BUREAU OF RECLAMATION

Friant-Kern Canal Pump-Back Project Draft Environmental Assessment

Friant-Kern Canal Pump-Back Project, California

California Great Basin Region

CGB-ED-2025-137



Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Acronyms and Abbreviations

<	less than
%	percent
AEWSD	Arvin-Edison Water Storage District
APE	area of potential effect
BLM	Department of the Interior, Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRPR	California Rare Plant Rank
CVC	Cross Valley Canal
CVP	Central Valley Project
dBA	A-weighted decibel
DBCP	1,2-dibromo-3-chloropropane
DEID	Delano-Earlimart Irrigation District
DOC	California Department of Conservation
DWR	California Department of Water Resources
EA	Environmental Assessment

EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FKC	Friant-Kern Canal
FWA	Friant Water Authority
GHG	greenhouse gas
ID	irrigation district
ITA	Indian Trust Asset
KTWD	Kern-Tulare Water District
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PSD	Prevention of Significant Deterioration
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
SJKF	San Joaquin kit fox
SJRRP	San Joaquin River Restoration Program
SJVAB	San Joaquin Valley Air Basin
SR	State Route
SWID	Shafter-Wasco Irrigation District
SWRCB	State Water Resources Control Board
TBID	Terra Bella Irrigation District
TCP	1,2,3, trichloropropane
TDS	total dissolved solids
tpy	tons per year
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

Section 1 Introduction

The Bureau of Reclamation (Reclamation) has prepared this draft Environmental Assessment (EA) for the proposed Friant-Kern Canal (FKC) Pump-Back Project (Project) in accordance with the National Environmental Policy Act [NEPA; 42 United States Code §4321 et seq.][1]

1.1 Background

The FKC is a Reclamation-owned facility, operated and maintained by the Friant Water Authority (FWA) for agricultural and urban uses. FWA has installed temporary pumping facilities on the lower part of the FKC which are used to convey Central Valley Project (CVP) water and approved non-CVP water from south-of-Delta facilities, the Kern River, and water banking projects pumped into the FKC from the Cross Valley Canal (CVC) to Friant Division Long-term Contractors (Friant Contractors). This water is introduced into the terminus of the FKC through the FKC-CVC Intertie (Intertie) (Figure 1-1) then pumped up the canal and over check structures to contractor turnouts, an operational scenario referred to as "reverse-flow pump-back." The existing temporary pump-back facilities have capacities of 80 cubic feet per second (cfs) at the Shafter-Wasco Check Structure (also known as and furthermore referred to as the Shafter Check Structure) and 50 cfs at the Poso Creek Check Structure.

[1] Executive Order 14154, *Unleashing American Energy* (Jan. 20, 2025), and a Presidential Memorandum, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity* (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The Bureau of Reclamation verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The Bureau of Reclamation has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

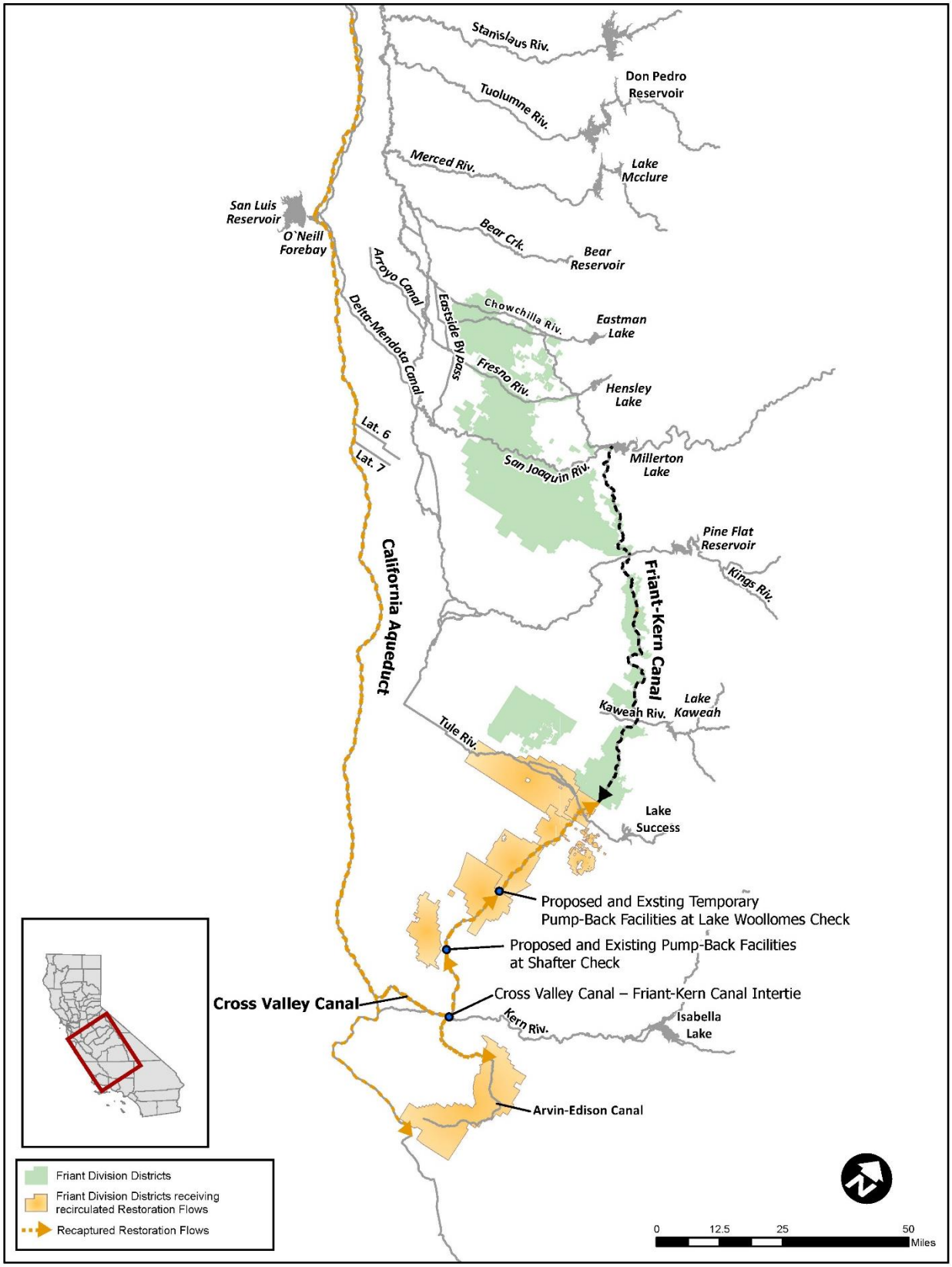


Figure 1-1. Proposed Action Location

The San Joaquin River Restoration Program (SJRRP) was established in late 2006 to implement a Stipulation of Settlement in *Natural Resources Defense Council, et al. v. Kirk Rodgers et al.* (Settlement). In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council, filed a lawsuit challenging the renewal of long-term water service contracts between the United States and CVP Friant Contractors. In September 2006, the "Settling Parties," including Natural Resources Defense Council, FWA, and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which established two primary goals:

- **Restoration Goal** – To restore and maintain fish populations in "good condition" in the main stem San Joaquin River below Friant Dam to the confluence of the Merced River, including natural reproducing and self-sustaining populations of salmon and other fish.
- **Water Management Goal** – To reduce or avoid adverse water supply impacts on all of the Friant Contractors that may result from the Interim and Restoration Flows provided for in the Settlement.

To achieve the Restoration Goal, the Settlement calls for releases of water from Friant Dam to the confluence of the Merced River (referred to as Restoration Flows), a combination of channel and structural modifications along the San Joaquin River below Friant Dam, and reintroduction of Chinook salmon. To achieve the Water Management Goal, Paragraph 16 of the Settlement and Part III of the San Joaquin River Restoration Settlement Act (Settlement Act) provide for certain activities to be developed and implemented to reduce or avoid adverse water supply impacts on all Friant Contractors. Specifically, Section 10201 of the Settlement Act states:

> (a) The Secretary of the Interior (hereafter referred to as the ''Secretary'') is authorized and directed to conduct feasibility studies in coordination with appropriate federal, state, regional, and local authorities on the following improvements and facilities within the Friant Division, CVP, California:
>
> (2) Reverse-flow pump-back facilities on the FKC, with reverse-flow capacity of approximately 500 cubic feet per second at the Poso and Shafter Check Structures[2] and approximately 300 cubic feet per second at the Woollomes Check Structure.

[2] Poso Creek has experienced land subsidence that required pump-back operations to be moved to Shafter-Wasco. Poso Creek has not been used for pump-back operations since 2012.

(b) Upon completion of and consistent with the applicable feasibility studies, the Secretary is authorized to construct the improvements and facilities identified in subsection (a) in accordance with all applicable federal and state laws.

Reclamation performed water supply and economic analyses in 2011 as part of the SJRRP which showed that much of the pump-back capacity described in this section of the Settlement Act would be unused because of limited conveyance capacity and the availability of recaptured Restoration Flows, demands, and downstream pump-back capacities.

In 2012, Reclamation and the California Department of Water Resources (DWR) prepared a joint programmatic Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) that evaluated the impacts of implementing the SJRRP at the level of detail available at that time (Reclamation and DWR 2012). The Programmatic EIS/EIR included a "program-level" analysis of recirculating recaptured Interim and Restoration flows to the Friant Division. Actions evaluated at a "program-level" in the Programmatic EIS/EIR require completion of additional analysis pursuant to NEPA. In 2014, FWA proposed an alternative that would revise the proposed pumping capacities to 200 cfs at the Shafter Check Structure and 75 cfs at the Lake Woollomes and Deer Creek Check Structures which was evaluated to an appraisal level as part of the SJRRP Water Management Goal Investment Strategy using all new facilities, Project Irrigation District (ID) 504 – Reverse-Flow Pump-Back Facilities on the FKC (SJRRP 2015). As part of the Drought Response Program, a Reclamation initiative aimed at improving water management during drought conditions FWA and Reclamation have considered operational scenarios beyond the levels identified in the 2015 Investment Strategy Report that include accessing water banks or other water supplies available via the CVC (e.g., Kern River, local Kern banking projects, transfers from south-of-Delta SWP and CVP exports) in addition to recirculating recaptured Restoration Flows.

FWA proposes to construct and operate expanded pump-back facilities along the southern portion of the FKC to allow additional water from south-of-Delta facilities and the CVC for delivery to Friant Contractors. The proposed expanded capacity pump-back facilities would convey water supplies accessible via the Intertie, including but not limited to recaptured Restoration Flows, water supplies pursuant to Reclamation Cross Valley Contracts, water from banking projects, and non-CVP water delivered from the California Aqueduct and other CVC sources. All water conveyed and delivered to Friant Contractors is subject to appropriate approval and permitting by federal, state, and local agencies prior to introduction into the FKC.

1.2 Need For Proposal

Severe periods of drought in California, particularly in the last two decades have had serious consequences for water supply reliability in the region. Also, as described in the Settlement, release of Restoration Flows may result in adverse water supply impacts to the Friant Contractors. Therefore, the proposed action is needed to improve water supply reliability and water deliveries to reduce the impacts to local economies in the region and reduce or avoid Friant Contractor water supply impacts resulting from the release of Restoration Flows in accordance with the Settlement.

The purpose of the proposed action is to improve capacities of reverse flow pump-back facilities along the southern portion of the FKC to enhance water management in accordance with the Secure Water Act [Public Law 111-11, Title IX, Subtitle F, Section 9504 (a)(1)(C) and (D)] and appropriations for Western Drought Response (Public Law 113-235), and recirculate recaptured Restoration Flows in accordance with the Settlement Act [Public Law 111-11, Title X, Subtitle A, Section 10004(a)(4) and Section 10201(a)(2)]. Increased FKC reverse pumping capacities would allow better management of and access to banked water, transfers, exchanges, other acquired supplies, and recaptured Restoration Flows.

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Section 2 Alternatives

2.1 No Action Alternative

Under the no action alternative, Reclamation would not approve FWA access to the project footprints located on Reclamation land or provide funding to construct and install the proposed expanded capacity FKC pump-back facilities. Under this alternative, no new facilities would be constructed, and any future pump-back operations would use only existing facilities located in the FKC, and continue to convey CVP Cross Valley Contract supplies, previously banked CVP supplies, and approved non-CVP groundwater discharged into the FKC. Recaptured Restoration Flows would not be introduced directly into the FKC. As shown in Figure 1-1, the existing pump-back facilities along FKC include:

- 500 cfs permanent pump station that pumps water from the CVC into the lower end of the FKC
- 30 cfs permanent pump-back facility at the Shafter Check Structure
- One 50 cfs temporary pump-back facility installed historically at the Shafter Check Structure and one 50 cfs temporary pump-back facility at Lake Woollomes Check Structure to support pump-back operations

These existing facilities would remain in place until their continued use could no longer be supported through regular maintenance. The no action alternative would not meet the need for the proposal and would not contribute to implementing the Water Management Goal of the Settlement.

2.2 Proposed Action

Under the proposed action, Reclamation would approve FWA access to the project footprints located on Reclamation land and provide funding for the construction and installation of two seasonal pump-back facilities. The seasonal pump-back facilities would support the conveyance of recaptured Restoration Flows and other acquired CVP and non-CVP waters to Friant Contractors via the FKC, in accordance with Paragraph 16(a) of the Settlement; Part III, Section 10201(a)(2) of the Settlement Act; the Secure Water Act, and appropriations for Western Drought Response included in Public Law 113-235. Under the proposed action, a four-bay seasonal check structure with up to 200 cfs capacity would replace the existing temporary pump-back facility at the Shafter Check Structure, and a two-bay seasonal check structure with up to 75 cfs capacity

would replace the existing temporary pump-back facility at the Lake Woollomes Check Structure. These pump-back facilities would be removed at the end of each seasonal period and installed again at the beginning of the following season. The seasonal facilities would be operated when recaptured Restoration Flows and the other sources of water are available and generally taken offline and removed outside of the irrigation season (November to February), thus providing the flexibility to demobilize the seasonal pump-back facilities at Shafter Check Structure and Lake Woollomes Check Structure outside of the primary operational window, thereby allowing for regular gravity flow operations within the FKC to support flood safety operations.

