximately 1.5 miles northwest of the Project site, while the Fresno-Yosemite International Airport is the closest regional airport, approximately 40 miles west.

RESPONSES

a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

b. Would the 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?

No Impact. The proposed Project would not cause a substantial increase in traffic, reduce the existing level of service, or create any additional congestion at any intersections. The proposed Project would require periodic maintenance, approximately two trips per week. As such, neither level of service or vehicle miles traveled standards would be exceeded and the proposed Project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. No roadway design features are associated with this proposed Project that would result in an increase in hazards due to a design feature or be an incompatible use. There is ***no impact***.

Mitigation Measures: None are required.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. 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 the Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

RESPONSES

a). Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact. A Tribal Cultural Resource (TCR) is defined under Public Resources Code section 21074 as a site, feature, place, cultural landscape that is geographically defined in terms of size and scope, sacred place, and object with cultural value to a California Native American tribe that are either included and that is listed or eligible for inclusion in the California Register of Historic Resources or in a local register of historical resources, or if the City of Firebaugh, acting as the Lead Agency, supported by substantial evidence, chooses at its discretion to treat the resource as a TCR. As discussed above, under Section V, Cultural Resources, criteria (b) and (d), no known archeological resources, ethnographic sites or Native American remains are located on the proposed Project site. As discussed under criterion (b) implementation of Mitigation Measure CUL-1 would reduce impacts to unknown archaeological deposits, including TCRs, to a less than significant level. As discussed under criterion (d), compliance with California Health and Safety Code Section 7050.5 would reduce the likelihood of disturbing or discovering human remains, including those of Native Americans. However, as part of the biological permitting process (See Mitigation Measures BIO-8 and BIO-9), the City will be required to prepare Section 106 (of the National Historic Preservation Act) documentation. Proof of Section 106 compliance is required in order to submit the necessary biological permits. This will include a cultural survey, tribal notification, and the resulting Section 106 study. Any impacts to TCR would be considered ***less than significant***.

Mitigation Measures: No additional measures are required.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The proponent for the proposed Project is the City of Firebaugh that has responsibility for providing water, wastewater, stormwater, and solid waste services for the community. The proposed Project would not involve any construction or changes to these services.

RESPONSES

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

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

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

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The proposed Project involves constructing and enhancing setback levees for flood protection of the greater Firebaugh area. Specifically, the Project includes reinforcing or removing and replacing an existing levee, reinforcing an eroded riverbank and building a new levee around the existing water and WWTP infrastructure.

The proposed Project would not require service for sewage disposal, water, or solid waste disposal. The City of Firebaugh's utilities and service systems would not be affected by the construction of the flood protection infrastructure. Any impacts would be ***less than significant***.

Mitigation Measures: None are required.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The City of Firebaugh is characterized by both the urbanized portions of Firebaugh and surrounding agricultural fields. The City is served by the Firebaugh Fire Department, whose station is located at Firebaugh City Hall on the corner of P and 11th Streets. The City is not located in or near a state responsibility area[30] nor is it on or near lands classified as very high fire hazard severity zones.[31]

[30] State of California. California Department of Forestry and Fire Protection. https://www.fire.ca.gov/media/2136/facilities_sra_map.pdf. Accessed September 2020.
[31] California State GeoPortal. California Fire Hazard Severity Zone Viewer. https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414. Accessed September 2020.

RESPONSES

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

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

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The City is not located in or near a state responsibility area[32] nor is it on or near lands classified as very high fire hazard severity zones.[33] As such, there are ***no impacts*** resulting from wildfire risk.

Mitigation Measures: None are required.

[32] State of California. California Department of Forestry and Fire Protection. https://www.fire.ca.gov/media/2136/facilities_sra_map.pdf. Accessed September 2020.
[33] California State GeoPortal. California Fire Hazard Severity Zone Viewer. https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414. Accessed September 2020.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Does the project have the potential to 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 the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

RESPONSES

a. Does the project have the potential to 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 the number or restrict the range of

a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant***.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc.). The impact is ***less than significant***.

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

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant.***

LIST OF PREPARERS

Crawford & Bowen Planning, Inc.

- Emily Bowen, LEED AP, Principal Environmental Planner
- Travis Crawford, AICP, Principal Environmental Planner

Persons and Agencies Consulted

Gouveia Engineering, Inc.

- Noe Martinez, PE

Colibri Ecological Consulting, LLC

- Kris Robinson, Biologist

Appendices

Appendix A

Biological Evaluation Report

Biological Resource Evaluation

Firebaugh Flood Risk Reduction Project

Fresno County, California

PREPARED FOR:

The City of Firebaugh
1133 P Street
Firebaugh, CA 93622

PREPARED BY:

Colibri Ecological Consulting, LLC
9493 N Fort Washington Road, Suite 108
Fresno, CA 93730

September 2020

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Executive Summary

The City of Firebaugh (City) proposes to reduce the risk of flooding in the City by enhancing flood protection in three areas along the San Joaquin River in Firebaugh, Fresno County, California. Area 1 is at the southeast edge of the City, north of North Helm Canal Road, and just north of the City's wastewater treatment plant; Area 2 is at a sharp northward bend in the San Joaquin River, just north of the intersection of 9th Street and Q Street; Area 3 contains two discrete areas, one of which is at the northern terminus of Vasquez Drive, east of Hazel M. Bailey Primary School, and the other is just north of the school and east of Dunkle Park. An additional levee segment at the Firebaugh Rodeo Grounds could be added in the future, depending on the results of a flood elevation modeling study. The project will involve constructing and enhancing setback levees for flood protection and providing habitat enhancements and recreational benefits. The purpose of the project is to provide 100-year flood protection for the greater Firebaugh area and advance an integrated water management approach with multiple benefits to the community.

To evaluate whether the project may affect biological resources under California Environmental Quality Act (CEQA) purview, we (1) obtained lists of special-status species from the California Department of Fish and Wildlife, the United States Fish and Wildlife Service, and the California Native Plant Society, (2) reviewed other relevant background information such as aerial images and topographic maps, and (3) conducted a field reconnaissance survey of the project site.

This biological resource evaluation summarizes existing biological conditions on the project site, the potential for special-status species and regulated habitats to occur on or near the project site, the potential impacts of the project on biological resources and regulated habitats, and measures to reduce those potential impacts to a less-than-significant level under CEQA.

We concluded that the project could impact eight special-status species. Those include the California Rare Plant Ranked (CRPR) 1B.2 Sanford's arrowhead (*Sagittaria sanfordii*), the federally and state-listed as threatened giant garter snake (*Thamnophis gigas*), the state-listed as threatened Swainson's hawk (*Buteo swainsoni*), the state-listed as threatened tricolored blackbird (*Agelaius tricolor*), and four state species of special concern: northwestern pond turtle (*Actinemys marmorata*), burrowing owl (*Athene cunicularia*), red bat (*Lasiurus blossevillii*), and western mastiff bat (*Eumops perotis californicus*). Nesting migratory birds could also be impacted. Impacts to all species listed above can be reduced to less-than-significant levels with mitigation.

Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
EPA	Environmental Protection Agency
FE	Federally listed as Endangered
FESA	Federal Endangered Species Act
FP	Fully Protected
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
SCE	State Candidate for listing as Endangered
SE	State-listed as Endangered
SSSC	State Species of Special Concern
ST	State-listed as Threatened
USACE	United States Army Corps of Engineers
SWRCB	State Water Resources Control Board
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Background

The City of Firebaugh (City) proposes to enhance flood protection for the greater Firebaugh area in Fresno County, California (Project). The Project will occur in three areas. Area 1 is at the southeast edge of the City, north of North Helm Canal Road, and just north of the existing wastewater treatment plant; Area 2 is at a sharp northward bend in the San Joaquin River, just north of the intersection of 9th Street and Q Street; and Area 3 includes two discrete areas, one at the northern terminus of Vasquez Drive, east of Hazel M. Bailey Primary School, and one just north of the school and east of Dunkle Park; an additional levee segment at the Firebaugh rodeo grounds could be added in the future, depending on the results of a flood elevation modeling study. The project will involve constructing and enhancing setback levees for flood protection and providing habitat enhancements and recreational benefits.

The purpose of this biological resource evaluation is to determine whether the Project will affect state- or federally protected biological resources pursuant to California Environmental Quality Act (CEQA) guidelines. Such resources include species of plants or animals listed or proposed for listing under the California Endangered Species Act (CESA) or federal Endangered Species Act (FESA), California species of special concern, and species covered under the federal Migratory Bird Treaty Act (MBTA), California Native Plant Protection Act, various other sections of the California Fish and Game Code, and the California Native Plant Society Inventory of Rare and Endangered Plants. This biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW).

1.2 Project Description

The Firebaugh Flood Risk Reduction Project will occur in three areas. In Area 1, about 1.1 miles of new levee will be built, the existing levee might be breached and possibly removed within the space contained by the new levee, and that space could be restored or otherwise enhanced to provide riparian woodland habitat in the new floodplain. In Area 2, a severely eroded riverbank will be reinforced to protect adjacent City infrastructure from flooding by the San Joaquin River. In Area 3, a new levee will be built around the existing water treatment plant infrastructure to protect it against flooding. In addition, the existing levee might be enhanced at the Firebaugh rodeo grounds, although those plans are contingent on the results of a flood modeling study.

1.3 Project Location

The Project site is in the City of Firebaugh at an elevation of 140 feet above mean sea level. It is east of State Route 33, north of State Route 180, and south of State Route 152 in Fresno County, California (Figure 1). The Project site consists of three separate areas along the San Joaquin River within the City limits (Figure 2).