The seasonal pump-back facilities that would be installed are retrofitted pumps that Reclamation previously acquired from the Red Bluff Diversion Dam when the Interim Pumping Facility was decommissioned in 2014. The seasonal pump-back facilities would be placed at the same location as the existing temporary check structures at Shafter Figure 2-1) and Lake Woollomes (Figure 2-2). Figure 2-3 depicts an example of the metal pump frames that would be used to house the seasonal retrofitted pumps.

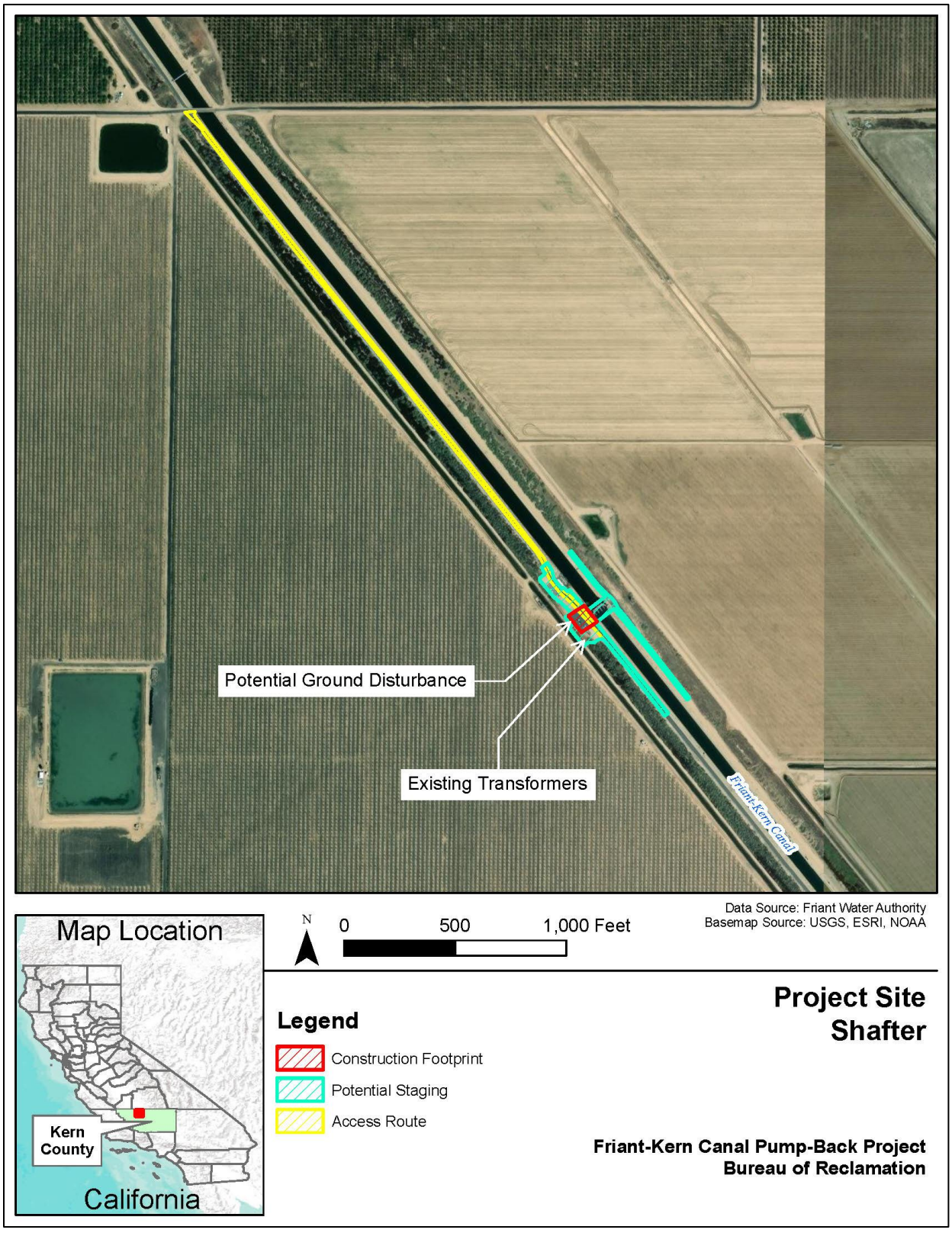


Figure 2-1 Shafter Check

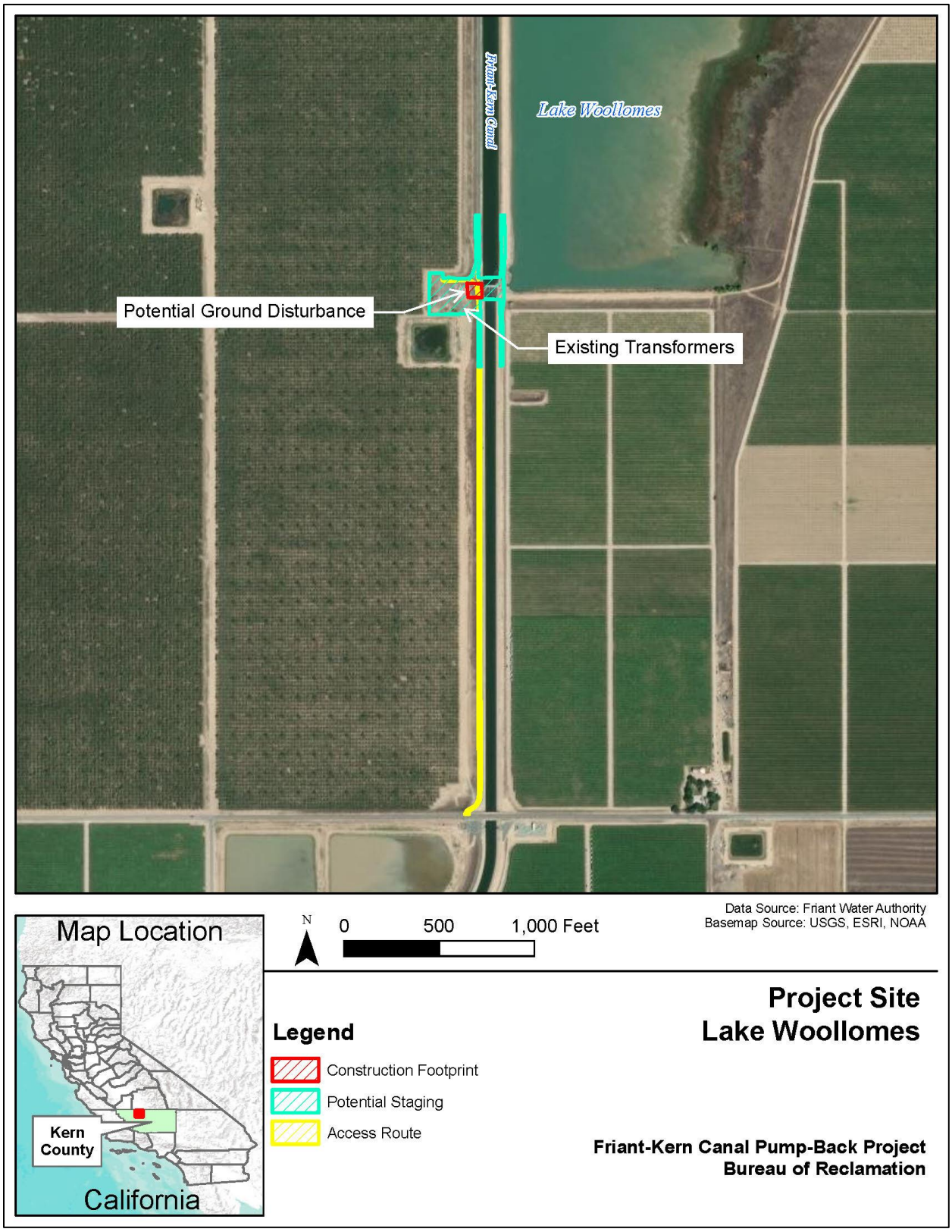


Figure 2-2. Lake Woollomes Check



Note: Though only a single pump is depicted, the metal frames can accommodate a second pump by removing the plywood.

Figure 2-3. Example Metal Frames Housing a Single Pump

Several environmental commitments are included in the proposed action to avoid potential environmental impacts associated with construction and operations. Table 2-1 provides a summary of the environmental commitments included under the proposed action. Full environmental commitment descriptions are provided in Appendix A of this EA.

Table 2-1. Environmental Commitments

Environmental Commitment	Summary
CUL-1	Implement a detailed inadvertent discovery plan for cultural resources or human remains.
PR-1	Monitor earthmoving activities in undisturbed sediment to avoid and manage inadvertent paleontological discoveries.
TERR-1	Conduct pre-construction surveys for Crotch's Bumble Bee. If detected, FWA would consult with CDFW.
TERR-2	Conduct pre-construction surveys in the action area for special status reptiles and amphibians and if necessary, relocate individuals. Monitor construction activities and contact USFWS or CDFW prior to handling/relocation.

Environmental Commitment	Summary
TERR-3	Conduct pre-construction nesting bird surveys within the action area and a 0.25-mile radius of the action area. Implement no-disturbance buffers if necessary.
TERR-4	Conduct pre-construction surveys for burrowing owls. Implement no-disturbance buffers if necessary. Consult CDFW if exclusion or passive relocation is needed.
TERR-5	Conduct pre-construction surveys for San Joaquin kit foxes. Implement exclusion zones, if necessary,
TERR-6	Conduct pre-construction surveys for Tipton kangaroo rats. Coordinate with USFWS to implement avoidance and minimization measures if necessary.
TERR-7	Conduct pre-construction surveys for American Badgers and implement avoidance and minimization measures if necessary.
TERR-8	Conduct pre-construction surveys for special status plant species during bloom periods. Implement additional measures and consult with CDFW or USFWS if necessary.
TERR-9	Implement Contractor Environmental Awareness Training and site protection measures.
TERR-10	Restore work areas to pre-project conditions.
HAZ-1	Develop and implement construction best management practices (BMPs).
TR-1	Develop a Temporary Traffic Control Plan.

Key: CDFW – California Department of Fish and Wildlife; FWA – Friant Water Authority; USFWS – United States Fish and Wildlife Service

2.2.1 Construction/Installation of Project Facilities

The previously acquired pumps and motors would be retrofit for use at the Shafter and Lake Woollomes Check Structures. The proposed metal pump frames, used to house the pumps, would be free standing structures. Two 300-gallon water tanks would hold the metal frames and seasonal pumps in place. This design would allow FWA to dismantle the metal frames and seasonal pumps during non-operational months. The design would include a 36-inch pipe that would be secured to the check structure with a 3-inch angle iron. The angle iron would be bolted to metal plates (1/2x4x6 inches) that are permanently connected to the south side of the check structures. At Shafter, the existing permanent metal plate in one of the bays would be used and an additional metal plate would be installed in one additional bay. The metal plate would be permanently affixed to the check structure using 4.5-inch anchor bolts. At Lake Woollomes, the existing permanent metal plate would be used, and no additional metal plates would be installed. During seasonal operations, the pump frames would be installed by crane into the existing check structure bays; the retrofitted pumps would be transported to and from the site via a deck truck. Installation and removal of the two seasonal pump-back facilities would take one day using a crew of one to two workers per site.

Permanent electric power is present at both the Shafter and Lake Woollomes Check Structures; however, it is only sufficient to operate one 50 cfs pump at each site. For the remaining capacity, additional permanent power would be installed, or diesel generators would be used, to power pumps for the duration of the seasonal operation. Installation of the proposed permanent electric power would include the upgrade of control panels and switch back panels at the existing transformer, and installation of underground electrical conduit from the upgraded panel to the pumps. Figure 2-1 and Figure 2-2 depict the existing transformer locations. Upstream upgrades to the electric grid would not be required to support the installation of permanent power. The installation of additional permanent electric power at the Shafter check would require installing a concrete foundation pad measuring 30 feet long by 20 feet wide and 6 inches deep adjacent to the existing transformers for the three additional control panels and upgraded switch back panel. Additionally, using a utility tractor and mining excavator, an area measuring 15-foot wide by 25-foot long and 4 feet deep would be excavated for the installation of underground electrical conduit from the upgraded panels to the existing cross over catwalk. The total area of potential ground disturbance is estimated to be less than 0.25 acres. The staging area could encompass 1.36 acres and would be located directly adjacent to the area of potential disturbance at the Shafter check. The project site would be accessed using the existing maintenance road. The area of potential ground disturbance, proposed staging area, and access route associated with the installation of the concrete foundation pad and installation of the electric conduit are shown in Figure 2-1. The installation of additional permanent electric power at the Shafter check would require four staff working a total of 160 hours, with no nighttime construction proposed.

The installation of additional permanent electric power at the Lake Woollomes check would require installing a concrete foundation measuring 12 feet long by 25 feet wide and 6 inches deep adjacent to the existing transformer to upgrade the current switch back panel and two control panels. Using a utility tractor and mining excavator, a trench measuring 55 feet long by 2 feet wide by 3 feet deep would be excavated, extending from the foundation pad to the existing cross over catwalk. The trench would be used for two additional conduits. The total area of potential ground disturbance is estimated to be less than 0.12 acres. The staging area could encompass 2 acres and would be located directly adjacent to the area of potential disturbance at the Lake Woollomes check. The project site would be accessed using the existing maintenance road. The area of potential ground disturbance, proposed staging area, and access route associated with the installation of the concrete foundation pad and installation of the electric conduit is shown in Figure 2-2. The installation of additional permanent electric power at the Lake Woollomes check would require four staff working a total of 180 hours, with no nighttime construction proposed.

Adding permanent power at both sites would require coordination with the respective utility company for each check. It is anticipated that no power interruption to existing customers would occur during installation.

No construction activities would be required to support the use of diesel generators. The generators would be transported to the Shafter and Lake Woollomes checks using a deck truck.

2.2.2 Operation of Project Facilities

The seasonal pump-back facilities would convey water supplies accessible via the Intertie to Friant Contractor turnouts on the FKC. Under the proposed action, the pump-back facilities would be operated up to their capacity to maximize conveyance of recaptured Restoration Flows and the other acquired sources of CVP and non-CVP water, when available. As previously discussed, the seasonal facilities would be removed at the end of each seasonal period and installed again at the beginning of the following season. The seasonal facilities would be operated when recaptured Restoration Flows and the other sources of water are available and generally taken offline and removed outside of the irrigation season (November to February), thus providing the flexibility to demobilize the seasonal pump-back facilities at the Shafter and Lake Woollomes Check Structures outside of the primary operational window, (thereby allowing for regular gravity flow operations within the FKC to support flood safety operations). If additional permanent power is installed, the seasonal pump-back facilities would all be electric-driven. Table 2-2 provides the estimated energy consumption for the pump-back facility at each site.

If diesel power generators are used to power the seasonal pumps, it is assumed that four 400-horsepower (hp) generators would be used at Shafter and two 400 hp generators at Lake Woollomes. These generators would be installed and removed during the same period as the seasonal pump-back facilities. Up to two daily maintenance trips would be required to each site for regular generator maintenance.

Table 2-2. Estimated Annual Energy Consumption for Each Pump-Back Facility Under the Proposed Action

Pump-Back Facility	Estimated Energy Consumption (kWh)[1]
Shafter	6,529,000
Lake Woollomes	1,959,000

Notes:

[1] Values are based on the following operational assumptions (values rounded to the nearest 1,000 kWh). To capture the highest potential energy consumption at each site, this analysis assumed 24/7 operation of the pumps at Shafter and Lake Woollomes for 12 months.

Section 3 Affected Environment and Environmental Consequences

This section presents the affected environment, environmental consequences and cumulative impacts for each resource area. For the environmental consequences analysis presented below, the no action alternative (i.e., reasonably foreseeable future conditions without the project) is the baseline to which the proposed action is compared, consistent with NEPA. The resources listed in Table 3-1 were considered and eliminated from detailed evaluation in this EA because they either do not exist in the study area or would not be affected by the proposed action.

Table 3-1. Resources Considered and Dismissed from Detailed Evaluation

Resource Topic	Reason for No Impact Determination
Aesthetics	Construction under the proposed action would require a single day of crane and deck truck use, with no on-site equipment staging or nighttime activities, avoiding new sources of glare or light. These activities align with the agricultural character of the area and would not affect scenic vistas, scenic resources, or the visual quality of the surroundings. The sites are not within a state scenic highway corridor, and no conflict with zoning or scenic quality regulations would occur (California Department of Transportation [Caltrans] 2024). Therefore, the proposed action would have no impacts on aesthetics.
Population and Housing	Construction for the proposed action would primarily utilize local workers, with only one to two workers potentially coming from outside the region due to the minimal workforce and equipment needs. The project would not involve the development of new homes, businesses, roads, or infrastructure that could induce unplanned population growth, either directly or indirectly. Additionally, the project would not displace any existing people or housing, nor necessitate the construction of replacement housing. Therefore, the proposed action would have no impacts on population growth or housing displacement.
Recreation	The Shafter pump-back facility is not located near any recreational areas. The Lake Woollomes pump-back facility is near Lake Woollomes Park; however, construction activities would be limited to a single day, with no impact on park access or recreational activities. The park would remain open during construction, and no changes to lake levels would occur, ensuring no disruption to recreation from water fluctuations. The project would not require the construction or expansion of any recreational facilities and would not increase the use of existing parks to the point of causing substantial physical deterioration. Therefore, the proposed action would have no impacts on recreation, including both facility use and physical effects on the environment.

3.1 Cultural Resources

3.1.1 Affected Environment

Cultural resources include prehistoric and historic period archaeological sites, architectural or built environment resources (e.g., canals, roads, bridges, and buildings), and places important to Native American and ethnic groups that are generally 45 years of age or older. Federal laws, policies, and regulations applicable to cultural resources under this project are discussed in Appendix C of this EA and include NEPA, the Native American Graves Protection and Repatriation Act, and regulations published by the Advisory Council on Historic Preservation and the National Park Service. Relevant state laws, policies, and regulations include California Environmental Quality Act (CEQA) and California Office of Historic Preservation guidelines. Regional or local policies and regulations may be found in the affected counties' general plans. State, regional and local laws, policies, and regulations are described in Appendix D of the *Friant-Kern Canal Pump-Back Project Draft and Final Environmental Impact Report* (Draft and Final EIR, FWA 2024; FWA 2025).[3]

3.1.1.1 Cultural Resources Investigation and Results

An area of potential effect (APE) for the proposed action is where cultural resources may be directly or indirectly affected by project construction and maintenance. The APE would include the proposed footprints and staging areas for the Shafter, and Lake Woollomes pump-back facilities shown in Figure 2-1 and Figure 2-2. The study area for the proposed action consists of a 1-mile buffer surrounding the APE but also considers the direct and indirect effects the project may have on the FKC, which extends from its headworks at Friant Dam to its outlet at the Kern River.

The cultural resources investigation conducted for the study area included a records search through the Southern San Joaquin Valley Information Center of the California Historical Resources Information System (CHRIS), a literature review, and a pedestrian survey of the APE. Contact with Native American tribal representatives was also conducted via certified mail on April 19, 2021. The CHRIS records search revealed one cultural resource within the APE and three within a surrounding 1-mile radius.

The historic period FKC (P-15-013728/P-54-004614), which was completed in 1951 as part of the Friant Division of the CVP, is within the APE and would be directly impacted

[3] The Friant-Kern Canal Pump-Back Project Final Environmental Impact Report is comprised of the *Friant-Kern Canal Pump-Back Project Draft Environmental Impact Report* (Draft EIR; FWA 2024), and the *Friant-Kern Canal Pump-Back Project Responses to Comments on the Draft EIR* (Final EIR; FWA 2025). FWA released the Draft EIR for public review on October 9, 2024, and the *Friant-Kern Canal Pump-Back Project Responses to Comments* was released on March 14, 2025. The documents are available at: https://friantwater.org/fkc-pumpback.

by the project. Reclamation determined that the FKC is individually eligible for listing in the National Register of Historic Places and California Register of Historical Resources (under Criteria A/1 and C/3) for its role in accomplishing the goals of the CVP, for the transformation of land use it enabled in the counties it served, and for its size and scale—which demonstrated the magnitude of the engineering and construction feat accomplished by the CVP as well as Reclamation engineer Harry McBirney's important contributions to canal standardization (Norby and Wee 2019). The three resources previously recorded within 1 mile of the APE include two irrigation ditches, the Calloway Canal (P-15-007233) and channelized Deer Creek (P-54-005457), and one isolated prehistoric chert scraper (P-15-009030).

A pedestrian survey of the APE was completed on March 22 and 23, 2021. The survey was conducted using 5- to 10-meter transects to systematically examine areas of proposed ground-disturbing activity. The access roads within the APE were not subject to pedestrian survey because they are active canal access roads comprised of compact dirt or gravel and subject to regular use. The APE at each project location was found to have been heavily impacted by prior canal construction and maintenance, and by agricultural activity. Apart from the FKC, no cultural resources were observed within the APE.

A geoarchaeological sensitivity assessment was recently completed in support of the FKC Middle Reach Capacity Correction Project that included the study area for Lake Woollomes (Meyer 2020). An earlier geoarchaeological sensitivity assessment completed for California Department of Transportation (Caltrans) Districts 6 and 9 encompassed the study area for the Shafter facility (Meyer et al. 2010). Each of these assessments relied on geological and soils maps, archaeological and historical data, and subsurface testing to identify the age and composition of depositional landforms and their potential to reveal buried cultural deposits. Lake Woollomes had a low potential for buried cultural resources, and Shafter had a very low potential for buried cultural resources.

Ethnography

The APE falls within the traditional territory of the Yokuts (Kroeber 1925; Latta 1977, 1999; Olsen and Payen 1968; Wallace 1978). These groups inhabited three main geographic locales in Central California—the Southern Valley (Tulare Lake), the Northern Valley (San Joaquin Valley), and adjacent foothills (Sierra Nevada) (Kroeber 1925; Wallace 1978). The population of Yokuts (Northern Valley Yokuts, Southern Valley Yokuts, and Foothills Yokuts) primarily clustered at a narrow strip of land bordering the San Joaquin River and its tributaries, as well as lands east of the river along the Sierra Nevada foothills. Fewer Yokuts are thought to have inhabited the western edge of the

San Joaquin Valley where villages were typically located along watercourses (Wallace 1978).

A request for a search of the Sacred Lands file for the project APE was submitted to the Native American Heritage Commission in February 2021. A reply was received in March 2021, noting that a search of the Sacred Lands file had failed to reveal the presence of Native American resources within the APE. The Native American Heritage Commission provided a list of 27 tribal representatives from 18 different tribes with potential interest in and knowledge of the project vicinity, including: Big Pine Paiute Tribe of the Owens Valley, Big Sandy Rancheria of Western Mono Indians, Chumash Council of Bakersfield, Coastal Band of the Chumash Nation, Dunlap Band of Mono Indians, Fernandeno Tataviam Band of Mission Indians, Kern Valley Indian Community, Kitanemuk and Yowlumne Tejon Indians, Quechan Tribe of the Fort Yuma Reservation, San Fernando Band of Mission Indians, San Manuel Band of Mission Indians, Santa Rosa Rancheria Tachi Yokut Tribe, Santa Ynez Band of Chumash Indians, Tejon Indian Tribe, Tubatulabals of Kern Valley, Tule River Indian Tribe, Wuksache Indian Tribe/Eshom Valley Band, and yak tityu yak tiłhini – Northern Chumash Tribe.

Consistent with Native American Heritage Commission–suggested "best practice" procedures, letters were sent via certified mail on April 19, 2021, to the 27 tribal representatives. The letters asked recipients if they had information or concerns about tribal cultural resources that may be affected by the proposed action.[4] Each tribe listed was sent a project notification letter and map and was asked to convey any knowledge regarding locations of concern to local Native American groups within the APE. The letter also included information such as project location, a brief description of the proposed action, and results of the pedestrian archaeological survey. A response was received on April 22, 2021, from the San Manuel Band of Mission Indians, who indicated the proposed action is located outside of their ancestral territory and, as such, the tribe would not be requesting to receive consulting party status or participate in scoping, development, or review of documents created pursuant to legal and regulatory mandates. To date, no additional responses to these requests for information have been received.

[4] Public Resources Code Section 21080.3.1(c) states "To expediate the requirements of this section, the Native American Heritage Commission will assist the lead agency in identifying the California Native American tribes that are traditionally and cultural affiliated with the project area."

3.1.2 Environmental Consequences

3.1.2.1 No Action Alternative

Under the no action alternative, no new facilities would be constructed or maintained within the APE, and only existing temporary and permanent facilities would be used. There would be no direct or indirect impacts to known historic properties, historical resources, or other cultural resources under the no action alternative. The no action alternative would have no impact on known historic properties, historical resources, or other cultural resources including human remains within the APE.

3.1.2.2 Proposed Action

Construction

Under the proposed action, the construction, installation, and removal of seasonal pump-back facilities at Shafter and Lake Woollomes would involve alterations to the FKC (P-15-013728/P-54-004614), a known historic property and historical resource. The proposed action calls for each seasonal pump to be affixed to a metal frame that would be installed by cranes onto the existing check structure bays. The upgraded pumps would be situated in the same location as the existing pumps. The seasonal pumps are intentionally designed to be temporary and would generally be removed outside of the irrigation season. A 36-inch pipe would be secured to the existing check structure with an angle iron in a manner that would allow for easy removal. At Lake Woollomes, the angle iron would be secured to an existing permanent metal plate installed on the check structure. At Shafter, the existing permanent metal plate in one of the bays would be used and an additional permanent metal plate would be installed in a different bay. The existing check structures would remain intact. The only alteration would involve the upgrading of pumping equipment and installation of one metal plate that is identical to the already existing metal plate on the structure. The installation of new permanent power would require ground disturbance to install new concrete foundation pads and trenching for electrical conduits. If diesel generators are used to power the seasonal pumps, the placement of these generators would not entail any construction activities. All work would occur in previously disturbed areas and would not physically alter the canal alignment itself. None of these construction actions would adversely affect the FKC or its character-defining features- the check structure at FKC MP 137.2 (Shafter location) and the check structure at FKC MP 121.51 (Lake Woollomes location). Construction actions under the proposed action are not expected to alter these character-defining features of the FKC that qualify it for inclusion in the National Register of Historic Places. No additional historic properties, historical resources, or other cultural resources have been identified that would be subject to direct or indirect impacts under the proposed action. As such, construction of the proposed action would

result in no adverse effect to known historic properties, historical resources, or other cultural resources within the APE.