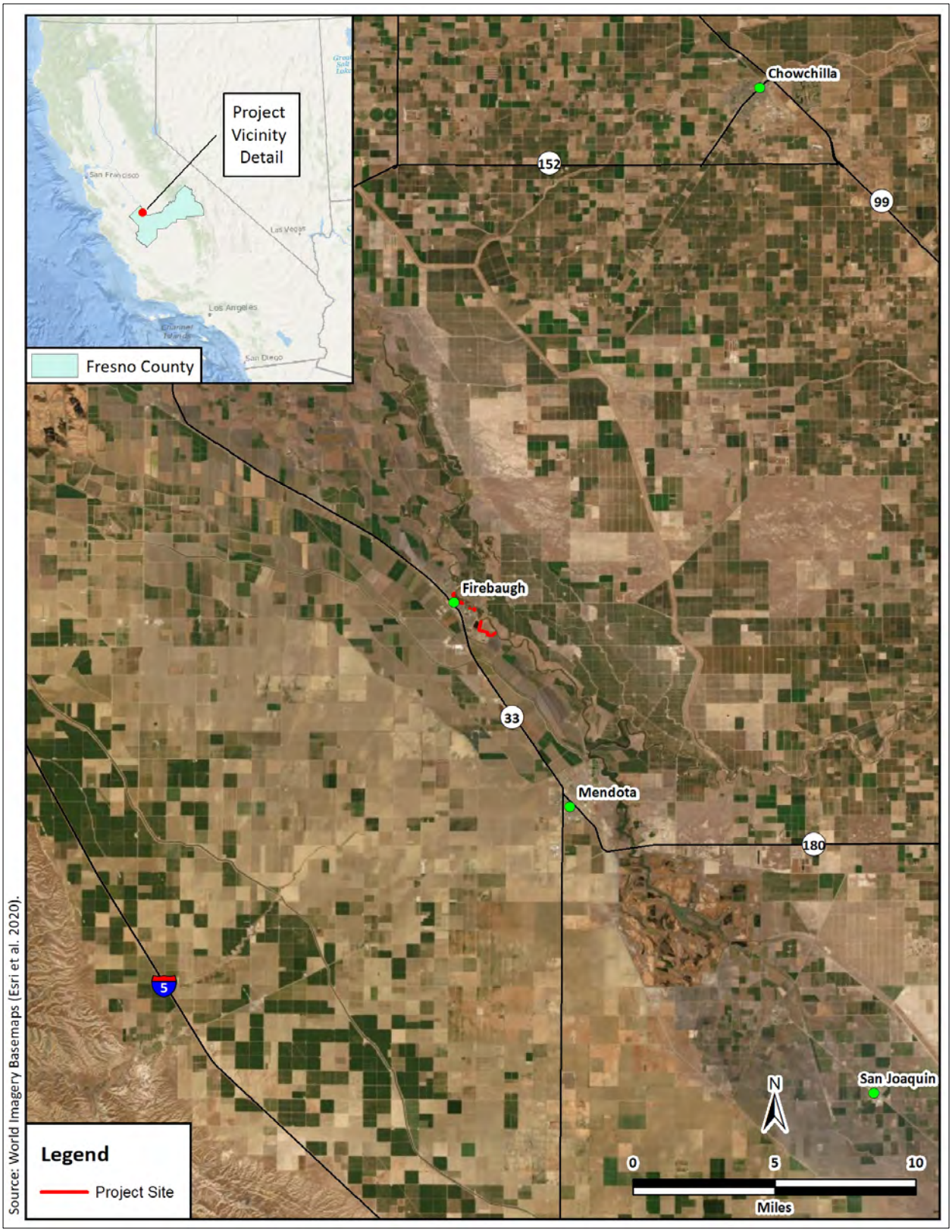

Figure 1. Project site vicinity map.

Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The purpose of the Project is to provide 100-year flood protection for the greater Firebaugh area and advance an integrated water management approach with multiple benefits to the community. The Project is needed to reduce the risk of flooding in the City of Firebaugh.

1.5 Regulatory Framework

The relevant state and federal regulatory requirements and policies that guide the impact analysis of the Project are summarized below.

1.5.1 State Requirements

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq. and California Code of Regulations (CCR) Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the California Department of Fish and Wildlife (CDFW) when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state-listed species. During consultation, CDFW determines whether take would occur and identifies "reasonable and prudent alternatives" for the project and conservation of special-status species. CDFW can authorize take of state-listed species under Sections 2080.1 and 2081(b) of Fish and Game Code in those cases where it is demonstrated that the impacts are minimized and mitigated. Take authorized under section 2081(b) must be minimized and fully mitigated. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Under CESA, CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (Fish and Game Code § 2070). CDFW also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern or fully protected species would be considered significant under certain circumstances.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) of 1970 (Subsections 21000–21178) requires that CDFW be consulted during the CEQA review process regarding impacts of proposed projects on special-status species. Special-status species are defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under these criteria or by the scientific community. Therefore, species considered rare or endangered are addressed in this biological resource evaluation

regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity (CNPS 2020). Plants with Rare Plant Ranks 1A, 1B, 2A, or 2B are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare and endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the United States Fish and Wildlife Service (USFWS) or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

California Native Plant Protection Act. The California Native Plant Protection Act of 1977 (California Fish and Game Code §§ 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFW at least 10 days in advance of any change in land use, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Nesting birds. California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are "Fully Protected" as those that may not be taken or possessed except under specific permit.

California Department of Fish and Wildlife Jurisdiction. The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream; substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code Section 1602.

1.5.2 Federal Requirements

Federal Endangered Species Act. The USFWS and the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) enforce the provisions stipulated in the Federal Endangered Species Act of 1973 (FESA, 16 United States Code [USC] § 1531 et seq.). Threatened and endangered species on the federal list (50 Code of Federal Regulations [CFR] 17.11 and 17.12) are protected from take unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is

rendered to a federal lead agency via a Section 7 consultation. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. Pursuant to the requirements of the FESA, an agency reviewing a proposed action within its jurisdiction must determine whether any federally listed species may be present in the proposed action area and determine whether the proposed action may affect such species. Under the FESA, habitat loss is considered an effect to a species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA (16 USC § 1536[3], [4]). Therefore, proposed action-related effects to these species or their habitats would be considered significant and would require mitigation.

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) (16 USC § 703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young (16 USC § 703 and § 715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an "active nest." However, the "Migratory Bird Permit Memorandum" issued by the USFWS in 2003 and updated in 2018 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2018).

United States Army Corps of Engineers Jurisdiction. Areas meeting the regulatory definition of "waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States (33 CFR part 328.3). Ditches and drainage canals where water flows intermittently or ephemerally are not regulated as waters of the United States. Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

2.0 Methods

2.1 Desktop Review

As a framework for the evaluation and reconnaissance survey, we obtained a USFWS species list for the Project site (Appendix A). In addition, we searched the California Natural Diversity Data Base (CNDDB) and the CNPS Inventory of Rare and Endangered Plants for records of special-status plant and animal species in the Project area (CNDDB 2020, CNPS 2020). Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Firebaugh 7.5-minute United States Geological Survey (USGS) topographic quad, which encompasses the Project site, and the eight surrounding quads (Broadview Farms, Chaney Ranch, Coit Ranch, Firebaugh NE, Mendota Dam, Oxalis, Poso Farm, and Tranquility). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies or other groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2020) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2020), and relevant literature.

2.2 Reconnaissance Survey

Colibri Associate Scientists Joe Medley and Kristofer Robison conducted a field reconnaissance survey of the Project site on 26 August 2020. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the area to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of special-status raptors (Figure 3). All plants except ornamentals and cultivated agricultural species and all animals (vertebrate wildlife species) observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, wetlands, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa).

2.3 Significance Criteria

CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment" (Public Resource Code, § 21068). Under CEQA Guidelines Section 15065, a project's effects on biological resources are deemed significant where the project would do any of the following:

a) Substantially reduce the habitat of a fish or wildlife species,

b) Cause a fish or wildlife population to drop below self-sustaining levels,

c) Threaten to eliminate a plant or animal community, or

d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G of the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

e) 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 CDFW or the USFWS;

f) 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 CDFW or USFWS;

g) 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.

h) 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;

i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

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

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.

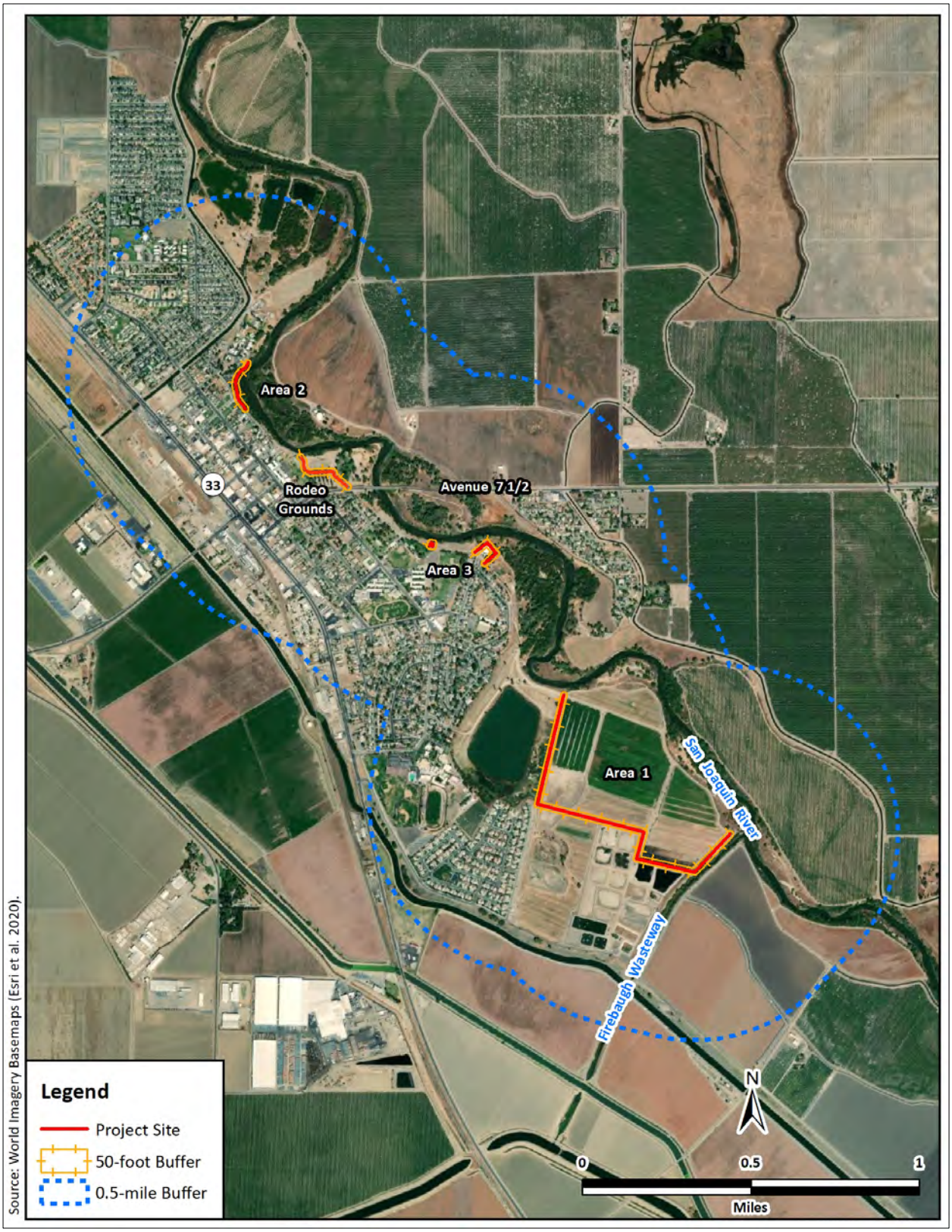

Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project site includes nine species listed as threatened or endangered under the FESA (USFWS 2020, Table 1, Appendix A). One species, giant garter snake (*Thamnophis gigas*), could occur on or near the Project site. The remaining eight species have no potential to occur due to either a lack of habitat, the Project site being outside the current range of the species, or the presence of development that would otherwise preclude occurrence (Table 1).

Searching the CNDDB for records of special-status species from within the Firebaugh 7.5-minute USGS topographic quad and the eight surrounding quads produced 203 records of 47 species (CNDDB 2020, Table 1, Appendix B). Of those species, seven are not considered further because state or federal regulatory agencies or other groups do not recognize them through special designation (Appendix B). One Of the remaining 40 species, 15 are known from within 5 miles of the Project site (Table 1, Figure 4). Of those 15 species, seven could occur on or near the Project site (Table 1).