Although there are no known archaeological resources in the APE that would be affected by the proposed action (Meyer 2020), there is a possibility of the inadvertent discovery of an archaeological resource during construction activities at the Shafter and Lake Woollomes checks. There are no known human remains that have been recovered within the APE. Regardless, there is a possibility of the inadvertent discovery of human remains during construction activities associated with the proposed action. As such, this impact could be adverse. With the implementation of Environmental Commitment CUL-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA), which requires a detailed inadvertent discovery plan, construction actions under the proposed action would have a minimal potential adverse impact on archaeological resources and human remains.

Operation

Operation of the proposed action would result in no impacts to known historic properties, historical resources, or other cultural resources including human remains within the APE.

3.1.3 Cumulative Impacts

The FKC Middle Reach Capacity Correction Project and Delta Conveyance Project have been identified as cumulative actions that could result in adverse impacts to cultural resources. The cumulative projects listed in Appendix B of this EA could have a cumulatively significant effect on cultural resources, though impacts would be reduced through the implementation of mitigation measures and environmental commitments associated with each project. Impacts to cultural resources from construction and operations under the proposed action would be minimal with implementation of Environmental Commitment CUL-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA). Therefore, the cumulative impacts of the proposed action would be minimal.

3.2 Geology, Soils, and Paleontological Resources

3.2.1 Affected Environment

Natural Resource Conservation Service data indicate that soils in the construction areas are underlain by fine-textured, strongly structured soils, such as sandy loam with moderate to low erodibility and shrink-swell potential (Natural Resources Conservation Service 2021).

According to the California Department of Conservation (DOC) Fault Activity Map of California (2015a), an unnamed quaternary fault near Rag Gulch lies approximately 4.5 miles southeast from the Lake Woollomes check, and the historic Pond Fault and quaternary Poso Creek Fault are approximately 7 miles away to the southwest. The Poso Creek Fault lies approximately 5.5 miles to the northeast from the Shafter check and intersects with the historic New Hope Fault and Premier Fault approximately 8 miles to the northeast from the Shafter check (DOC 2015a). Despite the presence of faults in the region, no existing or proposed facilities fall within an Alquist-Priolo Earthquake Fault Zone, liquefaction zone, and/or landslides zone, according to the DOC Earthquake Zones of Required Investigation Map (DOC 2022).

Using the U.S. Department of the Interior, Bureau of Land Management (BLM) Potential Fossil Yield Classification system, both sites are classified as moderate (Class 3) to include Pleistocene-age or otherwise sensitive units to produce scientifically significant fossils (BLM 2016). Both proposed facilities would be constructed within the geologic unit Qoa, which refers to Pleistocene/Holocene marine and nonmarine (continental) sedimentary rocks (DOC 2015b).

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

The no action alternative would not involve the construction of project facilities. Therefore, the no action alternative would not result in impacts (including risk of loss, injury, or death) involving an earthquake fault, soil erosion or paleontological resources. Under the no action alternative, construction would not take place, and only existing facilities would be used. However, the absence of increased operational flexibility and reliability of surface water deliveries would lead to continued reliance on groundwater. Therefore, the project sites would continue to experience subsidence because of groundwater over extraction that would result in adverse impacts associated with unstable soils or geological units.

3.2.2.2 Proposed Action

Construction

No existing or proposed facilities fall within an Alquist-Priolo Earthquake Fault Zone, liquefaction zone, and/or landslide zone (DOC 2022); however, faults are within 10 miles of the project sites which could contribute to unstable soils and geologic units. Overall, construction of the proposed action would have minimal potential adverse effects (including risk of loss, injury, or death) involving an earthquake fault, strong seismic ground shaking, seismic-related ground failure including liquefaction or landslides, and unstable soils or geologic units.

Soils within the project area have a relatively low risk of wind erosion when left in dry, unvegetated condition. If permanent power is installed, earthmoving to install new concrete foundation pads and trenching for electrical conduits would be required which could temporarily elevate erosion rates on-site. However, earthmoving activities would be minimal, occurring for a short duration (a total of 180 work hours). As such, construction activities under the proposed action would have minimal potential adverse effects associated with substantial soil erosion or the loss of topsoil.

There is a moderate probability of encountering previously undetected paleontological resources during the installation of permanent power at the Shafter and Lake Woollomes sites. Environmental Commitment PR-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA) would ensure earthmoving activities would be monitored by a qualified paleontologist and would require implementation of measures to avoid, record, preserve, or recover unique paleontological resources if encountered. With implementation of mitigation, construction actions under the proposed action would have minimal potential adverse impacts to paleontological resources.

Operation

The study area has experienced severe subsidence primarily due to groundwater over extraction. The proposed action would increase operational flexibility and reliability of surface water deliveries to the Friant Contractors and thereby decrease their reliance on groundwater. Decreased pumping because of increased operational flexibility and reliability of surface water deliveries could result in less land subsidence under the proposed action. Therefore, operations under the proposed action would have beneficial impacts associated with unstable soils or geologic units.

3.2.3 Cumulative Impacts

Construction activities under the proposed action could result in impacts associated with the inadvertent discovery of paleontological resources during excavation. With implementation of Environmental Commitment PR-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA), this potential adverse impact would be reduced to a minimal level. In addition, earthmoving activities under the proposed action could result in erosion or loss of topsoil. Construction activities associated with the FKC Middle Reach Capacity Correction Project and Delano-Earlimart Irrigation District (DEID) Turnipseed Water Bank Expansion would involve earthmoving and construction activities near or along the FKC, which could also result in impacts such as erosion or loss of topsoil. However, as discussed in Section 3.2.1, the soils in the area have a relatively low risk of wind erosion when left in a dry, unvegetated condition. Therefore, the proposed action's incremental contribution to cumulative impacts on geologic, seismic and soil impacts would not be considered cumulatively adverse.

3.3 Biological Resources

3.3.1 Affected Environment

The biological resources study area, also referred to as Action Area (AA), considers the operational effects the project may have on the FKC, which extends from its headworks at Friant Dam to its outlet at the Kern River. The AA for bird and mammal species includes the limits of ground disturbance associated with construction, in addition to the proposed staging areas and access routes (i.e., the project footprint) at each site as well as a 0.25-mile buffer around the project footprint that will experience farther-reaching effects of construction activities that birds and mammals are more susceptible to such as visual and auditory disturbance. The AA for the special status plant species and non-bird or mammal wildlife species includes the limits of ground disturbance associated with construction, in addition to the proposed staging areas and access routes (i.e., the project footprint) at each site as well as a 200-foot buffer around the project footprint that will experience farther-reaching effects of construction activities such as fugitive dust and visual and auditory disturbance. Three reconnaissance-level biological resources surveys were conducted within the AA. The first was in March 2021, the second in January 2023, and an additional reconnaissance-level site visit was conducted in May 2025. Appendix D of this EA details the methodology and findings of each survey. Attachment 1 to Appendix D presents the regulatory context for the project. Attachment 2 to Appendix D presents the special-status wildlife and plant species with the potential to occur in the vicinity of the AA. Attachment 3 to Appendix D presents site photos from the site surveys. Federally listed species included in this section and Attachment 4a to Appendix D were identified for inclusion by searching the United States Fish and Wildlife Services Information for Planning and Consultation (IPAC) database on May 22, 2025, for species that may occur within 5 miles of the AA. State listed species and species of special concern included in this section and Attachment 4b to Appendix D were identified for inclusion by searching the California Department of Fish and Wildlife California Natural Diversity Database occurrences for United States Geological Quadrants 7.5-minute quadrangles within and around the FKC.

3.3.1.1 Common Vegetation and Wildlife

The AA is located in the Tulare Basin. Vegetation communities at both project sites are highly altered from agricultural practices. Vegetation communities in the AA include dry scrubland (present at both project sites), and grasslands (present at both project sites). Dry scrubland is dominated by native species like bladderpod (*Cleomella arboea*), saltbrush (*Atriplex* spp.), and California buckwheat (*Eriogonum fasciculatum*), but also contain a number of non-native species because of the amount of disturbance in the AA. Prominent scrubby non-native species include redstem stork's-bill (*Erodium cicutarium*), shortpod mustard (*Hirschfeldia incana*), and small melilot (*Melilotus indicus*).

Grasslands are composed of primarily non-native species like wild oat (*Avena fatua*), red brome (*Bromus rubens*), and great brome (*Bromus diandrus*). Agricultural areas in the AA are primarily monocultures of almonds or pistachios.

Small mammal burrows inhabited by California ground squirrels (*Otospermophilus beecheyi*) were observed during the January 2023 and May 2025 site visits. Black-tailed jackrabbits (*Lepus californicus*) were observed during the January 2023 and May 2025 site visits, and coyotes (*Canis latrans*) were also observed during the January 2023 site visit. Additionally, southern fire ants (*Solenopsis xyloni*) and western fence lizards (*Sceloporus occidentalis*) were observed during the May 2025 site visit. Other common wildlife known to inhabit the study area include the western toad (*Anaxyrus boreas*), painted lady butterfly (*Vanessa cardui*), and gopher snake (*Pituophis catenifer*).

A wetland delineation performed in March 2021 determined that two wetlands partially overlapped the northeastern corner of the AA. However, a subsequent site visit in January 2023 found that the previously identified wetlands have been filled and graded for construction of the FKC Middle Reach Capacity Correction Project; therefore, no wetlands currently occur within the AA.

Sensitive natural communities and valley/riparian communities were not identified in the vicinity of the Shafter and Lake Woollomes checks during the March 2021, January 2023, and May 2025 site visits. The internal canal embankments are steep and barren, containing no vegetation. However, the presence of water in the canal still provides aquatic habitat that attracts birds such as the great blue heron (*Ardea herodias*), black-capped night heron (*Nycticorax nycticorax*), Canada goose (*Branta canadensis*), and cormorant (*Urile* spp.), which were all observed during the May 2025 site visit. Appendix D of this EA provides details on the findings of the site visits.

3.3.1.2 Protected Vegetation and Wildlife

The habitat in the study area has the potential to support some federally listed, state listed, and otherwise protected species.

Federally Listed Species

Attachment 2 to Appendix D lists the federally protected wildlife and plant species identified by the IPAC official list of species with the potential to occur in the AA. The federally protected wildlife and plant species with the potential to occur within the AA are the San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*), Tipton kangaroot rat (TKR) (*Dipodomys nitratoides*), Kern mallow (*Eremalche parryi* ssp. *Kernensis*), and San Joaquin woollythreads (*Monolopia condonii*) and are further described below. No federally listed aquatic species have the potential to occur in the AA.

The SJKF is federally listed as endangered and state listed as threatened and has the potential to occur in the AA where suitable habitat is present. No active or potential SJKF dens were observed during the biological surveys performed in March 2021 and January 2023; however, there are 6 California Natural Diversity Database (CNDDB) occurrences of SJKF within 5 miles of the AA, the most recent of which was recorded in 2005 approximately 1.5 miles northwest of the Lake Woollomes check. The rest of the CNDDB occurrences within 5 miles of the AA were recorded in 1975. Scrubland habitat suitable for foraging and denning for SJKF may be present within the AA but owing to the lack of recent nearby CNDDB occurrences and amount of heavy disturbance within the AA, that potential is considered to be low. With the implementation of avoidance and minimization measures, the proposed action is not expected to adversely affect SJKF.

The TKR is federally and state listed as endangered and is known to occur regionally around the AA. Although, there are no CNDDB occurrences of TKR within 5 miles of the AA, there are several CNDDB occurrences within 10 miles of the AA, the nearest of which was recorded in 1993 along the FKC just over 5 miles from the AA, between the two project sites. The terraced floodplain, scattered woody shrubs, road berms, and canal banks within the AA may provide suitable habitat for this species; however, soil types and vegetation communities present in the AA are sub-optimal. Although no kangaroo rat burrows were confirmed during site surveys, the species is known to coinhabit ground squirrel burrows, which were abundant at the Lake Woollomes site. Still, owing to the presence of sub-optimal soil types and vegetation communities in addition to a lack of recent, nearby observations, the potential for the TKR to occur within the AA is considered to be low. With the implementation of avoidance and minimization measures, the proposed action is not expected to adversely affect TKR.

The Kern mallow is federally listed as threatened and has a California Rare Plant Rank of 1B.[5] There is a single CNDDB occurrence of Kern mallow within 5 miles of the AA. This occurrence is presumed extant and is approximately 2 miles southwest of the Shafter project site. Kern mallow was not observed during site visits; however, the AA provides marginally suitable areas of saltbush scrub habitat that have the potential to support this species. Therefore, Kern mallow has the potential to occur within the AA. However, this potential is considered to be low owing to not being identified during site visits, the lack of nearby CNDDB occurrences, and that only marginally suitable habitat present in

[5] Plants with a CRPR of 1B are rare throughout their range, with most endemic to California. Plants ranked 1B must be evaluated during the preparation of environmental documents relating to CEQA, as they meet the definition of rare or endangered as defined in CEQA Guidelines Section 15380(b) (CNPS 2023).

the AA. With the implementation of avoidance and minimization measures, the proposed action is not expected to adversely affect Kern mallow.

The San Joaquin woollythreads is federally listed as endangered and has a California Rare Plant Rank of 1B. There are 2 possibly extirpated CNDDB occurrences of San Joaquin woollythreads within 5 miles of the AA. These occurrences are from 1891 and 1937 and are both approximately 4 miles south and southwest of the Shafter check. CNDDB data indicates that as of 1989, no suitable habitat remains at the occurrence sites. Kern mallow was not observed during site visits; however, suitable habitat (saltbush scrub) is present within the AA. Therefore, San Joaquin woollythreads has the potential to occur within the AA; but, owing to not being identified during site visits, the lack of CNDDB occurrences and amount of disturbance within the AA, that potential is considered to be low. With the implementation of avoidance and minimization measures, the proposed action is not expected to adversely affect San Joaquin woollythreads.