Searching the CNPS Inventory of Rare and Endangered Plants of California for records of special-status plant species from within the Firebaugh 7.5-minute USGS topographic quad and the eight surrounding quads yielded 14 taxa (CNPS 2020, Appendix C), 11 of which have of a CRPR of 1B (Table 1). One species, Sanford's arrowhead (*Sagittaria sanfordii*), could occur on or near the Project site (Table 1). The remaining 10 species are not expected to occur due to a lack of habitat (Table 1).

The Project site is underlain by Elnido sandy loam, 0–1% slopes; Elnido sandy loam, drained, 0–1% slopes; Tachi clay, 0–1% slopes; Wedoka clay, partially drained, 0–1% slopes; and Bisgani-Elnido association, 0–1% slopes (NRCS 2020). The area immediately surrounding the wastewater treatment plant has been under cultivation or otherwise regularly disturbed by disking and mowing since at least 1998 (Google 2020).

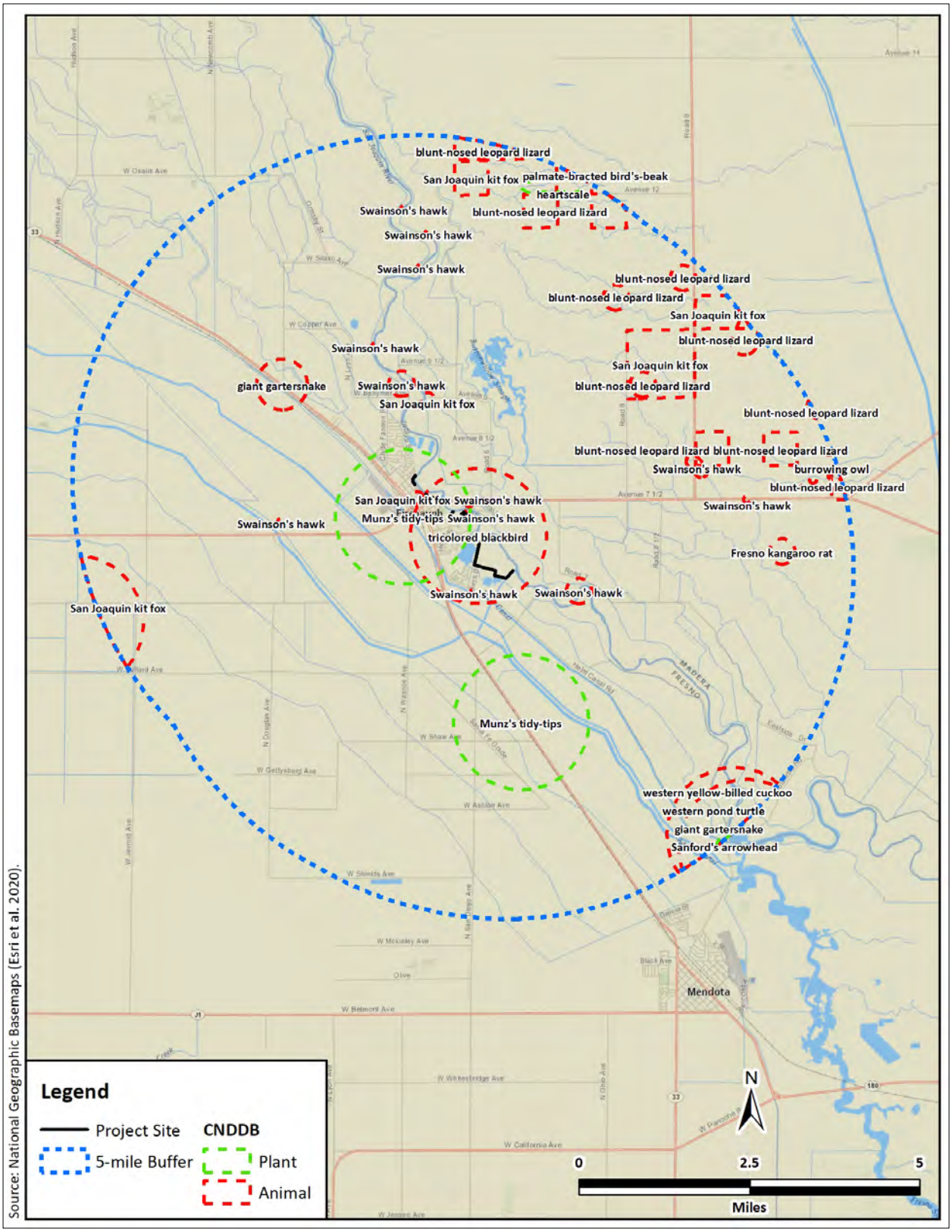

Figure 4. CNDDB occurrence map.

Table 1. Special-status species, their listing status, habitats, and potential to occur on or near the Project site.

Species	Status[1]	Habitat	Potential to Occur[2]
Federally and State-Listed Endangered or Threatened Species			
Palmate-bracted bird's beak[3] (*Chloropyron palmatum*)	FE, SE, 1B.1	Alkaline flats below 200 feet elevation	**None.** Habitat lacking; no alkaline flats found in the survey area; the single CNDDB record known from within 5 miles of the Project site is considered "possibly extirpated".
San Joaquin woollythreads (*Monolopia congdonii*)	FE, 1B.2	Sandy soils in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland at 180–2400 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Crotch bumble bee (*Bombus crotchii*)	SCE	Grassland and scrub habitats in the Central Valley.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats surrounded by agricultural and urban development; no records from within 5 miles.
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE	Vernal pools and depressions.	**None.** Habitat lacking; no vernal pools or depressions found in the survey area; no records from within 5 miles.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages, and seasonal wetlands.	**None.** Habitat lacking; no vernal pools or seasonal wetlands found in the survey area; no records from within 5 miles.
Delta smelt (*Hypomesus transpacificus*)	FT, SE	Estuarine river channels and tidally influenced sloughs.	**None.** Habitat lacking; although the San Joaquin River is technically connected with tidally influenced estuarine habitat, the stretch of

Species	Status[1]	Habitat	Potential to Occur[2]
			river near the Project site is not under tidal influence; no records from within 5 miles.
Steelhead – Central Valley Distinct Population Segment (*Oncorhynchus mykiss irideus*)	FT	Streams with adequate flows in coastal watersheds from Shasta County south to the San Joaquin-Merced River confluence.	**None.** Habitat lacking; the Project site is south of the San Joaquin-Merced River confluence.
Blunt-nosed leopard lizard[3] (*Gambelia sila*)	FE, SE, FP	Upland scrub and sparsely vegetated grassland with small mammal burrows.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats surrounded by agricultural and urban development.
California red-legged frog (*Rana draytonii*)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	**None.** Habitat lacking; the Project site is outside the current known range of this species; no records from within 5 miles.
Giant garter snake[3] (*Thamnophis gigas*)	FT, ST	Marshes, sloughs, ponds, or other permanent sources of water with emergent vegetation and grassy banks or open areas during active season; uplands with underground refuges (animal burrows) above the flood zone during inactive season.	**Low.** The San Joaquin River and adjacent canals provide habitat for this species; however, this species is not known to occur on or near the Project site; no records from within 5 miles.
Bank swallow (*Riparia riparia*)	ST	Riparian and other lowland habitats with vertical banks or cliffs with fine-textured/sandy soils north of Stanislaus County.	**None.** Although vertical cut banks along the San Joaquin River provide habitat for this species, the Project site is outside the current known breeding range.

Species	Status[1]	Habitat	Potential to Occur[2]
Swainson's hawk[3] (*Buteo swainsoni*)	ST	Large trees for nesting with adjacent grasslands, wild prairie, or grain fields for foraging.	**Present.** Two adults were observed soaring over the Project site; potential nest trees and foraging habitat is present in the survey area.
Tricolored blackbird[3] (*Agelaius tricolor*)	ST	Freshwater emergent vegetation or prickly or spiny terrestrial vegetation for nesting; freshwater emergent wetlands, agricultural fields, irrigated pastures, grassland, and cattle feedlots for foraging.	**Low.** A limited amount of freshwater emergent wetland vegetation was found in the survey area at Lake Joallan.
Western yellow-billed cuckoo[3] (*Coccyzus americanus occidentalis*)	FT, SE	Mature riparian woodland with willow (*Salix*), cottonwood (*Populus*), alder (*Alnus*), box elder (*Acer*), walnut (*Juglans*), or dense mesquite (*Prosopis*).	**None.** One "possibly extirpated" CNDDB occurrence is known from within 5 miles of the Project site. Although riparian woodland habitat was found in the survey area, the Project site is outside the current known range of this species, and it is not known to occur near the Project site.
Fresno kangaroo rat[3] (*Dipodomys nitratoides exilis*)	FE, SE	Sandy, alkaline, saline, and clay soils in upland scrub and grassland.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats and is outside the current known range of this species.
Giant kangaroo rat (*Dipodomys ingens*)	FE, SE	Annual grassland communities with few or no shrubs, well drained, sandy-loam soils located on gentle slopes.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats and is outside

Species	Status[1]	Habitat	Potential to Occur[2]
			the current known range of this species.
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	ST	Arid grassland and upland scrub with sandy loam soils, widely spaced shrubs, and dry washes.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats and is outside the current known range of this species.
San Joaquin kit fox[3] (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub with a small mammal prey base.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats, surrounded by agricultural and urban development, and is outside the current known range of this species.
State Species of Special Concern			
Coast horned lizard (*Phrynosoma blainvillii*)	SSSC	Open, generally sandy areas, washes, and flood plains in a variety of habitats.	**None.** Although the low terrace floodplain of the San Joaquin River could support this species, surrounding land cover is highly disturbed, provides a dispersal barrier, and would effectively confine this species to a limited area that is subject to flooding; no records from within 5 miles.
Northern California legless lizard (*Anniella pulchra*)	SSSC	Moist warm loose soil in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, and sandy wash.	**None.** Although the low terrace floodplain of the San Joaquin River could support this species, surrounding land cover is highly disturbed, provides a dispersal barrier, and would effectively confine

Species	Status[1]	Habitat	Potential to Occur[2]
			this species to a limited area that is subject to flooding; no records from within 5 miles.
Northwestern pond turtle[3] (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation and woody debris for basking and adjacent natural upland areas for egg laying.	**Present**. One adult turtle was observed basking on woody debris in the San Joaquin River. This species could nest on the Project site in the floodplain adjacent to the river; any habitat enhancements implemented as a result of the Project could benefit this species.
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	SSSC	Chenopod scrub and valley and foothill grassland with small mammal burrows for refuge and reproduction.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats surrounded by agricultural and urban development.
Two-striped gartersnake (*Thamnophis hammondii*)	SSSC	Highly aquatic, often found in or in the immediate vicinity of permanent or semi-permanent fresh water bordered by dense vegetation in coastal mountains in Central and southern California; uses mammal burrows for cover.	**None**. Habitat lacking; the Project site is outside the known range of this species; no records from within 5 miles.
Western spadefoot (*Spea hammondii*)	SSSC	Rain pools for breeding; nearby areas with sandy gravelly soils for upland cover.	**None.** Habitat lacking; no rain pools found in the survey area; no records from within 5 miles.
Burrowing owl[3] (*Athene cunicularia*)	SSSC	Grassland and upland scrub with friable soil; some agricultural or other developed and disturbed	**Low.** Habitat present in the survey area along canal levees; although burrows were found that

Species	Status[1]	Habitat	Potential to Occur[2]
		areas with ground squirrel burrows.	could support this species, no sign of use by owls was detected.
Mountain plover (*Charadrius montanus*)	SSSC	Open, flat, and arid habitats with low, sparse vegetation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats surrounded by agricultural and urban development.
American badger (*Taxidea taxus*)	SSSC	Variable. Open, dry grassland and coniferous forests, farms, meadows, marshes, desert.	**None.** Although the low terrace floodplain of the San Joaquin River could support this species, surrounding land cover is highly disturbed, provides a dispersal barrier, and would effectively confine this species to a limited area that is subject to flooding; no records from within 5 miles.
Tulare grasshopper mouse (*Onchomys torridus tularensis*)	SSSC	Chenopod scrub with friable soil.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats surrounded by agricultural and urban development; no records from within 5 miles.
Western mastiff bat (*Eumops perotis californicus*)	SSSC	Roosts in crevices in cliff faces, buildings, trees, and tunnels in open semi-arid and arid habitats such as conifer forest, oak woodland, coastal scrub, chaparral, grassland, desert scrub, and urban areas.	**Low.** Although no cliff faces are present in or near the Project site, nearby buildings could support roosting.

Species	Status[1]	Habitat	Potential to Occur[2]
Western red bat[3] (*Lasiurus blossevillii*)	SSSC	Trees within forested canyons and riparian zones for roosting and open areas for foraging.	**Moderate**. Riparian woodland on the Project site could support this species.
California Rare Plants			
Alkali-sink goldfields (*Lasthenia chrysantha*)	1B.1	Vernal pools and wet saline flats below 320 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Brittlescale (*Atriplex depressa*)	1B.2	Alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools below 1000 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
California alkali grass (*Puccinellia simplex*)	1B.1	Scrub, meadows, seeps, grassland, vernal pools, saline flats, and mineral springs below 2952 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Heartscale[3] (*Atriplex cordulata* var. *cordulata*)	1B.2	Saline or alkaline soils in grassland, meadows and seeps, and chenopod scrub communities below 230 feet.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Lesser saltscale[3] (*Atriplex minuscula*)	1B.1	Sandy alkaline soils in chenopod scrub, playa, and grassland in the San Joaquin Valley below 328 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	1B.2	Chenopod scrub and valley and foothill grassland at 150–2000 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.

Species	Status[1]	Habitat	Potential to Occur[2]
Munz's tidy-tips[3] (*Layia munzii*)	1B.2	Alkaline clay soils in chenopod scrub and valley and foothill grassland at 300–2100 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Panoche pepper-grass (*Lepidium jaredii* ssp. *album*)	1B.2	Alkaline soils in grassland, bottom lands, slopes, washes, and dry hillsides at 1640–2300 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Recurved larkspur (*Delphinium recurvatum*)	1B.2	Poorly drained, fine alkaline soils in grassland and saltbush scrub at 98–1968 feet elevation.	**None.** Habitat lacking; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.
Sanford's arrowhead[3] (*Sagittaria sanfordii*)	1B.2	Ponds, sloughs and ditches or canals at sea level to 650 feet elevation.	**Low.** The San Joaquin River and Firebaugh Wasteway canal could support this species; however, it was not detected during the reconnaissance survey, which was conducted during the flowering period of this species, and its potential to occur in the canal is minimized by the presence of a dense cover of water hyacinth (*Eichhornia crassipes*).
Subtle orache (*Atriplex subtilis*)	1B.2	Saline depressions below 230 feet elevation.	**None.** Habitat lacking; no vernal pools found; the Project site consists of agricultural land, disturbed land, riparian woodland, and riverine habitats.

CNDDB (2020), CNPS (2020), USFWS (2020), Jepson (2020).

Status[1]	Potential to Occur[2]	
FE = Federally listed Endangered	None:	Species or sign not observed; conditions unsuitable for occurrence.
FT = Federally listed Threatened	Low:	Neither species nor sign observed; conditions marginal for occurrence.
FP = Fully Protected	Moderate:	Neither species nor sign observed, but conditions suitable for occurrence.
SCE = State Candidate for listing as Endangered	Present:	Species or sign was observed.
SE = State-listed Endangered		
ST = State-listed Threatened		
SSSC = State Species of Special Concern		

CNPS California Rare Plant Rank[1]:	Threat Ranks[1]:
1B – plants rare, threatened, or endangered in California and elsewhere.	0.1 – seriously threatened in California (> 80% of occurrences).
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20-80% of occurrences).
	0.3 – not very threatened in California (<20% of occurrences).

[3]Known from CNDDB records from within 5 miles of the Project site.

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

Area 1 supported dry, recently disked fields, irrigated annual crops, barren levees, and the San Joaquin River and adjacent riparian woodland (Figures 5 and 6). Small sections of riparian woodland supported native woody plants including Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), narrowleaf willow (*Salix exigua*), common buttonbush (*Cephalanthus occidentalis*), and Northern California black walnut (*Juglans hindsii*). A large canal, the Firebaugh Wasteway, bordered Area 1 to the east, sharing a levee with Area 1 on the east boundary; it included a dense cover of water hyacinth (*Eichhornia crassipes*) for most of its length (Figure 7). Land cover surrounding Area 1 included the San Joaquin River to the north, an existing wastewater treatment plant and a residential neighborhood to the south, the Firebaugh Wasteway canal and cotton fields to the east, and Lake Joallan to the west (Figure 8).

Area 2 consisted of an eroded riverbank that supported herbaceous and woody vegetation including narrowleaf willow, California bulrush (*Schoenoplectus californicus*), and Goodding's willow (Figures 9 and 10). Area 2 was bordered to the north and east by the San Joaquin River and to the south and west by residential and commercial development, including an immediately adjacent hotel.

Area 3 included two separate pieces of infrastructure, each bordered by the San Joaquin River and associated riparian woodland to the north; a paved walking trail, residential neighborhood, and a school to the south; and a solar array and community garden to the east and west (Figures 11 and 12).

Additional levee improvements may occur at the Firebaugh Rodeo Grounds (Figure 13). This area was bordered by the San Joaquin River to the north, urban development to the south and west, and a community park (associated with the rodeo grounds) to the east.

Figure 5. Photograph of the Project site, looking east-northeast, showing an existing levee, the San Joaquin River, and irrigated annual crops at the northwest corner of Area 1.

Figure 6. Photograph of the Project site, looking northwest, showing an existing levee, irrigated annual crops, and riparian woodland along the San Joaquin River at the southeast corner of Area 1.

Figure 7. Photograph of the Project site, looking southeast from a levee at Area 1, showing the Firebaugh Wasteway densely covered with water hyacinth.

Figure 8. Photograph of Lake Joallan and associated riparian woodland west of Area 1, looking north.

Figure 9. Photograph of the Project site, looking north, downriver, showing an eroded riverbank along the San Joaquin River in front of a hotel in Area 2.

Figure 10. Photograph of the Project site, looking southeast, upriver, showing an eroded riverbank along the San Joaquin River in front of a hotel in Area 2.

Figure 11. Photograph of the Project site, looking east, showing a paved trail, levee, and infrastructure prone to flooded by the San Joaquin River in Area 3.

Figure 12. Photograph of the Project site, looking west, showing a paved trail, levee, and infrastructure prone to flooded by the San Joaquin River in Area 3.

Figure 13. Photograph of the Project site, looking south, showing the Firebaugh Rodeo Grounds where a levee could be improved.

3.2.2 Plant and Animal Species Observed

A total of 81 plant species (39 native and 42 nonnative), three reptile species, 38 bird species, and four mammal species were observed during the survey (Table 2).

Table 2. Plant and animal species observed during the reconnaissance survey.

Common Name	Scientific Name	Status	Cal-IPC[2]
Plants			
Family Aizoaceae			
Verrucose seapurslane	*Sesuvium verrucosum*	Native	-
Family Amaranthaceae			
Prostrate pigweed	*Amaranthus blitoides*	Native	-
Tumbleweed	*Amaranthus albus*	Nonnative	-
Family Apocynaceae			
Narrow leaf milkweed	*Asclepias fascicularis*	Native	-
Family Arecaceae			
Mexican fan palm	*Washingtonia robusta*	Nonnative	Moderate
Family Asteraceae			
Annual burweed	*Ambrosia acanthicarpa*	Native	-
Blessed milkthistle	*Silybum marianum*	Nonnative	Limited
California mugwort	*Artemisia douglasiana*	Native	-
Canada horseweed	*Erigeron canadensis*	Native	-
Cocklebur	*Xanthium strumarium*	Native	-
Common sunflower	*Helianthus annuus*	Native	-
Flax-leaved horseweed	*Erigeron bonariensis*	Nonnative	-
Milk thistle	*Silybum marianum*	Nonnative	Limited
Mule fat	*Baccharis salicifolia*	Native	-
Prickly lettuce	*Lactuca serriola*	Nonnative	-
Russian knapweed	*Acroptilon repens*	Nonnative	Moderate
Telegraph weed	*Heterotheca grandiflora*	Native	-
Western goldenrod	*Euthamia occidentalis*	Native	-
Yellow star-thistle	*Centaurea solstitialis*	Nonnative	High
Family Boraginaceae			
Common fiddleneck	*Amsinckia intermedia*	Native	-
Heliotrope	*Heliotropium currasavicum*	Native	-
Family Brassicaceae			
London rocket	*Sisymbrium irio*	Nonnative	Limited
Perennial pepperweed	*Lepidium latifolium*	Nonnative	High
Family Chenopodiaceae			
Australian saltbush	*Atriplex semibaccata*	Nonnative	Moderate
Bractscale	*Atriplex serenana*	Native	-

Common Name	Scientific Name	Status	Cal-IPC[2]
Bush seepweed	*Suaeda nigra*	Native	-
Dry goosefoot	*Chenopodium dessicatum*	Native	-
Fivehorn smotherweed	*Bassia hyssopifolia*	Nonnative	Limited
Lambs quarters	*Chenopodium album*	Nonnative	-
Russian thistle	*Salsola tragus*	Nonnative	Limited
Family Convolvulaceae			
Alkali weed	*Cressa truxillensis*	Native	-
Field bindweed	*Convolvulus arvensis*	Nonnative	-
Family Cyperaceae			
California bulrush	*Schoenoplectus californicus*	Native	-
Umbrella sedge	*Cyperus squarrosus*	Native	-
Family Euphorbiaceae			
Chinese tallowtree	*Triadica sebifera*	Nonnative	Moderate
Contura Creek spurge	*Euphorbia ocellata*	Native	-
Doveweed	*Croton setiger*	Native	-
Family Fabaceae			
Miniature lupine	*Lupinus bicolor*	Native	-
Spanish lotus	*Acmispon americanus*	Native	-
White sweetclover	*Melilotus indicus*	Nonnative	-
Family Juglandaceae			
Northern California black walnut	*Juglans hindsii*	Native	-
Family Juncaceae			
Rush	*Juncus* sp.	Native	-
Family Lamiaceae			
White horehound	*Marrubium vulgare*	Nonnative	Limited
Family Malvaceae			
Cheeseweed mallow	*Malva parviflora*	Nonnative	-
Alkali mallow	*Malvella leprosa*	Native	-
Family Moraceae			
White mulberry	*Morus alba*	Nonnative	-
Family Myrtaceae			
Redbox	*Eucalyptus polyanthemos*	Nonnative	-
Family Oleaceae			
California privet	*Ligustrum ovalifolium*	Nonnative	-
Oregon ash	*Fraxinus latifolius*	Native	-
Green ash	*Fraxinus pennsylvanica*	Nonnative	-
Family Onagraceae			
Evening primrose	*Oenothera elata*	Native	-
Willow herb	*Epilobium brachycarpum*	Native	-
Family Poaceae			