State Listed Species

Attachment 2 to Appendix D presents the state listed special-status wildlife species with the potential to occur in the vicinity of the study area. There are two state listed species that have the potential to occur within the AA: SJKF,[6] and Swainson's hawk (*Buteo swainsoni*). There are two state candidate species that have the potential to occur within the AA: burrowing owl (*Athene cunicularia*), and Crotch's bumble bee (*Bombus crotchii*). The are six California species of special concern with the potential to occur within the AA: American badger (*Taxidea taxus*), California glossy snake (*Arizona elegans occidentalis*), Coast horned lizard (*Phynosoma blainvillii*), Kern Brook lamprey (*Lampetra hubbsi*), San Joaquin coachwhip (*Masticophis flagellum ruddocki*), and Tulare grasshopper mouse (*Onychomys torridus tularensis*). The white-tailed kite (*Elanus leucurus*), which has potential to occur transiently in the study area, is protected under California Fish and Game Code.

There are four plant species that are identified as 1B or 2B[7] by the California Rare State Rank that have the potential to occur within the AA, these include: Alkali mariposa-lily (*Colachortus striatus*), California satintail (*Imperata brevifolia*), recurved larkspur (*Delphinium recurvatum*), and subtle orache (*Atriplex subtilis*).

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[6] State protected species that are also federally listed are analyzed above in the Federally Protected Species section.

[7] Plants ranked CRPR 2B are rare, threatened, or endangered in California but are more common elsewhere. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, as they meet the definition of rare or endangered as defined in CEQA Guidelines Section 15380(b) (CNPS 2023).

Swainson's hawks have been observed flying over the project sites. However, there are no CNDDB occurrences within 5 miles of the AA and no nesting habitat occurs within the AA; however, the species has been observed flying over the study area and surrounding open areas may provide foraging habitat. Therefore, the Swainson's hawk only has the potential to occur transiently while foraging within the AA.

There are no CNDDB occurrences of the burrowing owl within 5 miles of the AA. However, suitable habitat (open areas with ground squirrel burrows) is present within the AA. Therefore, the burrowing owl has the potential to occur within the AA; however, owing to the lack of CNDDB occurrences within 5 miles of the AA, that potential is considered to be low.

Crotch's bumble bee has a low potential to occur within the study area. Suitable habitat (i.e., shrubland) is present within the study area, although existing habitats are limited and of low quality. Further, there are only 2 CNDDB occurrences within 5 miles of the AA. Both occurrences are from over 70 years ago and were recorded approximately 2.5 miles from the Shafter project site. Therefore, the Crotch's bumble bee has the potential to occur within the AA, but, owing to the lack of recent CNDDB occurrences within the AA and the heavy disturbance that occurs within the AA, that potential is considered to be low.

The American badger has the potential to occur in the study area. No active nor potential dens were observed during the biological surveys performed in March 2021 or in January 2023; however, marginal foraging habitat may be present within the AA. Although there are no CNDDB occurrences of this species within 5 miles of the AA, the presence of potential foraging habitat gives the American badger the potential to occur within the AA; however, owing to the lack of active or potential dens within the AA, lack of nearby CNDDB occurrences, and presence of only marginally suitable foraging habitat, that potential is considered to be low.

There are no CNDDB occurrences of the California glossy snake within 5 miles of the AA. However, some potentially suitable habitat is present within the AA. These habitats are characterized by past and ongoing disturbance. Therefore, the California glossy snake has the potential to occur within the AA, but that potential is considered to be low.

There are no CNDDB occurrences of the coast horned lizard within 5 miles of the AA. However, limited suitable habitat (open areas of sandy soils and low vegetation) may be present in the AA. Therefore, the coast horned lizard has the potential to occur within the AA, but, owing to the lack of CNDDB occurrences within 5 miles of the AA and limited suitable habitat within the AA, that potential is considered to be low.

There is a single CNDDB occurrence of the Kern Brook lamprey within 5 miles of the AA. This occurrence is from 1989, approximately 2 miles north of Lake Woollomes within the FKC. In addition, Kern brook lamprey ammocoetes are known to thrive in the siphons of the FKC. Therefore, the Kern brook lamprey has a moderate potential to occur within the AA.

There are no CNDDB occurrences of the San Joaquin coachwhip within 5 miles of the AA. The nearest CNDDB occurrences are approximately 12 miles to the north and south of the AA. However, potentially suitable habitat (open dry, treeless areas in saltbush scrub) occurs within the AA, though these habitats are heavily disturbed and fragmented. Therefore, the San Joaquin coachwhip has the potential to occur within the AA, but, owing to the lack of CNDDB occurrences within 5 miles of the AA and presence of only marginally suitable habitat in the AA, that potential is considered to be low.

There are 2 CNDDB occurrences of the Tulare grasshopper mouse within 5 miles of the AA. Both occurrences are approximately 4 miles from the AA and were recorded over 100 years ago. Although areas of marginally suitable habitat may be present within the AA, these habitats are fragmented and highly disturbed. Therefore, the Tulare grasshopper mouse has the potential to occur within the AA, but, owing to the lack of recent CNDDB occurrences within 5 miles of the AA, that potential is considered to be low.

There are no CNDDB occurrences of the white-tailed kite recorded within 5 miles of the study area; however, the species was observed soaring overhead during the 2021 site visit, and there are multiple observations recorded on eBird near the Lake Woollomes check. There is no suitable nesting habitat within the AA, however, there is suitable foraging habitat. Therefore, while there is moderate potential for this species to forage within the AA; however, nesting would not occur.

The following state listed special status plant species have been identified as having potential to be present within the study area: alkali mariposa-lily, California satintail, recurved larkspur, and subtle orache; however, a lack of recent CNDDB occurrences within 5 miles of the project sites and marginal existing suitable habitat suggest that these species have a low potential to occur (CDFW 2025).

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703–711), provides protection for native and migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions, except under the terms of a valid permit issued pursuant to federal regulations. Several species of native birds have the potential to occur within the AA. These include but are not limited to the red-tailed hawk (*Buteo*

jamaicensis), common raven (*Corvus corax*), black phoebe (*Sayornis nigricans*), white-crowned sparrow (*Zonotrichia leucophrys*), and house sparrow (*Passer domesticus*). Species observed during the May 2025 survey included species such as the brown headed cowbird (*Molothrus ater*), red shouldered hawk (*Buteo lineatus*), and northern mockingbird (*Mimus polyglottos*). Nesting cliff swallows (*Petrochelidon pyrrhonota*) were observed at both sites during the May 2025 survey as well. Nests were affixed to the north eave of the maintenance building at the Shafter site and the westernmost opening of the canal check structure at the Lake Woollomes site.

The bald eagle (*Haliaeetus leucoephalus*) and golden eagle (*Aquila chrysaetos*) are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) and under the California Fish and Game Code. There are no CNDDB occurrences of bald eagle within 5 miles of the AA. In addition, suitable nesting habitat (large trees around waterbodies) is not present in the AA. However, bald eagles have the potential to occur transiently within the AA while foraging. There are no CNDDB occurrences of the golden eagle within 5 miles of the AA. A review of eBird shows relatively few occurrences within the Central Valley as a whole. The species' preferred nesting habitat does not occur within or near the AA and the AA is outside of the current breeding range for this species. Therefore, while there is very low potential for this species to occur transiently within the AA, nesting would not occur within the AA.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Under the no action alternative, no new facilities would be constructed. Only existing infrastructure would be used, and there would be no changes in operational practices. Thus, the no action alternative would result in no impact on biological resources in the short or long term.

3.3.2.2 Proposed Action

Construction

Construction activities associated with the proposed action would impart short-term impacts on the AA. Construction of the proposed action would comply with any relevant federal laws, policies, and ordinances protecting biological resources, including those presented in Appendix C of this EA, as well as any state and local policies and ordinances (presented in Appendix D of the Draft and Final EIR [FWA 2024; FWA 2025]).

Potential Impacts on Common Vegetation and Wildlife

As previously described, wetlands, riparian area and sensitive natural communities were not identified within the project sites and therefore would not be impacted by

construction activities under the proposed action. However, in-water work would occur in the construction process, which could disturb aquatic habitat by causing temporary localized decreases in water quality in the form of increased turbidity downstream. Additionally, proposed construction activities could result in the accidental introduction of chemicals associated with construction equipment in the canal through accidental spills or leaks. In the short term, impacts of these substances on aquatic habitats could include harm to or mortality of aquatic species through poisoning or suffocation if concentrations of introduced contaminants were high enough. However, as described in Environmental Commitment HAZ-1, construction BMPs would be developed and implemented to reduce the potential for adverse water quality impacts from construction activities.

Under the proposed action, no vegetation clearing is proposed. The project construction footprints coincide with the locations of existing pump-back facilities and other FKC-related infrastructure, such as access roads. Additionally, each site is surrounded by actively managed agricultural lands. Given the highly modified nature of project sites and their surrounding landscapes, local wildlife is likely already accustomed to some degree of industrial activity related to maintenance of the canal and agricultural fields. The proposed action would not include the construction of any new fences or similar structures expected to inhibit wildlife movement. However, construction-related noise could disturb wildlife that inhabits the AA. In addition, heavy equipment used during construction could crush individuals present within the project area. However, most of the wildlife species expected to be present within the project area are mobile and could move away from construction equipment and disturbance. Furthermore, accidental spills of hazardous materials from construction equipment could enter the soil and diminish the quality of habitats within the project area, which are already impaired. The implementation of HAZ-1 would avoid or mitigate the potential of accidental spills of hazardous materials. Thus, although the proposed facilities may incrementally increase the overall level of development at each site through the construction of new structures, any such increases are expected to be consistent with the types of infrastructure already present at the project sites and would not further reduce conditions for vegetation or wildlife habitat.

Potential Impacts on Protected Vegetation and Wildlife

Federally Listed Species

As described in Section 3.3.1 and Attachment 2 to Appendix D of this EA, two federally listed wildlife species—SJKF and TKR—have the potential to occur within the AA. Should individuals of these species occur within the project work areas during construction, they could potentially be disturbed, injured, or killed, resulting in a significant impact. To reduce the potential for adverse impacts on the SJKF, and TKR, a qualified biologist will

conduct pre-construction surveys following the USFWS Standardized Recommendations for Protection of the SJKF Prior to or During Ground Disturbance (2011) and the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (2013) to determine whether occupied burrows occur within the AA. These surveys are described by Environmental Commitments TERR-5 and TERR-6 and summarized in Section 2.2 and described in detail in Appendix A of this EA). Further, interactions with heavy equipment and construction personnel (e.g., vehicle strikes or burrow collapses), such effects would be minimized by the implementation of Environmental Commitment TERR-9, which would limit potential impacts to the species through worker education and restricting construction activities at night, when SJKF and TKR are active. TERR-9 would also prohibit construction activities in sensitive areas, which would cover the area containing ground squirrel burrows at the Lake Woollomes site that have potential to be cohabitated by TKR. Although not anticipated to occur, if disturbance and/or destruction of occupied dens cannot be avoided, Reclamation will consult with USFWS and coordinate with CDFW prior to implementing the construction action.

Under the proposed action, equipment associated with the construction of the metal frames and installation of the seasonal pumps would be transported, staged, and operated only on previously disturbed ground; therefore, no permanent habitat loss associated with Kern mallow and San Joaquin woollythreads would occur. The installation of diesel generators would not require any construction or ground-disturbing activities. The installation of new permanent power would require constructing concrete foundation pads and trenching for electrical conduits primarily in previously disturbed ground in areas potentially suitable to support these species. Therefore, FWA will implement Environmental Commitments TERR-1 through TERR-9 and HAZ-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA) would be applied. With implementation of mitigation, construction of the proposed action would have minimal potential adverse impacts to federally listed plant species.

State Listed Species

Similar to the SJKF and TKR discussed in the section for federally listed species above, potential for impacts on the American badger and Tulare grasshopper mouse will be reduced by requiring a qualified biologist to conduct focused preconstruction surveys concurrent with those being conducted for other special status species. If no potential or occupied badger dens are found during the pre-construction survey, then no further mitigation is required; if dens are found, additional measures would be implemented consistent with Environmental Commitment TERR-7 (American Badger), as summarized in Section 2.2 and described in detail in Appendix A of this EA. Project activities are not expected to disturb or remove existing dens because project activities would be limited to areas that experience various forms of anthropogenic disturbance that likely preclude

denning behavior in the vicinity. Implementation of TERR-7 would minimize the potential adverse impact.

As described in Section 3.3.1 and Attachment 2 to Appendix D of this EA, there is a low potential for Crotch's bumble bee to occur within staging areas within the AA. Should nest sites occur in the project work areas during construction activities, the nests could potentially be disturbed or destroyed, resulting in an adverse impact. To reduce the potential for adverse impacts, as described in Environmental Commitment TERR–1 in Appendix A of this EA, a qualified biologist will conduct protocol-level surveys, consistent with the CDFW *Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species* (2023). Implementation of TERR-1, would minimize the potential impacts of construction activities on Crotch's bumble bee.

As discussed in Section 3.3.1 and Attachment 2 to Appendix D of this EA, four state protected reptiles have the potential to occur within the AA. Impacts to California glossy snake, coast horned lizard, Northern California legless lizard, and San Joaquin coachwhip would be minimized through the implementation of TERR-2 (as summarized in Section 2.2 and described in detail in Appendix A of this EA). Although the implementation of TERR-2 has the potential to impact these state-listed species through the potential relocation process, it is expected that these species have a minimal potential to occur and only a small number of individuals may need to be relocated. Therefore, impacts from TERR-2 would not reach a significant level. Should handling or relocation be required, CDFW will be contacted to advise on additional measures that may be incorporated to reduce potential impacts on these species.

As discussed in Section 3.3.1 and Attachment 2 to Appendix D of this EA, three state-protected bird species have the potential to occur within the study area. Of these three species, the study area only supports nesting/burrowing habitat for the burrowing owl. As described in Environmental Commitment TERR-3 (Nesting Bird Surveys) in Appendix A of this EA, a qualified biologist will conduct pre-construction surveys. In addition to these pre-construction surveys, protocol presence/absence surveys will be conducted during the burrowing owl breeding period (February 1 through August 31), as detailed in TERR-4 (Burrowing Owl) in Appendix A of this EA. Therefore, with the implementation of TERR-3 and TERR-4, potential impacts to nesting/burrowing habitat for burrowing owl would be minimized. Swainson's hawk and white-tailed kite have the potential to occur in the study area only transiently while foraging or dispersing. Construction and installation activities would result in a temporary reduction in available foraging habitat. The existing habitat within the project sites that would be affected is of a very low quality and is surrounded by large expanses of greater quality foraging habitat. Therefore, construction activities under the proposed action would have short-term, minimal adverse impacts on foraging habitat for all bird species.

Similar to Kern mallow and San Joaquin woollythreads, impacts to four state-protected special status plant species (alkali mariposa-lily, California satintail, recurved larkspur, and subtle orache) would be minimized through the implementation of Environmental Commitment TERR-8 (as summarized in Section 2.2 and described in detail in Appendix A of this EA).

The potential for direct impacts on common and state listed plant and wildlife species occupying the AA through interactions with construction equipment or personnel would also be minimized with the implementation of Environmental Commitment TERR-9 (Construction Contractor Environmental Awareness Training and Site Protection Measures), as described in detail in Appendix A of this EA. This measure would require all construction personnel to attend an environmental education program delivered by a USFWS- and CDFW-approved biologist prior to starting work. The training will include an explanation of how to identify each protected species with potential to occur and how to avoid the incidental take of protected plants and wildlife. Additional topics to reduce the potential for effects on protected species would also be covered during the training. Based on the preceding analysis, and with the implementation of Environmental Commitments TERR-1 through TERR-8, construction of the proposed action would have a minimal potential adverse impact on state protected plants and terrestrial wildlife.

As discussed in Section 3.3.1 and Attachment 2 to Appendix D of this EA, the Kern Brook lamprey has the potential to occur within the FKC during construction activities. However, construction of the proposed action would be short-term (four staff working a total of 160 hours at Shafter Check Structure and four staff working a total of 180 hours, and approximately 1 day to install each seasonal pump-back structure) and installation actions would not require dewatering or drawdown of canal waters. Although installation of the metal pump frames may cause minor changes in turbidity and flow within the canal during construction, these slight variations in turbidity and flow would be expected to fall within the normal range of conditions within the canal and would not affect movements of aquatic species. Ground disturbance for the installation of permanent power would include trenching for electrical conduits and the addition of concrete foundation pads for the electrical panels. Implementation of HAZ-1 would reduce the potential for erosion and the accidental release of pollutants to the FKC. Therefore, construction actions under the proposed action would have minimal potential adverse impacts on the Kern Brook lamprey.

Migratory Birds and Eagles

No suitable nesting trees for migratory birds or bald eagles occur within the AA; however, there are scrubland and grassland habitats in the AA that could support nesting

migratory birds. Additionally, the canal infrastructure could be used for nesting habitat, such as the active cliff swallow nests that were observed during the May 2025 site visit. Should nesting birds occur during project activities, they could be harmed or disturbed during construction. These impacts could be adverse. However, construction would be conducted outside of nesting bird season (February 1 through September 15) to the extent practicable. If the nesting season cannot be avoided, a qualified biologist would be on-site during any activities that have the potential to impact migratory birds. The qualified biologist would also conduct pre-construction nesting bird surveys and establish no-disturbance buffers around any active nests discovered, as outlined in Environmental Commitment TERR-3. If establishment of the required no-disturbance buffers is not practicable, FWA will coordinate with CDFW and/or USFWS to identify alternative conservation measures to implement to reduce the potential for impacts on migratory birds. Therefore, with implementation of Environmental Commitment TERR-3, construction actions under the proposed action would have minimal potential adverse impacts on migratory birds.

Operation

Operations under the proposed action could result in water levels in the FKC increasing by up to 200 cfs. This fluctuation in water level is comparable to existing fluctuations in the FKC and would not impact the movement of aquatic species (such as the Kern brook lamprey).

Operation and maintenance activities associated with the new seasonal pump-back facilities would not result in significant increases in visual, noise, or other forms of disturbance that could disrupt the normal activity of common or protected wildlife that may occur in the vicinity of the study area. Therefore, the operation of the proposed action would have no impact on wildlife movement or migratory corridors. Additionally, operational activities would not disrupt existing hydrology that may support protected plants, wetlands, riparian areas or sensitive natural communities. Therefore, long-term operations of the proposed action would have minimal impacts on biological resources.

3.3.3 Cumulative Impacts

Cumulative construction related impacts on biological resources would occur if the geographic extent of impacts from other projects were to overlap with areas impacted by the proposed action. Construction actions performed under the proposed action would be conducted in accordance with the environmental commitments as detailed in Appendix A. With implementation of these measures, project-related adverse impacts would be minimal. Of the cumulative projects described in Appendix B of this EA, none would require construction that would occur in the same vicinity and/or timeframe as construction of the proposed action. Therefore, no short-term impacts from construction of cumulative projects are expected to occur and the proposed action, in

conjunction with the other cumulative projects, would not result in any cumulatively considerable construction-related adverse impacts to biological resources.

Operational adverse impacts of the proposed action on biological resources would be minimal as previously discussed. Additionally, it is expected that each cumulative project would be required to comply with a suite of laws and regulations protecting and mitigating impacts on biological resources. Therefore, there would be no cumulative operational impacts on biological resources.

3.4 Hazards and Hazardous Materials

3.4.1 Affected Environment

The study area for the evaluation of hazards and hazardous materials comprises the areas where sensitive receptors (schools, hospitals, day care centers, and elder care facilities) could be affected by implementing the proposed action.

3.4.1.1 Hazardous Material Sites

There are no underground storage tanks or hazardous materials sites within 1 mile of the Shafter and Lake Woollomes checks. There is a certified voluntary cleanup site for pesticides 1.5 miles north of the Shafter check (California Department of Toxic Substances Control 2022). Shafter-Minter Field Airport is approximately 1.5 miles southeast of the Shafter check. The Delano Municipal Airport is approximately 3 miles west of the Lake Woollomes check. Both airports are publicly owned and open to the public (AirNav.com 2022). There are no schools or hospitals within 0.25 miles of the project sites. The closest sensitive receptor to the project sites is the Sequoia Elementary School in Shafter, approximately 2.5 miles east of the proposed Shafter check.

3.4.1.2 Valley Fever

Valley fever is an infection caused by a fungus (*Coccidioides*) that grows in the soil. When inhaled, the fungus can affect the lungs, causing respiratory symptoms, fever, cough, chest pain, and tiredness. Valley fever is prevalent throughout the study area. Kern County has the highest reported rates of valley fever in the state (approximately 265 cases per 100,000 people) (California Department of Public Health 2022).

3.4.1.3 Wildfire

The proposed project sites are not located in a California State Responsibility Area for Wildfire Risk and are not in an area considered to be a Fire Hazard Severity Zone (California Department of Forestry and Fire, Office of State Fire Marshal 2022).

3.4.1.4 Evacuation Routes

Kern County does not specify evacuation routes in rural areas; therefore, none are identified near the proposed project sites. The Shafter and Lake Woollomes checks are close to major roads listed in the Kern County General Plan Circulation Element (Kern County 2009) and include Highway 99, State Route (SR) 46, and SR 43. In the study area, all roads leading from Shafter and Lake Woollomes, checks to Highway 99, SR 46, and SR 43 would be potential evacuation routes.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Under the no action alternative, no new facilities would be constructed; therefore, the use, transport, storage, and disposal of hazardous materials would not be required. No construction or operational impacts related to hazards and hazardous materials would occur. Therefore, there would be no impacts under the no action alternative.

3.4.2.2 Proposed Action

The proposed action would require minimal earthmoving during the installation of permanent power that could temporarily elevate erosion rates on-site. Construction could require the use, transport, storage, and disposal of hazardous materials. As such this impact could be adverse. Environmental Commitment TR-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA) would require the development and implementation of a health and safety plan outlining all applicable Occupational Safety and Health Administration requirements. Environmental Commitment TR-1 would ensure safe use and transport of hazardous material. Therefore, construction activities under the proposed action would have minimal adverse impacts related to the transport, use, or disposal of hazardous materials with implementation of Environmental Commitment TR-1.

As discussed in Section 3.5.1, Valley fever is prevalent throughout the study area. Soil disturbance during construction activities under the proposed action could result in the release of Valley fever fungal spores, potentially exposing persons, especially those at high-risk, to these pathogens. Because of the localized nature of construction, the proposed action would result in less dust than the extensive, daily agricultural operations that occur throughout the region. In addition, the limited construction duration (approximately 1–2 days for seasonal pump installation and approximately six days for permanent power installation) under the proposed action would further limit exposure. Furthermore, construction actions would comply with local regulations, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII, regarding fugitive dust to minimize temporary emissions.

Under the proposed action, the use, storage, handling, or disposal of hazardous materials could result in the accidental release of pollutants, exposing people and the environment to hazardous materials. As such this impact could be adverse. Implementation of Environmental Commitment HAZ-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA) would reduce these impacts. Therefore, with implementation of mitigation, construction actions under the proposed action would have minimal potential adverse impacts related to creating a significant hazard to the public or the environment through reasonably foreseeable accidental release of hazardous materials, including exposure to Valley fever.

3.4.3 Cumulative Impacts

Construction and operation of the proposed action would use equipment that would require the use of motor oil, gasoline, diesel fuel, solvents, and degreasers that, if spilled, could result in an impact. This impact would be reduced through the implementation of Environmental Commitments HAZ-1 and TR-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA). Construction and operational activities under the cumulative projects presented in Appendix B of this EA would also use equipment that would require the use of motor oil, gasoline, diesel fuel, solvents, and degreasers. It is expected that each of the cumulative projects would also be required to implement mitigation measures and environmental commitments to reduce impacts associated with hazards and hazardous materials. Therefore, the proposed action would not have a cumulative adverse impact on hazards and hazardous materials.

3.5 Hydrology and Water Resources – Surface Water

3.5.1 Affected Environment

The study area is in the Tulare Lake Hydrologic Region, specifically in the Tulare-Buena Vista Lakes watershed. This essentially closed basin is situated in the topographic horseshoe formed by the Diablo and Temblor Ranges to the west, by the San Emigdio and Tehachapi Mountains to the south, and by the Sierra Nevada to the east and southeast (Central Valley Water Board 2018). Surface water from the Tulare Lake Hydrologic Region drains north into the San Joaquin River only during years of extreme rainfall. Friant Dam is on the San Joaquin River, 25 miles northeast of Fresno where the San Joaquin River exits the Sierra Nevada foothills and enters the valley. The drainage basin is 1,676 square miles with an average annual runoff of 1.77 million acre-feet.

Friant Dam provides flood management on the San Joaquin River, provides downstream releases to meet senior water right requirements above Mendota Pool, and provides conservation storage and diversion to Friant Contractors along the Madera Canal and the FKC. CVP water from Millerton Lake is delivered to one-million acres of cultivated

land in Fresno, Kern, Madera, and Tulare Counties in the San Joaquin Valley via the FKC, south into Tulare Lake Basin, and via the Madera Canal, north to the Madera Irrigation District and Chowchilla Water District.

The study area includes the FKC and related water infrastructure near the Shafter and Lake Woollomes Check Structures. Figure 3-1 shows the surface water features described in this section.

3.5.1.1 Friant-Kern Canal

The FKC is a 152-mile gravity canal that conveys water from Friant Dam at Millerton Lake south to the Kern River. The FKC is owned by Reclamation and operated and maintained by the FWA under Contract No. 8-07-20-X0356-X with Reclamation. The FKC has a maximum design capacity of 5,300 cfs, gradually decreasing to 2,500 cfs to accommodate conveyance for downstream water demand. Actual canal capacity is lower than design capacity because of increased canal surface roughness with age, vegetation in canal sections, localized seepage through embankments, and regional land subsidence.

Generally, water in the FKC is CVP water supplied from Millerton Lake for delivery to Friant Contractors. Water in Millerton Lake is generally high quality with low turbidity, high dissolved oxygen, and low concentrations of total dissolved solids (TDS), nitrate, chloride, boron, and other constituents. However, Millerton Lake is listed as impaired in the 2018 Clean Water Act, Section 303(d) for mercury, and is included in the Statewide Mercury Control Program for Reservoirs (SWRCB 2017). In addition to supplies from Millerton Lake, CVP and approved non-CVP water supplies from south-of-Delta facilities, the Kern River, and water banking projects are conveyed via the CVC and delivered to the FKC through the Intertie at the terminus of the FKC. Approved non-CVP groundwater is pumped into the FKC at various locations for conveyance to Friant Contractors. The CVP and approved non-CVP water is then pumped upstream over check-structures to contractor turnouts along the FKC. Water users may also conduct water supply exchanges and/or operational exchanges to manage differences in timing and location of water sources and facilitate deliveries.