Common Name	Scientific Name	Status	Cal-IPC[2]
Annual beard grass	*Polypogon monspeliensis*	Nonnative	Limited
Bermudagrass	*Cynodon dactylon*	Nonnative	Moderate
Crabgrass	*Digitaria sanguinalis*	Nonnative	-
Giant reed	*Arundo donax*	Nonnative	High
Foxtail	*Hordeum murinum*	Nonnative	Moderate
Italian rye grass	*Festuca perennis*	Nonnative	Moderate
Johnsongrass	*Sorghum halepense*	Nonnative	-
Rattail sixweeks grass	*Festuca myuros*	Nonnative	Moderate
Ripgut brome	*Bromus diandrus*	Nonnative	Moderate
Sprangletop	*Leptochloa fusca*	Native	-
Wild oat	*Avena fatua*	Nonnative	Moderate
Family Pontederiaceae			
Water hyacinth	*Eichhornia crassipes*	Nonnative	High
Family Polygonaceae			
Curly dock	*Rumex crispus*	Nonnative	Limited
Common smartweed	*Persicaria lapathifolia*	Native	-
Prostrate knotweed	*Polygonum aviculare*	Nonnative	-
Family Portulacaceae			
Purslane	*Portulaca oleracea*	Nonnative	-
Family Rosaceae			
California wild rose	*Rosa californica*	Native	-
Himalayan blackberry	*Rubus armeniacus*	Nonnative	High
Family Rubiaceae			
Common buttonbush	*Cephalanthus occidentalis*	Native	-
Family Salicaceae			
Fremont cottonwood	*Populus fremontii*	Native	-
Goodding's willow	*Salix gooddingii*	Native	-
Narrow leaved willow	*Salix exigua*	Native	-
Family Sapindaceae			
Silver maple	*Acer saccharinum*	Nonnative	-
Family Solanaceae			
Jimson weed	*Datura wrightii*	Native	-
Tree tobacco	*Nicotiana glauca*	Nonnative	Moderate
Family Tamaricaceae			
Tamarisk	*Tamarix ramosissima*	Nonnative	High
Family Typhaceae			
Broadleaf cattail	*Typha latifolia*	Native	-
Family Verbenacaceae			
Turkey tangle frogfruit	*Phyla nodiflora*	Native	-
Family Zygophyllaceae			
Puncture vine	*Tribulus terrestris*	Nonnative	Limited

Common Name	Scientific Name	Status
Reptiles		
Family Emydidae		
Northwestern pond turtle	*Actinemys marmorata*	Native, SSSC
Family Phrynosomatidae		
Western fence lizard	*Sceloporus occidentalis*	Native
Western side-blotched lizard	*Uta stansburiana elegans*	Native
Birds		
Family Accipitridae		
Red-shouldered hawk	*Buteo lineatus*	MBTA, CFGC
Red-tailed hawk	*Buteo jamaicensis*	MBTA, CFGC
Swainson's hawk	*Buteo swainsoni*	MBTA, CFGC, ST
Family Aegithalidae		
Bushtit	*Psaltriparus minimus*	MBTA, CFGC
Family Anatidae		
Gadwall	*Mareca strepera*	MBTA, CFGC
Family Alcedinidae		
Belted kingfisher	*Megaceryle alcyon*	MBTA, CFGC
Family Ardeidae		
Great egret	*Ardea alba*	MBTA, CFGC
Green heron	*Butorides virescens*	MBTA, CFGC
Family Cathartidae		
Turkey vulture	*Cathartes aura*	MBTA, CFGC
Family Charadriidae		
Killdeer	*Charadrius vociferus*	MBTA, CFGC
Family Columbidae		
Eurasian collared-dove	*Streptopelia decaocto*	None
Mourning dove	*Zenaida macroura*	MBTA, CFGC
Rock pigeon	*Columba livia*	None
Family Corvidae		
American crow	*Corvus brachyrhynchos*	MBTA, CFGC
California scrub-jay	*Aphelocoma californica*	MBTA, CFGC
Family Falconidae		
American kestrel	*Falco sparverius*	MBTA, CFGC
Family Fringillidae		
House finch	*Haemorhous mexicanus*	MBTA, CFGC
Lesser goldfinch	*Spinus psaltria*	MBTA, CFGC
Family Rallidae		
American coot	*Fulica americana*	MBTA, CFGC

Common Name	Scientific Name	Status
Family Icteridae		
Brewer's blackbird	*Euphagus cyanocephalus*	MBTA, CFGC
Family Laridae		
Caspian tern	*Hydropagne caspia*	MBTA, CFGC
Family Mimidae		
Northern mockingbird	*Mimus polyglottos*	MBTA, CFGC
Family Odontiphoridae		
California quail	*Callipepla californica*	MBTA, CFGC
Family Parulidae		
Yellow-rumped warbler	*Setophaga coronata*	MBTA, CFGC
Family Phalacrocoracidae		
Double-crested cormorant	*Phalacrocorax auritus*	MBTA, CFGC
Family Picidae		
Northern flicker	*Colaptes auratus*	MBTA, CFGC
Nuttall's woodpecker	*Dryobates nuttallii*	MBTA, CFGC
Family Podicipedidae		
Pied-billed grebe	*Podilymbus podiceps*	MBTA, CFGC
Family Polioptilidae		
Blue-gray gnatcatcher	*Polioptila caerulea*	MBTA, CFGC
Family Recurvirostridae		
Black-necked stilt	*Himantopus mexicanus*	MBTA, CFGC
Family Scolopacidae		
Greater yellowlegs	*Tringa melanoleuca*	MBTA, CFGC
Long-billed dowitcher	*Limnodromus scolopaceus*	MBTA, CFGC
Family Sturnidae		
European starling	*Sturnus vulgaris*	None
Family Trochilidae		
Anna's hummingbird	*Calypte anna*	MBTA, CFGC
Rufous hummingbird	*Selasphorus rufus*	MBTA, CFGC
Family Troglodytidae		
Marsh wren	*Cistothorus palustris*	MBTA, CFGC
Family Tyrannidae		
Black phoebe	*Sayornis nigricans*	MBTA, CFGC
Western kingbird	*Tyrannus verticalis*	MBTA, CFGC
Mammals		
Family Canidae		
Coyote	*Canis latrans*	None
Family Leporidae		
Desert cottontail	*Sylvilagus audubonii*	None
Family Procyonidae		
Raccoon	*Procyon lotor*	None

Common Name	Scientific Name	Status
Family Sciuridae		
California ground squirrel	*Otospermophilus beecheyi*	None

[1]Status: plants – refers to Native, Nonnative, Cal-IPC Rank (See below), or regulatory status, if relevant; animals – refers to regulatory or legal protection status; MBTA = Protected under the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.); CFGC = Protected under the California Fish and Game Code (FGC § 3503 and 3513); SSSC = State Species of Special Concern; ST = State-listed as Threated.

[2]Cal-IPC: California Invasive Plant Council ranks invasive plants according to their risk of altering native landscapes. A rating of Limited means that the species is invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score; a rating of Moderate means the species has a substantial and apparent, but generally no severe ecological impact on physical processes, plant and animal communities, and vegetation structure; a rating of High means the species has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2020).

3.2.3 Nesting Birds

No active nests were found during the reconnaissance survey. However, migratory birds could nest on or near the Project site. Such species include, but are not limited to, mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, and California scrub-jay (*Aphelocoma californica*).

3.2.4 Regulated Habitats

Three regulated habitats were found in the survey area, all of which could be impacted by Project activities. These include the San Joaquin River, the Firebaugh Wasteway (canal), and Lake Joallan. The San Joaquin River and Firebaugh Wasteway are hydrologically connected. Lake Joallan is isolated from the San Joaquin River but is presumably connected via groundwater as it was observed to rise with river-associated floodwaters (Google 2020); restoration activities associated with the Project could impact the lake and/or riparian vegetation associated with the floodplain. Each feature is regulated by the USACE, the RWQCB, and the CDFW.

3.3 Special-Status Species

3.3.1 Sanford's arrowhead (*Sagittaria sanfordii*) (CRPR 1B.2)

Sanford's arrowhead is an aquatic emergent, rhizomatous perennial herb in the family Alismataceae with a CRPR of 1B.2. It is endemic to the Central Valley of California where it occupies ponds, ditches, sloughs, marshes, and slow-moving rivers below 984 feet elevation; it flowers May–October (Turner et al. 2012).

One CNDDB record, from 1948, is known from within 5 miles of the Project site (CNDDB 2020). Although this species was not detected during the reconnaissance survey, which was conducted during the blooming period, aquatic habitat on and near the Project site could support this

species. Due to the lack of the detection during the appropriately timed survey, however, its potential to occur is low.

3.3.2 Giant garter snake (*Thamnopsis gigas*) (FT, ST)

Giant garter snake is a federally and state-listed as threatened reptile in the family Colubridae. Giant garter snake is the largest of the garter snake species (Fisher et al. 1994), with mature adults growing to lengths of nearly 5.5 feet. Other than its large size, it has a similar color pattern to other garter snake species, having a brown, olive, or black back, a light-yellow dorsal stripe, and a light-yellow stripe on each side. Giant garter snake typically occurs only near in and near sources of freshwater such as canals, marshes, sloughs, and slow-moving rivers, where it feeds primarily on fish, frogs, and tadpoles. It can be active during both the day and night. During the day it basks on grassy banks and openings close to water and forages and seeks cover from predators in vegetation such as bulrush (*Schoenoplectus* sp.) and cattail (*Typha* sp.); during hotter parts of the day it uses animal burrows and vegetation piles for cover. It overwinters in animal burrows (Wylie et al. 1997). Giant garter snake mates in the spring, usually between April and March, and bears live young between July and September. The young are generally born in protected sites such dense wetland vegetation or large woody debris (Rossman et al. 1996).

Two CNDDB records, from 1987, are known from within 5 miles of the Project site (CNDDB 2020). The nearest known population of giant garter snake is from Mendota Wildlife Area, about nine miles south of the Project site. It also was not detected during the reconnaissance survey, which occurred during its active period. However, recent work with environmental DNA (eDNA) suggests this species is more widespread than generally known (Schumer et al. 2019), and aquatic habitat near the Project site could support this species. Therefore, its potential to occur remains low.

3.3.3 Northwestern pond turtle (*Actinemys marmorata*) (SSSC)

Northwestern pond turtle (family Emydidae) is California's only native freshwater turtle. It is recognized as a species of special concern by the CDFW (CDFW 2020). This species is long-lived, diurnal, and aquatic (Nafis 2020). It occurs in ponds, lakes, rivers, creeks, marshes, and irrigation ditches and requires exposed banks, logs, rocks, or cattail mats for basking (Nafis 2020). This species has experienced historic population declines owing to commercial harvesting beginning in the 19th century, wetland destruction and degradation in the 20th century, and introduction of nonnative species including other turtle species and bullfrogs (Nafis 2020). Mating occurs in April and May, after which females travel onto land to dig a nest, usually within 300 feet of aquatic habitat.

This species is considered present on the Project site based on the observation during the reconnaissance survey of an individual basking on woody debris in the San Joaquin River. One CNDDB record with an unknown observation date is known from within 5 miles of the Project site (CNDDB 2020). The San Joaquin River, the Firebaugh Wasteway, and Lake Joallan provide aquatic habitat for this species, and the low terrace floodplain adjacent to the San Joaquin River

provides upland nesting habitat. Habitat enhancements including riparian floodplain restoration in Area 1 would likely benefit this species.

3.3.4 Burrowing owl (*Athene cunicularia*) (SSSC)

Burrowing owl is a member of the family Strigidae recognized as a species of special concern by the CDFW (CDFW 2020). Burrowing owl depends on burrow systems excavated by other species such as California ground squirrel (*Otospermophilus beecheyi*) and American badger (*Taxidea taxus*) (Poulin et al. 2020). Burrowing owl uses burrows for protection from predators and weather, as roosting sites, and dwellings to raise young (Poulin et al. 2020). It commonly perches outside burrows on mounds of soil or on nearby fence posts. Prey types includes insects, especially grasshoppers and crickets, frogs, toads, lizards, and small mammals (Poulin et al. 2020). The nesting season begins in March, and incubation lasts about 28–30 days. Females incubate the eggs, and males forage and deliver food items to the burrow/nest. Young fledge between 44 and 53 days after hatching (Poulin et al. 2020). Adults can live up to 8 years in the wild.

One CNDDB record, from 2006, is known from within 5 miles of the Project site (CNDDB 2020). Several California ground squirrel burrows were found along a levee near the Project site in Area 1, although no evidence of use of the burrows by owls (e.g., feathers, white-wash, pellets) was observed. Nevertheless, this species has a low potential to occur on the Project site.

3.3.5 Swainson's hawk (*Buteo swainsoni*) (ST)

Swainson's hawk is a state-listed as threatened raptor in the family Accipitridae. Swainson's hawk is a gregarious, migratory, breeding resident of Central California where it uses open areas including grassland, sparse shrubland, pasture, open woodland, and annual agricultural fields such as grain and alfalfa to forage on small mammals, birds, and reptiles. After breeding, it eats mainly insects, especially grasshoppers (Bechard et al. 2020). Swainson's hawk builds a small to medium-sized nest in medium to large trees near foraging habitat. The nesting season begins in March or April in Central California when this species returns to its breeding grounds from wintering areas in Mexico and Central and South America. Nest building commences within one to two weeks of arrival to the breeding area and lasts about one week (Bechard et al. 2020). One to four eggs are laid and incubated for about 35 days. Young typically fledge in about 38–46 days and tend to leave the nest territory within 10 days of fledging (Bechard et al. 2020). Swainson's hawks depart for the non-breeding grounds between August and September.

Eleven CNDDB records for Swainson's hawk, ranging from 1983 to 2017, are known from within 5 miles of the Project site (CNDDB 2020). Two adults were seen soaring over the Project site during the reconnaissance survey, potential nest trees were on and within 0.5 miles of the Project site, and open grassland and agricultural fields nearby could support foraging. Therefore, this species is considered present on the Project site.

3.3.6 Tricolored blackbird (*Agelaius tricolor*) (ST)

The tricolored blackbird is a state-listed as threatened, colonially nesting passerine in the family Icteridae (CNDDB 2020). This species nests in freshwater marshes, where it forms colonies in emergent vegetation such as cattails or bulrushes (*Schoenoplectus* spp.). In recent years, annual crops including triticale (wheat/rye hybrid) associated with dairy farms have been used in the San Joaquin Valley. Less frequently it nests in prickly or thorny vegetation such as blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* spp.), and sometimes black mustard (*Brassica nigra*) (Beedy et al. 2020). It forages for seeds and insects in wetlands, irrigated pastures, grasslands, some agricultural fields (especially alfalfa), and other areas. Nesting is initiated in March or April and rarely as early as February in the San Joaquin Valley (Beedy et al. 2020). Females begin laying a clutch of 3–4 eggs about four days after the birds settle at a breeding site. Incubation lasts 11–12 days, and young fledge 12–14 days after hatching (Beedy et al. 2020).

One CNDDB record, from 1964, is known from within 5 miles of the Project site (CNDDB 2020). Although this species was not detected during the reconnaissance survey, a limited amount of marsh nesting habitat is present along the margins of Lake Joallan. Therefore, its potential to occur is low.

3.3.7 Western mastiff bat (*Eumops perotis californicus*) (SSSC)

Western mastiff bat is a member of the family Molossidae and recognized as a species of special concern by the CDFW (CDFW 2020). Also known as the greater mastiff bat, this species is the largest bat in the United States (Best et al. 1996), with a wingspan that can reach nearly two feet (20–23 inches). This species is active throughout the year and roosts in crevices, overhangs on vertical cliff faces, buildings, tunnels, and trees (Dalquest 1946, Bourbour and Davis 1969), although reproduction typically occurs in tight rock crevices or buildings (Zeiner et al. 1988–1990). Mating is thought to occur in early spring with young born April–September (Bourbour and Davis 1969).

Although no CNDDB records are known from within 5 miles of the Project site (CNDDB 2020), riparian woodland and adjacent buildings could provide roosting habitat for this species. Therefore, its potential to occur is low.

3.3.8 Western red bat (*Lasiurus blossevillii*) (SSSC)

Western red bat is a member of the family Vespertilionidae recognized as a species of special concern by the CDFW (CDFW 2020). Western red bat is a medium-sized bat that has an average wingspan of about 12 inches. Its fur is rusty to brown red with white tips giving it a frosted appearance. Detailed information on roosting habits is lacking, but it is generally known to roost in trees, among foliage; minimal woody groundcover is required to facilitate flight from the roost, which is generally near edges of open space that provide foraging habitat. Western red bat roosts in riparian woodland near water (Braun and Unnasch 2019). Mating typically occurs from

August–September, and young are born from late May through early July, flying by three to six weeks old.

One CNDDB record, from 1999, is known from within 5 miles of the Project site. Riparian woodland on and near the Project site provides roosting and foraging habitat for this species; therefore, its potential to occur is moderate.

4.0 Environmental Impacts

4.1 Significance Determinations

This Project, which will result in permanent impacts to disturbed, agricultural, riparian, floodplain, and riverine land cover, will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as the Project seeks to restore or enhance riparian and floodplain land cover; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b), as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no such policies are known; or (6) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criteria provided the framework for criteria BIO1–BIO4 below. These criteria are used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: 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 CDFW or USFWS (significance criterion e).

- Criterion BIO2: 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 CDFW or USFWS (significance criterion f).

- Criterion BIO3: Have a substantial adverse effect on wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (significance criterion g).

- Criterion BIO4: 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 (significance criterion h).

4.1.1 Direct and Indirect Impacts

4.1.1.1 Potential Impact #1: Have a Substantial Effect on any Special-Status Species (Criterion BIO1)

The Project could substantially impact the CRPR 1B.2 Sanford's arrowhead, the federally and state-listed as threatened giant garter snake, the state-listed as threatened Swainson's hawk, the state-listed as threatened tricolored blackbird, and four state species of special concern: northwestern pond turtle, burrowing owl, red bat, and western mastiff bat.

Construction impacts to the banks of the San Joaquin River and Firebaugh Wasteway could affect local populations of Sanford's arrowhead, resulting in a significant impact. Although floodplain and wetland restoration in Area 1 could enhance habitat for giant garter snake, northwestern pond turtle, and tricolored blackbird, temporary construction disturbance could result in injury or mortality to animals and result in the incidental loss of fertile eggs, nestlings, or young, or otherwise lead to nest abandonment, constituting a significant impact. Likewise, the Project, through riparian floodplain restoration, would likely result in more large riparian trees that could be used for nesting by Swainson's hawk and roosting by red bat and western mastiff bat; however, temporary construction disturbance could result in the incidental loss of fertile eggs, nestlings, or young, or otherwise lead to nest abandonment (hawks) or maternal colony abandonment (bats), constituting significant impacts. Construction disturbance or impacts related to levee enhancement could affect burrowing owl as California ground squirrel (*Otospermophilus beecheyi*) burrows found along existing levees could serve as nesting habitat for this species, constituting a significant impact. Therefore, we recommend that Mitigation Measures B1–B7 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure B1. Protect Sanford's arrowhead.

1. To protect Sanford's arrowhead, a qualified biologist shall conduct a pre-construction survey within 50 feet of the Project site along the banks of the San Joaquin River and the Firebaugh Wasteway no more than 14 days prior to the start of construction. If Sanford's arrowhead is detected, the qualified biologist shall establish an exclusion zone of 50 feet between any population and the work area. If a 50-foot exclusion zone cannot be established, a site-specific plan to minimize the potential for Project activities to affect individual plants shall be developed by the qualified biologist and implemented in consultation with the CDFW.

Mitigation Measure B2. Protect giant garter snake.

1. To the extent practicable, construction shall be scheduled to coincide with the giant garter snake active season, which extends from May through September, when snakes, if present, are readily avoidable.

2. If it is not possible to schedule work between May and September, a qualified biologist shall conduct a pre-construction survey for giant garter snake no more than 14 days prior to the initiation of construction activities. They survey shall be performed by searching upland areas of the worksite within 200 feet of aquatic habitat that could support giant garter snake, specifically looking for potential underground refugia (i.e., animal burrows). If burrows are present, the qualified biologist will identify and flag such features, which all construction activities will avoid by a minimum of 50 feet.

3. If animal burrows found within 200 feet of aquatic habitat cannot be avoided by a minimum of 50 feet during the giant garter snake inactive season (October through April), the City shall seek technical assistance from CDFW and USFWS to determine whether other methods may be used to avoid impacts to giant garter snake. If no such methods are available, and CDFW and USFWS determine project activities are likely to impact giant garter snake, the City shall formally consult with those agencies and obtain incidental take coverage under CESA and FESA if warranted.

Mitigation Measure B3. Protect northwestern pond turtle.

1. A qualified biologist shall conduct a pre-construction survey for northwestern pond turtle on the worksite within 300 feet of aquatic habitat, including the San Joaquin River, the Firebaugh Wasteway, and Lake Joallan. The survey shall be conducted no more than 14 days prior to the initiation of construction activities to determine if turtles are occupying the Project site. During the survey, the qualified biologist shall inspect all sections of aquatic habitat within 300 feet of planned work activities, including adjacent upland areas, for turtles and nests. If a turtle or nest is found within 300 feet of the worksite, a qualified biological monitor shall remain on site during construction to ensure that no turtles or turtle nests are impacted by work activities. Any turtle found on or adjacent to the worksite shall be allowed to leave on its own.

Mitigation Measure B4. Protect nesting burrowing owl.