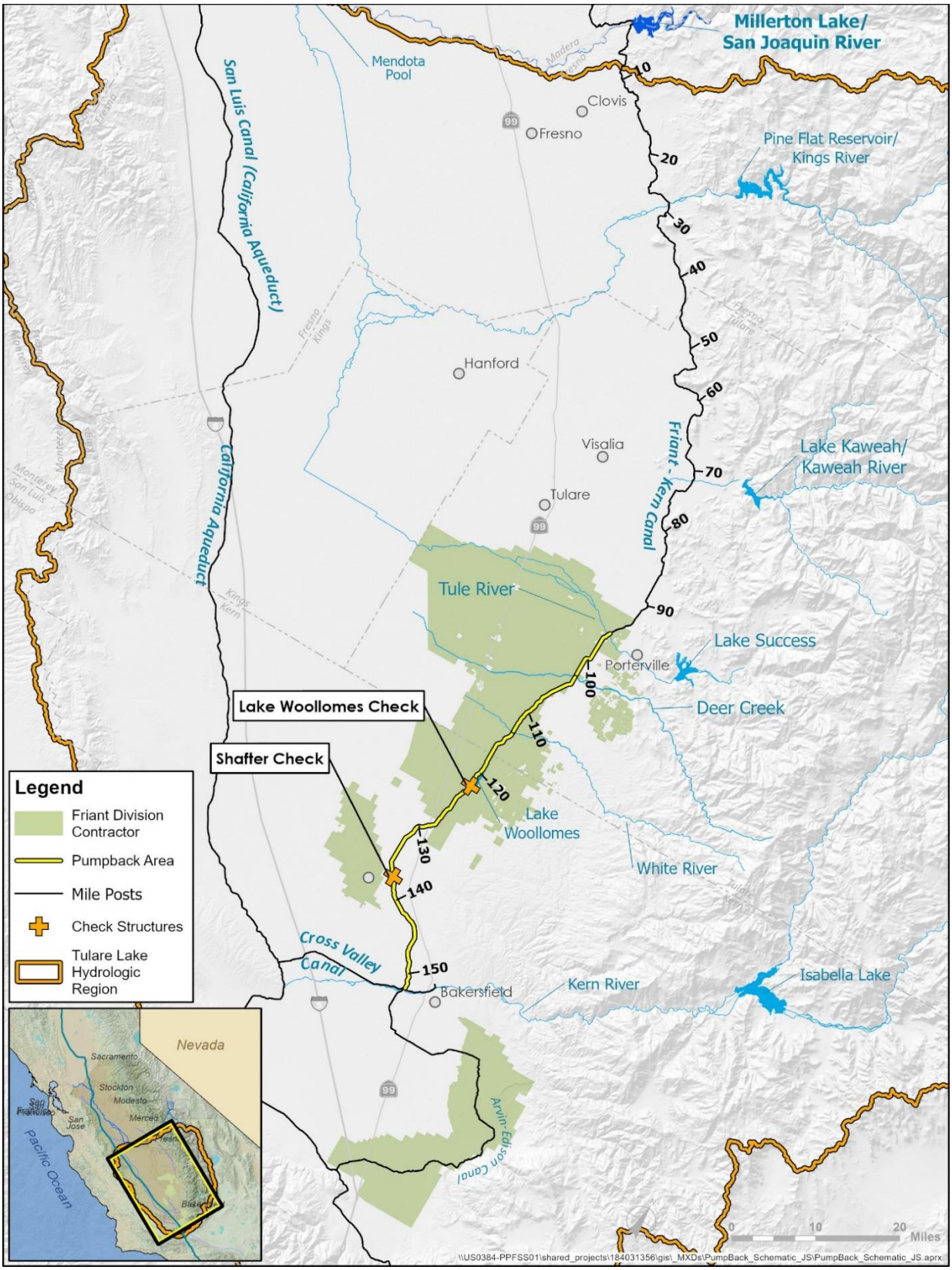


Figure 3-1. Surface Water Hydrology Features in the Study Area

Reclamation does not differentiate between the sources of CVP water in the FKC (e.g., Millerton Lake CVP water versus non-Millerton CVP water). However, water from non-CVP sources is required to meet Reclamation's then-current water quality standards prior to introduction into the FKC. In addition to Reclamation's then-current water quality standards, FWA has implemented their *Guidelines for Accepting Water into the Friant-Kern Canal* (Friant Water Quality Guidelines) to protect domestic and agricultural beneficial uses within the Friant Division (FWA 2023). These guidelines were developed and adopted to address ongoing water quality concerns by Friant Contractors about the introduction of non-Millerton water into the FKC and were officially adopted under a cooperative agreement by and between FWA, Friant Contractors, and other water users authorized to receive water from or introduce water into the FKC. The Friant Water Quality Guidelines define water quality thresholds that cannot be exceeded and required measures associated with introducing or receiving non-Millerton water and are applicable to all non-Millerton water introduced or diverted into the FKC.

3.5.1.2 Cross Valley Canal and California Aqueduct

The CVC is a privately owned canal operated by the Kern County Water Agency. In addition to other uses and users, the CVC allows water to be conveyed between the California Aqueduct and the FKC for delivery to seven CVP Cross Valley Contractors operating within the east side of the southern San Joaquin Valley. The CVC has a capacity of 1,422 cfs. At their intersection, the CVC and FKC are connected via the Intertie to allow up to 500 cfs to be moved between the CVC and the FKC.

The California Aqueduct is owned and operated by DWR and has a capacity ranging from 8,530 to 13,100 cfs. The California Aqueduct carries water 443 miles from the Banks Pumping Plant in the Sacramento-San Joaquin River Delta to areas in Southern California. The San Luis Canal portion of the California Aqueduct is 102 miles long and is jointly used by Reclamation and DWR to convey water supplies from San Luis Reservoir to near Kettleman City for the CVP and SWP, respectively. The concrete-lined California Aqueduct includes several pumping plants and branches to enable delivery to various agricultural and urban contractors.

Water quality in the California Aqueduct and CVC is subject to fluctuations in water quality in the Sacramento-San Joaquin River Delta, which in turn are influenced by climate, water quality in the San Joaquin and Sacramento Rivers, and local agricultural diversions and drainage water. Salinity is of particular importance for water quality concerns. Water quality in the CVC is of higher quality in comparison to the water in the California Aqueduct, likely because of dilution of California Aqueduct flows with Kern River flows entering the CVC (Reclamation 2014).

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

Under the no action alternative, no new facilities would be constructed, and reverse-flow pump-back operations would continue using existing infrastructure. There would be no construction-related activities and, as a result, no water quality impacts to water courses in the study area. Introduction of recaptured Restoration Flows directly into the FKC would not occur, but all other non-Millerton water from CVP and approved non-CVP sources would continue to be required to meet Reclamation's then-current water quality standards prior to introduction into the FKC to protect domestic and agricultural uses. In addition, the Friant Water Quality Guidelines would continue to be used by FWA to manage water quality in the FKC.

3.5.2.2 Proposed Action

Construction

As noted in Section 2, the total anticipated ground disturbance is less than 0.25 acres at the Shafter check and less than 0.12 acres at the Lake Woollomes check. Therefore Section 402 of the Clean Water Act would not be triggered. During the construction period, erosion caused by construction of facilities associated with the proposed action that reaches surface waters may cause temporary adverse effects on water quality. Construction activities could also result in the inadvertent discharge of waste petroleum products or other construction-related substances into waterways via stormwater runoff. In addition, chemicals associated with operating heavy machinery would be used, transported, and stored on-site during construction activities. Therefore, the proposed action could result in temporary adverse effects on water quality conditions. Environmental Commitment HAZ-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA) will be implemented by FWA to avoid/reduce potential temporary adverse effects on water quality and sedimentation from construction.

Operation

The proposed action would result in an increase of non-Millerton CVP water entering the FKC, when available, because the expanded pump-back facilities at the Shafter and Lake Woollomes Check Structures would increase pump-back capacity. This would result in an increase of non-Millerton water moving up the FKC, including recaptured Restoration Flows from south-of-Delta facilities. Non-Millerton CVP water discharged into the FKC would continue to be required to meet Reclamation's then-current water quality standards prior to introduction into the FKC. Furthermore, non-Millerton water quality concerns will also be addressed pursuant to the Friant Water Quality Guidelines by and between parties authorized to receive water from or introduce water into the

FKC. Therefore, the proposed action would not create an adverse effect on surface water quality in the FKC.

The proposed action would not result in operational changes or affect water quality in the California Aqueduct or CVC because water would not be released from the FKC into the California Aqueduct or CVC as part of this proposed action.

3.5.3 Cumulative Impacts

Construction activities associated with the proposed action could result in temporary and localized degradation of surface water quality. Environmental Commitment HAZ-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA), would be implemented by FWA to avoid/reduce impacts. Operation of the proposed action would be subject to then-current Reclamation water quality standards and the Friant Water Quality Guidelines, and as such, would not violate water quality standards or waste discharge requirements.

Many of the cumulative projects, as described in Appendix B of this EA, are likely to result in construction- and operation-related changes to water quality and quantity of available surface water supplies in the region. Each of the cumulative projects presented in Appendix B of this EA would implement environmental commitments, mitigation measures, and/or best management practices, when required, and would be subject to the water quality standards and/or waste discharge requirements to reduce construction-related effects on water quality. Additionally, operation of any cumulative projects that introduce supply directly into the FKC would be subject to water quality standards, including the then-current Reclamation water quality standards, the Friant Water Quality Guidelines, and other local, state, and federal regulations, which would ensure that their operational impacts would not adversely affect water quality conditions.

3.6 Hydrology and Water Resources – Groundwater

3.6.1 Affected Environment

The proposed action is in a portion of the San Joaquin Valley Groundwater Basin that lies within the Tulare Lake Hydrologic Region. The most recent DWR groundwater update reports that the Tulare Lake Hydrologic Region uses more than twice the volume of groundwater than any other region in the state, averaging about 8.1 million acre-feet annually (DWR 2021). DWR estimates that groundwater in the San Joaquin Valley has fallen by more than 100 feet below historic levels, partially resulting from the groundwater withdrawal rate that is faster than the rate of natural basin recharge (Mettler 2016). The use of groundwater to irrigate crops throughout the San Joaquin

Valley increased rapidly from the 1920s until the mid-1960s. Subsequently, land subsidence of 12 feet to 16 feet throughout the Tulare Lake Hydrologic Region resulting from deep compaction of fine-grained units, occurred in the Tule Groundwater Subbasin (DWR 2004; Ireland et al. 1984). During the past 50 years, each successive drought period has resulted in an increase in groundwater pumping that has caused the water table to drop significantly. More recently, regional land subsidence from May 2015 to September 2016 lowered the land surface elevation by as much as 25 inches (National Aeronautics and Space Administration 2016 as cited in Reclamation and FWA 2020).

The study area specifically overlies the Tule Groundwater Subbasin (5-022.13), Kern County Groundwater Subbasin (5-022.14), and White Wolf (Subbasin 5-022.18) (Figure 3-2). Tule and Kern County Groundwater Subbasins are both considered critically over drafted and designated as high priority under Sustainable Groundwater Management Act. Local Groundwater Sustainability Agencies have developed and implemented Groundwater Sustainability Plans for each of these subbasins and are required to achieve their sustainability goals by 2040.

3.6.1.1 Groundwater Quality

Salinity, measured as TDS, along with boron, chloride, and sodium, are the primary constituents of consideration for agricultural beneficial uses, and nitrate and organic compounds are primary constituents of consideration for municipal beneficial uses. Salinity, if accumulated at critical concentrations and not managed properly at the rootzone depth, can impact crops and agricultural production (Ayers and Westcot 1985). Because of the closed nature of these subbasins, any incremental addition of constituent concentrations in surface water for irrigation may contribute to long-term salt and nitrate loading in the groundwater aquifers.

Under the authority of the Central Valley Regional Water Quality Control Board, Salt and Nitrate Control Programs, developed and submitted under the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative, were incorporated into the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) in 2018 – herein referred to as Salt and Nitrate Control Program Basin Plan Amendments. The Basin Plan establishes annual allowable increases in electrical conductivity for each groundwater hydrographic unit in the basin. The allowable increases, as converted to TDS equivalents, are 3.2 mg/L/yr for the Kern River Hydrographic Unit and 3.84 mg/L/yr for the Tule River/Poso Hydrographic Unit. California agricultural water quality goals set the protective criteria for chloride at 106 mg/L and boron at 0.7 mg/L (Ayers and Westcot 1985). Nitrate concentration of 10 mg/L is set by the California Drinking Water Primary maximum contaminant level and applies to all groundwater basins that are designated with the municipal and domestic supply beneficial use.