1. Conduct focused burrowing owl surveys to assess the presence/absence of burrowing owl in accordance with guidelines in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

2. If a burrowing owl or sign of burrowing owl use (e.g., feathers, guano, pellets) is detected on or within 500 feet of the Project site, and the qualified biologist determines that Project activities would disrupt the owl(s), a construction-free buffer, limited operating period, or passive relocation shall be implemented in consultation with the CDFW.

Mitigation Measure B5. Protect nesting Swainson's hawk.

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.

2. If it is not possible to schedule work between September and February, a qualified biologist shall conduct surveys for active Swainson's hawk nests within 0.5 miles of the Project site following methods developed by the Swainson's Hawk Technical Advisory Committee (2000). If an active nest is found within 0.5 miles, and the qualified biologist determines that Project activities would disrupt nesting, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

Mitigation Measure B6. Protect western red bat.

1. To the extent practicable, construction shall be scheduled to avoid the western red bat pupping season, which extends from May through July.

2. If it is not possible to schedule work between August and March, a qualified biologist shall conduct a survey for active red bat maternal colonies in large trees on the Project site no more than 14 days prior to the start of construction. If an active maternal colony is found, and the qualified biologist determines that Project activities would disrupt breeding, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

Mitigation Measure B7. Protect western mastiff bat.

1. To the extent practicable, construction shall be scheduled to avoid the western mastiff bat pupping season, which extends from April through August.

2. If it is not possible to schedule work between September and March, a qualified biologist shall conduct a survey for active western mastiff bat maternal colonies in crevices in trees and buildings on the Project site no more than 14 days prior to the start of construction. If an active maternal colony is found, and the qualified biologist determines that Project activities would disrupt breeding, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

4.1.1.2 Potential Effect #2: 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 CDFW or USFWS (Criterion BIO2)

The Project could impact riparian habitat along four sections of the San Joaquin River and one section of the Firebaugh Wasteway in Areas 1–3 (Figure 2). Construction activities including new levee installation (Areas 1 and 3), levee removal (Area 1), riverbank fortification (Area 2), and restoration activities could substantially impact riparian vegetation, constituting a significant impact. An element of the Project involves exploring restoration opportunities in Area 1, which currently supports annual crops and a narrow strip of riparian woodland along the San Joaquin River. To satisfy this requirement, we recommend that the Mitigation Measure B8 be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure B8. Protect and restore riparian habitat and obtain an agreement from the CDFW for impacts to riparian vegetation.

1. To the extent practicable, avoid impacting riparian vegetation.

2. If impacts to riparian vegetation are unavoidable, the City must obtain a CDFW §1600 Lake and Streambed Alteration Agreement for work that impacts riparian vegetation along the San Joaquin River, Firebaugh Wasteway, and, if applicable, Lake Joallan.

3. The City seeks to explore restoration opportunities and implement active restoration on the Project site in Area 1, which comprises about 135 acres (Appendix D). These future restoration activities and the resulting increase in riparian floodplain habitat would effectively offset any Project-related impacts to riparian land cover but could impact riparian vegetation during Project implementation. In conjunction with restoration opportunities outlined in Appendix D, the City shall mitigate any impacts to riparian woodland by planting at least three native riparian trees for every riparian tree impacted or as otherwise specified in the Project's Lake and Streambed Alteration Agreement.

4.1.1.3 Potential Effect #3: Have a substantial adverse effect on wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Criterion BIO3)

Construction activities associated with levee creation, levee removal, and riverbank stabilization in Areas 1–3 of the Project will permanently impact the banks and/or floodplain of the San Joaquin River, the Firebaugh Wasteway, and possibly, Lake Joallan. These features are under the jurisdiction of the USACE and therefore subject to provisions of the Clean Water Act (CWA). The extent or details of specific construction-related impacts near wetlands are not currently known, but such a loss to wetlands would

constitute a significant effect. In the event that impacts to wetlands will be necessary to facilitate the Project, we recommend that the Mitigation Measure B9 (below) be included in the conditions of approval to reduce the potential impact to a less-than-significant level.

Mitigation Measure B9. Obtain permits from the USACE, the SWRCB, and the CDFW for impacts to jurisdictional waters.

1. Obtain a CWA Section 404 Nationwide Permit in consultation with the USACE for work impacting the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan.

2. Obtain a CWA Section 401 water quality certification from the SWRCB for work impacting the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan.

3. Obtain a CDFW §1600 Lake and Streambed Alteration Agreement for work impacting the bed and banks of the San Joaquin River, Firebaugh Wasteway, and if applicable, Lake Joallan.

4.1.1.4 Potential Effect #4: Interfere Substantially with Native Wildlife Movements, Corridors, or Nursery Sites (Criterion BIO4)

The Project has the potential to impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant effect. We recommend that the Mitigation Measure B10 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure B10. Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.

2. If it is not possible to schedule construction between September and January, a pre-construction clearance survey for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction clearance survey shall be

conducted no more than 14 days prior to the start of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas, including within 100 feet for non-listed passerines, within 250 feet for non-listed raptors, and within 500 feet for tricolored blackbird. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has failed for non-construction related reasons.

4.1.2 Cumulative Effects

Implementing Mitigation Measures B1 through B10 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level.

4.1.3 Unavoidable Significant Adverse Effects

No unavoidable significant adverse effects on biological resources are anticipated from implementing the Project.

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Appendix A. USFWS list of threatened and endangered species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: August 25, 2020
Consultation Code: 08ESMF00-2020-SLI-2719
Event Code: 08ESMF00-2020-E-08331
Project Name: Firebaugh Flood Feasibility Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2020-SLI-2719

Event Code: 08ESMF00-2020-E-08331

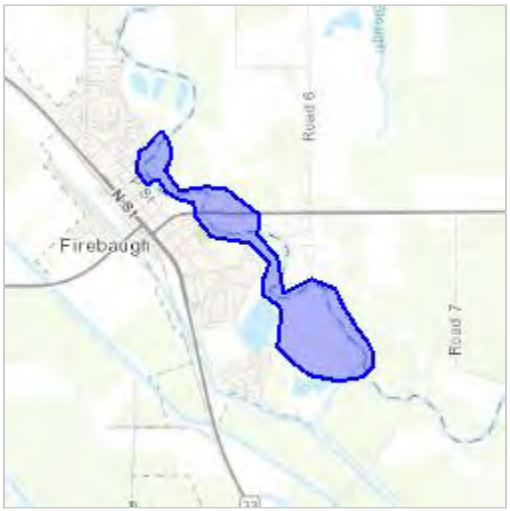
Project Name: Firebaugh Flood Feasibility Project

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Flood management and protection and riverine habitat restoration.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/36.854006694655546N120.4407470150831W



Counties: Fresno, CA | Madera, CA

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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

Mammals

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf	Endangered
Giant Kangaroo Rat *Dipodomys ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

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

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened

Fishes

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

Crustaceans

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

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Oxalis (3612085) OR Poso Farm (3612084) OR Firebaugh (3612074) OR Firebaugh NE (3612083) OR Broadview Farms (3612075) OR Mendota Dam (3612073) OR Chaney Ranch (3612065) OR Coit Ranch (3612064) OR Tranquillity (3612063))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	150 175	955 S:9	0	0	0	0	0	9	7	2	9	0	0
Ammospermophilus nelsoni Nelson's antelope squirrel	G2 S2S3	None Threatened	BLM_S-Sensitive IUCN_EN-Endangered	176 400	285 S:3	0	0	0	0	0	3	3	0	3	0	0
Anniella pulchra Northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	175 175	375 S:1	0	0	0	1	0	0	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	145 165	1989 S:8	0	0	3	2	1	2	3	5	7	1	0
Atriplex cordulata var. cordulata heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	50 190	66 S:9	3	1	0	0	1	4	7	2	8	0	1
Atriplex coronata var. vallicola Lost Hills crownscale	G4T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	160 170	76 S:2	0	1	0	0	0	1	1	1	2	0	0
Atriplex depressa brittlescale	G2 S2	None None	Rare Plant Rank - 1B.2	160 165	60 S:2	0	1	0	0	0	1	0	2	2	0	0
Atriplex minuscula lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	130 190	52 S:7	4	1	0	0	0	2	5	2	7	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Atriplex subtilis subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2	165 190	24 S:4	2	0	0	0	0	2	3	1	4	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		100 125	276 S:2	0	0	0	0	0	2	2	0	2	0	0
Branchinecta longiantenna longhorn fairy shrimp	G1 S1S2	Endangered None	IUCN_EN-Endangered	165 165	23 S:2	2	0	0	0	0	0	0	2	2	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	165 165	791 S:1	0	0	0	0	0	1	0	1	1	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	125 340	2535 S:41	1	17	10	1	0	12	22	19	41	0	0
Charadrius montanus mountain plover	G3 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	140 170	90 S:3	0	2	1	0	0	0	0	3	3	0	0
Chloropyron palmatum palmate-bracted bird's-beak	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	135 170	25 S:8	0	3	1	0	4	0	7	1	4	3	1
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	160 160	165 S:1	0	0	0	0	1	0	1	0	0	1	0
Delphinium recurvatum recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	180 185	120 S:3	0	1	0	0	0	2	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Dipodomys ingens giant kangaroo rat	G1G2 S1S2	Endangered Endangered	IUCN_EN-Endangered	480 480	137 S:1	0	0	0	0	1	0	1	0	0	1	0
Dipodomys nitratoides exilis Fresno kangaroo rat	G3TH SH	Endangered Endangered	IUCN_VU-Vulnerable	156 160	12 S:2	0	0	0	0	2	0	2	0	0	2	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	150 160	1396 S:5	1	3	0	0	0	1	1	4	5	0	0
Eriastrum hooveri Hoover's eriastrum	G3 S3	Delisted None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	160 165	47 S:3	0	1	2	0	0	0	3	0	3	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	160 175	296 S:2	0	0	0	0	0	2	2	0	2	0	0
Falco columbarius merlin	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	165 165	37 S:1	0	1	0	0	0	0	0	1	1	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	140 1,302	390 S:24	0	0	1	0	0	23	23	1	24	0	0
Lasiurus blossevillii western red bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	150 160	128 S:2	0	0	0	0	0	2	2	0	2	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		238 S:3	0	0	0	0	0	3	3	0	3	0	0
Lasthenia chrysantha alkali-sink goldfields	G2 S2	None None	Rare Plant Rank - 1B.1	165 165	55 S:2	0	0	0	0	0	2	0	2	2	0	0
Layia munzii Munz's tidy-tips	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	150 190	68 S:4	0	0	1	0	0	3	3	1	4	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lepidium jaredii ssp. album Panoche pepper-grass	G2G3T2T3 S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	550 550	60 S:1	0	0	0	0	1	0	1	0	0	0	1
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	164 164	508 S:1	0	0	0	0	0	1	0	1	1	0	0
Masticophis flagellum ruddocki San Joaquin coachwhip	G5T2T3 S2?	None None	CDFW_SSC-Species of Special Concern	160 160	96 S:1	0	1	0	0	0	0	0	1	1	0	0
Monolopia congdonii San Joaquin woollythreads	G2 S2	Endangered None	Rare Plant Rank - 1B.2 SB_UCBG-UC Botanical Garden at Berkeley	190 190	111 S:1	0	0	0	0	1	0	1	0	0	1	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	150 160	265 S:2	0	0	0	0	0	2	2	0	2	0	0
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:1	0	0	0	1	0	0	0	1	1	0	0
Onychomys torridus tularensis Tulare grasshopper mouse	G5T1T2 S1S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern	400 400	53 S:1	0	0	0	0	0	1	1	0	1	0	0
Perognathus inornatus San Joaquin pocket mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern		127 S:2	0	0	0	0	0	2	2	0	2	0	0
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	164 183	784 S:4	1	3	0	0	0	0	0	4	4	0	0
Plegadis chihi white-faced ibis	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	150 150	20 S:1	0	0	0	0	0	1	1	0	1	0	0
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	180 180	80 S:2	0	0	0	0	0	2	0	2	2	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	155 155	298 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	160 185	126 S:2	0	0	0	0	0	2	2	0	2	0	0
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	157 167	1409 S:6	2	2	0	0	0	2	1	5	6	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	160 180	594 S:3	1	0	0	0	0	2	3	0	3	0	0
Thamnophis gigas giant gartersnake	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	120 160	366 S:7	1	0	1	0	0	5	4	3	7	0	0
Thamnophis hammondii two-striped gartersnake	G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	160 160	184 S:1	0	0	0	0	0	1	1	0	1	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		135 500	1018 S:10	0	0	0	0	0	10	10	0	10	0	0
Xanthocephalus xanthocephalus yellow-headed blackbird	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	100 100	13 S:1	0	0	0	0	0	1	1	0	1	0	0

Appendix C. CNPS plant list.

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

14 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812085, 3812084, 3812083, 3812075, 3812074, 3812073, 3812085 3812084 and 3812083;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Atriplex coronata var. coronata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	1B.2	S2	G4T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	Jun,Aug,Sep(Oct)	1B.2	S1	G1
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	(Feb)Mar-Jul	4.2	S3	G3
Goodmania luteola	golden goodmania	Polygonaceae	annual herb	Apr-Aug	4.2	S3	G3
Layia munzii	Munz's tidy-tips	Asteraceae	annual herb	Mar-Apr	1B.2	S2	G2
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	(Jan)Feb-May	1B.2	S2	G2
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Trichostema ovatum	San Joaquin bluecurls	Lamiaceae	annual herb	Jul-Oct	4.2	S3	G3

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 25 August 2020].

Appendix D. Exploring Restoration Opportunities

Appendix D – Exploring Restoration Opportunities

City of Firebaugh Flood Risk Reduction Project

Task 2 (Conduct Environmental Investigations for Near Term Project Elements) of the Scope of Work for Environmental Analysis and Investigation (City of Firebaugh internal document) states that "…Opportunities will be explored to enhance natural resources habitat in conjunction with flood risk improvements, such as planting of native (and sensitive native) plant communities that are able to withstand short periods of inundation when implementing land or flowage easement purchases; incorporate aquatic resources habitat improvements into channel modification projects."

To investigate potential restoration opportunities, and in conjunction with a reconnaissance survey conducted for CEQA compliance, Colibri Associate Scientists Joe Medley and Kristofer Robison walked the Project site, comprising three discrete areas (Areas), and surrounding lands to identify existing habitats, take photos to document each Area, and determine which species of woody native plants are present that could be used in future restoration activities. Land cover was mapped in and around each Area to further document existing habitat conditions (Figure 1). In this document, we describe aspects of the Project as we understand them, discuss existing site conditions and habitats present, and provide potential restoration options that could be investigated by the City of Firebaugh (City).

Area 1

Work in Area 1 will involve building new earthen flood protection levees around an existing wastewater treatment plant (Figure 1). Planned new levees will follow existing dirt roads and levees, connecting new levee to existing levee on the east and west ends of the site. The eastern-most segment of planned new levee will connect to existing levee that supports the Firebaugh Wasteway, a canal that is hydrologically connected the San Joaquin River (Figure 1). The west end of planned new levee follows an existing road that separates annual crops near the wastewater treatment plant from a permanent lake, Lake Joallan (Figures 1 and 2). The new levee will terminate near the San Joaquin River in an area where an existing levee is not well defined (Figure 3). Existing earthen levee and berms would likely be breached at strategic locations to allow San Joaquin River floodwaters to enter Area 1. The area contained by new levees provides high potential for habitat restoration activities.

Land inside and adjacent to Area 1 provides the highest potential for floodplain and riparian woodland habitat restoration, amounting to about 135 acres of land that could be restored (Figure 1). A narrow strip of riparian woodland in the high terrace of the San Joaquin River bordering Area 1 (Figure 1) supports mature riparian trees and shrubs including Goodding's willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), common buttonbush (*Cephalanthus occidentalis*), California wild rose (*Rosa californica*), narrowleaf willow (*Salix exigua*), mule fat (*Baccharis salicifolia*), Oregon ash (*Fraxinus latifolius*), and northern California

black walnut (*Juglans hindsii*). These species could readily be used to implement restoration activities in the area that now supports annual crops (Figures 4 and 5). A restoration plan should be engineered to (1) ensure that current land elevation inside Area 1 is compatible with the high terrace of the river to accept and direct flood waters, (2) conform to appropriate flood elevation(s), and (3) include channels to diffuse flood water and provide habitat for multiple taxa.

Lake Joallan and its riparian woodland and floodplain adjacent to Area 1 represents another opportunity for riparian woodland and floodplain restoration. The lake occupies a concave basin and supports a narrow ring of wetland vegetation along its shore and narrow strips of riparian woodland in its flood basin to the south and east. The woodland had evidently burned just prior to the reconnaissance survey (Figure 2). It included tamarisk (*Tamarix ramosissima*), a highly invasive shrub that should be prioritized for eradication. The lake's riparian area and surface hydrology could be incorporated into the restoration plan for Area 1. Connecting these two areas could help dissipate floodwaters from the San Joaquin River. Existing poorly defined and ineffective berms along the San Joaquin River (between Lake Joallan and Area 1) could be removed or reengineered (Figures 1 and 6) to provide connectivity to new wetlands or channels in Area 1, thereby establishing new riparian woodland that could support a variety of taxa while simultaneously dissipating floodwater and providing recreation benefits to the City. Lake Joallan is likely hydrologically connected to the San Joaquin River via groundwater (Figure 7), which could help facilitate riparian woodland establishment at and near the lake. Including Lake Joallan in a restoration plan would likely require construction of additional levees around the lake to protect the adjacent neighborhood from flooding. Aside from protecting the community, however, such levees could provide further recreation benefits to the City.

Area 2

Work at Area 2 will involve repairing and reinforcing the bank of the San Joaquin River where it bends abruptly to the north (Figure 8). The area has eroded during past flood events and is in danger of more substantial damage during future flood events. Due to the narrow buffer between existing development and the river, no habitat restoration opportunities were identified in this area. However, restoration activities at Area 1 could be used to mitigate impacts to the riverbank and the wetland or riparian vegetation at this worksite.

Area 3

Work at Area 3 will occur at two locations, both of which are adjacent to the San Joaquin River as well as its riparian woodland and a paved walking trail/levee (Figure 9; see also Figure 2 in Biological Resources Evaluation). Work will involve building new levee around wastewater infrastructure to protect it from floodwaters. Although impacts to riparian trees could occur at the easternmost site (Figure 1), no habitat restoration potential exists at Area 3 due to surrounding development. However, restoration activities at Area 1 could be used to mitigate impacts to the riverbank and the wetland or riparian vegetation in this area.

Figure 1. Project site map of Areas 1 and 3 showing existing levees or berms, roads or trails, and riparian vegetation near anticipated work areas.

Figure 2. Photograph showing the west end of a new planned levee in Area 1, looking north, with Lake Joallan (left), recently burned riparian vegetation associated with the lake (center), and an existing road/levee where a new levee will be built (right).

Figure 3. Photograph of the west end of Area 1, looking west, showing an existing berm along the San Joaquin River near the location where a new planned levee will be installed.

Figure 4. Photograph of Area 1, looking west, showing a road at the boundary between existing riparian woodland (left) and annual crops (right) where restoration activities could occur.

Figure 5. Photograph of Area 1, looking northeast, showing riparian woodland that could be expanded into the area now planted in annual crops (background center).

Figure 6. Photograph of a berm and the high terrace of the San Joaquin River near Lake Joallan (visible at far right), looking south, showing breaches in the berm that do not provide adequate flood protection for the City.

Figure 7. Aerial image from 31 March 2017, showing the San Joaquin River flooded into its floodplain, and Lake Joallan also flooded into its floodplain adjacent to Area 1.

Figure 8. Photograph of Area 2, looking north, showing the area where riverbank repair and reinforcement is needed to prevent additional erosion; a commercial property and residence are out of view to the left.

Figure 9. Photograph of Area 3, looking west, showing wastewater infrastructure at far left and center that will receive new flood protection levees around their perimeter; surrounding development precludes restoration potential at this worksite.

Appendix B

Cultural Records Search

California Historical Resources Information System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

To: Emily Bowen
Crawford Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

Record Search 20-323

Date: September 14, 2020

Re: City of Firebaugh Bank Stabilization Project

County: Fresno and Madera

Map(s): Firebaugh 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, the OHP Built Environment Resources Directory, California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the OHP are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there have been seven previous cultural resource studies conducted within the project area, FR-00304, FR-00763, FR-01983 (MA-00971), FR-01984 (MA-00972), FR-02341, FR-02469, and FR-02885. There have been 20 additional studies conducted within the one-half mile radius, FR-00171, FR-00309, FR-00634, FR-00635, FR-00636, FR-00637, FR-00638, FR-00640, FR-00716, FR-01027, FR-01617, FR-01701, FR-01704, FR-01751, FR-01851, FR-02155, FR-02414, FR-02480, MA-00984, and MA-01147.

Record Search 20-323

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

There are two known resources within the project area, P-10-006248 and the Firebaugh Ferry. There are five recorded resources within the one-half mile radius, P-10-000105, P-10-003930, P-10-005795, P-10-005796, and P-10-002383. In addition to the historic era ferry, these resources consist of four historic era canals, an historic era railroad, and a prehistoric era lithic scatter with burials.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project consists of realigning the existing levees near the City's WWTP and the well and water treatment site to minimize flooding hazards from the San Joaquin River. Further, we understand the project site is vacant land and is utilized as a flood protection buffer along the southern bank of the San Joaquin River. Cultural resource studies are generally only considered valid for five years. Of the cultural resource studies conducted within the project area, only one small study has been completed within the last five years. Additionally, waterways and their surrounding areas are considered highly sensitive to cultural resources, as indigenous peoples used these areas for task specific sites, temporary camps, and permanent villages. As such, there is a reasonable likeliness that both surface and subsurface cultural resources are present in the project area. Therefore, we recommend a qualified, professional consultant conduct a field survey of the entire project area prior to ground disturbance activities to determine if surface cultural resources are present. We also recommend a qualified, professional consultant be present during all ground disturbance activities to identify any unearthed cultural resources and make the appropriate mitigation recommendations. A list of qualified consultants can be found at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:

Celeste M. Thomson, Coordinator **Date**: September 14, 2020

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.