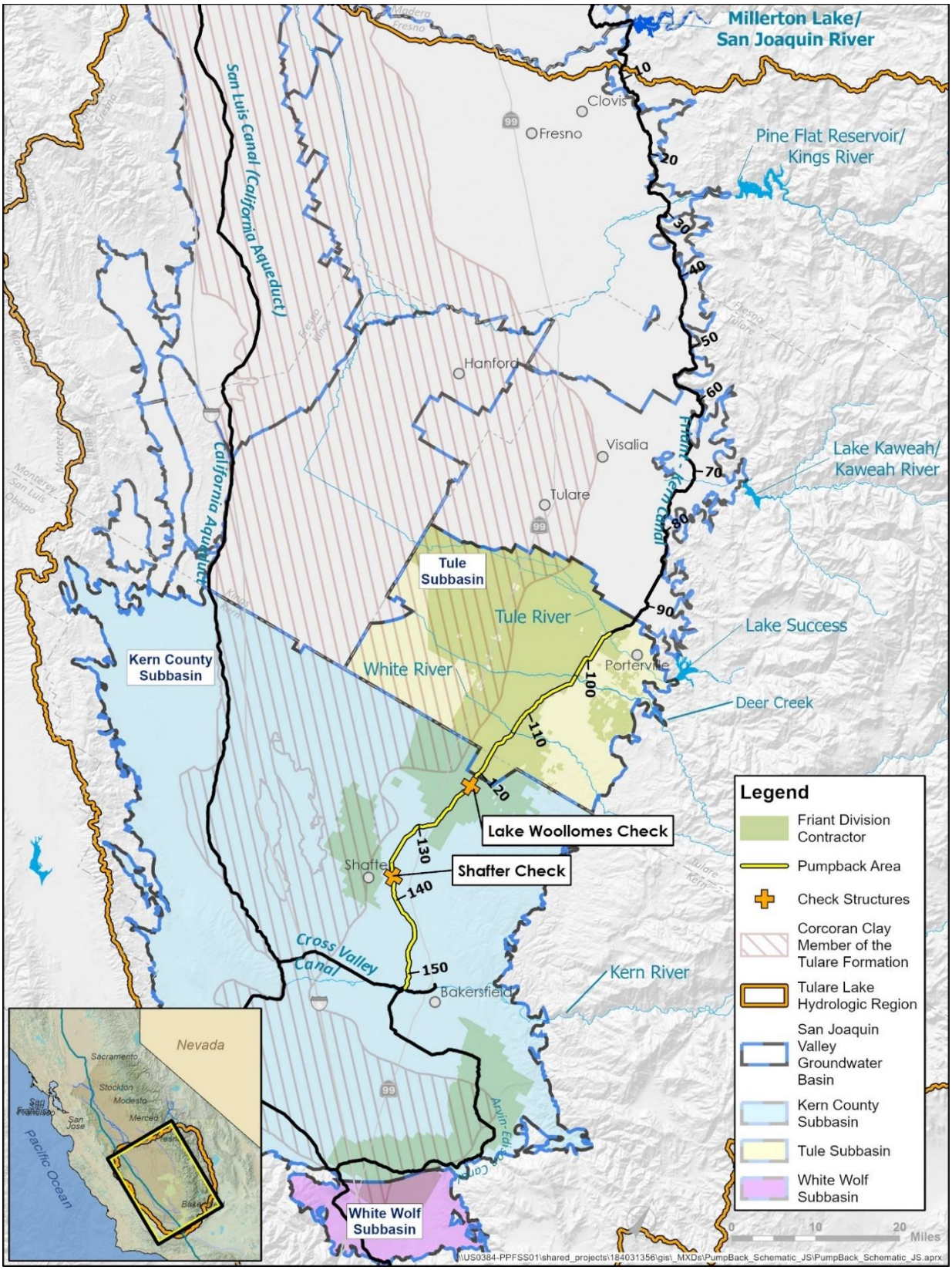


Figure 3-2. Groundwater Subbasins within the Study Area

Table 3-2 shows the groundwater quality conditions for each water district within the study area as of November 2021. Conditions for both the upper aquifer and lower aquifer units are provided to show groundwater quality variance with depth. Districts in the southern portion of the study area, Arvin-Edison Water Storage District (AEWSD), Shafter-Wasco Irrigation District (SWID), South San Joaquin Municipal Utilities District (SSJMUD) and Kern-Tulare Water District (KTWD), show higher concentrations of total dissolved solids, while nitrate concentrations are higher in the more northern districts. Constituent concentrations in some areas exceed criteria for designated agricultural and municipal beneficial uses.

3.6.2 Environmental Consequences

Chapter 5 and Appendix F of the Draft and Final EIR (FWA 2024; FWA 2025) describe and document, in detail, each tool, analysis assumption, and simulated results of analyses related to groundwater resources in the study area. The environmental consequences described herein are based, in part, on information presented in the Draft and Final EIR. It is important to note that the proposed action in this EA is defined as the "Seasonal Alternative" in the Draft and Final EIR, and the no action alternative in this EA is defined as the "No Project Alternative" in the Draft and Final EIR. As noted in Chapter 5 and Appendix F of the Draft and Final EIR, simulations for the "Seasonal Alternative" are consistent with simulations for the "Low Flow Alternative" (FWA 2024; FWA 2025), which are included by reference in this EA.

3.6.2.1 No Action Alternative

There would be no construction-related activities, and therefore, there would be no effects on groundwater supplies or groundwater quality within the study area.

Chapter 5 and Appendix F of the Draft and Final EIR (FWA 2024; FWA 2025) provide simulated concentrations of TDS, chloride, boron, and nitrate in the upper aquifer for the no action alternative, as summarized below.

Simulated results of TDS concentrations and annual rates of change in TDS concentrations in groundwater would vary across districts under the no action alternative (see Table 5-8 in Draft and Final EIR). The simulated average annual rate of change in TDS concentration in groundwater across districts would not exceed the TDS rate of change threshold over the simulation period. During the 50-year analysis period, simulations show that there would be periodic increases of TDS concentrations, which would result in the maximum 5-year average annual rate of change exceeding the threshold in many districts. These periodic exceedances occur largely during dry periods with higher amounts of groundwater pumping. The simulated average annual rate of change in TDS concentration in groundwater throughout the 50-year simulation period under the no action alternative is less than the specified threshold for all districts.

However, because the simulated maximum 5-year average annual rate of change in TDS concentration in groundwater is higher than the specified threshold for several districts, beneficial uses could be affected.

Table 3-2. 2021 Groundwater Quality Conditions by District

Constituent Concentration (mg/L)	District										
	AEWSD	DEID	KTWD	LTRID	Pixley ID	TPDWD	Porterville ID	Saucelito ID	TBID	SSJMUD	SWID
Upper Aquifer											
Total dissolved solids	454	277	632	284	193	400	638	363	335	875	807
Nitrate (as Nitrogen)	8	9	5	16	10	20	15	10	27	9	9
Chloride	28	7	0.2	42	35	7	28	23	0.9	11	6
Boron	0.16	0.00	0.00	0.12	0.02	0.00	0.01	0.00	0.00	0.01	0.37
Lower Aquifer											
Total dissolved solids	767	268	447	289	197	271	227	236	247	554	465
Nitrate (as Nitrogen)	7	9	7	11	8	24	5	6	8	10	10
Chloride	33	29	38	24	32	18	12	20	23	29	28
Boron	0.71	0.06	0.11	0.12	0.05	0.04	0.10	0.04	0.08	0.04	0.04

Note: Groundwater quality data used to assign initial concentrations for the upper and lower aquifer zones are presented in Table 3-8 in the Draft and Final EIR (FWA 2024; FWA 2025) and are based on publicly available data and supplemented by district-provided groundwater quality data, as needed.

Key: AEWSD – Arvin-Edison Water Storage District; DEID – Delano-Earlimart Irrigation District; ID – Irrigation District; KTWD – Kern-Tulare Water District; LTRID – Lower Tule River Irrigation District; mg/L – milligrams per liter; SSJMUD – Southern San Joaquin Municipal Utility District; SWRCB – State Water Resources Control Board; SWID – Shafter-Wasco Irrigation District; TBID – Terra Bella Irrigation District; TPDWD – Tea Pot Dome Water District; USGS – U.S. Geological Survey

Simulated results of monthly concentrations of chloride and boron for all 11 water districts within the project area did not exceed thresholds under the no action alternative.

As shown in Table 3-2 herein and Table 5-9 in the Draft and Final EIR (FWA 2024; FWA 2025), starting concentrations of nitrate are higher than the 10 milligrams per liter (mg/L) threshold in five of the 11 districts (note that concentrations presented in Table 3-2 herein are rounded when compared to values presented in Table 5-9 in the Draft and Final EIR [FWA 2024; FWA 2025]). Concentrations of nitrate in groundwater under the no action alternative show steady decreases in nine of the 11 districts during the simulation period (see Table 5-9 in the Draft and Final EIR [FWA 2024; FWA 2025]). Because starting concentrations of nitrate in groundwater for several districts are well above the 10 mg/L threshold, and nitrate concentrations exceeded the 10 mg/L threshold over the simulation period for some districts, groundwater beneficial uses could be adversely affected within some districts under the no action alternative. However, nitrate concentrations in groundwater generally decrease under the no action alternative for most districts during the simulation period.

Concentrations of other constituents of consideration for drinking water beneficial uses (e.g., arsenic, hexavalent chromium, 1,2-dibromo-3-chloropropane (DBCP), pesticides, selenium, 1,2,3, trichloropropane (1,2,3-TCP) currently exceed Title 22 limits. For certain districts, concentrations of these other constituents of consideration under the no action alternative are expected to remain at current concentrations, some of which exceed Title 22 limits, which could affect beneficial uses.

Implementation of state and/or local control programs may improve groundwater quality conditions under the no action alternative. More specifically, TDS and nitrate concentrations under the no action alternative could be reduced through continued implementation of the Salt and Nitrate Control Program Basin Plan Amendments and/or execution of management actions specified in relevant Groundwater Sustainability Plans (GSPs), when implemented. Other actions could be taken by districts to manage the quality of their groundwater.

Under the no action alternative groundwater quality conditions for some constituents would continue to exceed established groundwater quality thresholds even with management programs in place, partly due to elevated concentrations under existing conditions (see Table 3-2 in Section 3.6.1.1).

3.6.2.2 Proposed Action

Construction

Construction activities associated with the proposed action would not require groundwater pumping and therefore would not impact groundwater supplies.

Hazardous materials used during construction or by construction vehicles, if discharged to the land surface, could infiltrate to underlying aquifers and degrade local groundwater quality conditions. Therefore, the proposed action would have the potential to result in temporary adverse effects on groundwater quality conditions. Environmental commitments, specifically HAZ-1, as summarized in Section 2.2 and described in detail in Appendix A of this EA, will be implemented by FWA to avoid/reduce potential temporary adverse effects on groundwater quality from construction.

Operation

Groundwater Supply

Additional surface water deliveries from the California Aqueduct and/or through the CVC into the FKC to Friant Contractors are anticipated under the proposed action. This includes direct deliveries of recaptured Restoration Flows and other non-Millerton water from CVP and approved non-CVP sources. As a result, operations under the proposed action would result in an increase in available surface water supplies, resulting in potential decreases in groundwater pumping within most of the districts. These additional surface water deliveries would either contribute to groundwater recharge or result in reduced groundwater pumping, as compared to the no action alternative (see Table 5-13 in the Draft and Final EIR [FWA 2024; FWA 2025]).

Water Quality

Operations under the proposed action could affect groundwater quality conditions within some of the districts in the action area, as described in Chapter 5 and Appendix F of the Draft and Final EIR (FWA 2024; FWA 2025). Simulated concentrations of TDS, chloride, boron, and nitrate in the upper aquifer for the proposed action are summarized below. Also included below are comparisons of simulated results and effects under the proposed action and no action alternative. Specific differences between the proposed action and the no action alternative vary from district to district and can be attributed to: (1) existing groundwater quality conditions, (2) the simulated volume and quality of water delivered from the FKC which ultimately recharges the aquifer, and (3) the simulated volume of groundwater pumped to meet water demands not met through simulated water deliveries from the FKC.

Simulated results of TDS concentrations and annual rates of change in TDS concentrations in groundwater vary across districts. Under the proposed action, the simulated average annual rate of change would not exceed the threshold for 10 of the 11 districts (see Table 5-11 in Draft and Final EIR [FWA 2024; FWA 2025]). However, for Terra Bella Irrigation District (TBID), the TDS concentrations in groundwater would increase at a rate that exceeds the specified average annual rate of change threshold. In addition, similar to the no action alternative, simulations suggest that there would be periodic increases of TDS concentrations during the 50-year study period, which would result in the 5-year average annual rate of change exceeding the threshold in many districts. These periodic exceedances occur largely during dry periods with higher amounts of groundwater pumping. The simulated average annual rate of change in TDS concentration in groundwater throughout the 50-year simulation period under the proposed action alternative is less than the specified threshold for all districts, except TBID. Because the simulated average annual rate of change in TDS concentration in groundwater exceeds the specified significance threshold for one district, and several districts have simulated maximum 5-year average annual rate of change above the threshold, beneficial uses could be affected.

Same as the no action alternative, simulated results of monthly concentrations of chloride and boron for all 11 water districts did not exceed thresholds under the proposed action.

As shown in Table 3-2 herein and Table 5-12 in the Draft and Final EIR (FWA 2024; FWA 2025), starting concentrations of nitrate are higher than the 10 mg/L threshold in five of the 11 districts (note that concentrations presented in Table 3-2 herein are rounded when compared to the values presented in Table 5-12 in the Draft and Final EIR [FWA 2024; FWA 2025]). Similar to the no action alternative, concentrations of nitrate in groundwater show steady decreases in nine of the 11 districts during the simulation period (see Table 5-12 in the Draft and Final EIR [FWA 2024; FWA 2025]). However, because several districts have existing and simulated concentrations above the threshold, beneficial uses could be affected.

Operations under the proposed action are not anticipated to adversely affect concentrations of other constituents of consideration for drinking water beneficial uses (e.g., arsenic, hexavalent chromium, DBCP, pesticides, selenium, 1,2,3-TCP) which currently exceed Title 22 limits. This is because additional surface water deliveries are anticipated under the proposed action, which may contribute to groundwater recharge and/or a reduction of local groundwater pumping and, potentially, a decrease in concentrations of constituents of consideration for drinking water beneficial uses in the upper aquifer, if present. However, even with increased surface water supplies,

concentrations of constituents of consideration are expected to continue to exceed Title 22 limits.

Implementation of state and/or local control programs may improve groundwater quality conditions under the Proposed Action. More specifically, TDS and nitrate concentrations under the proposed action could be reduced through continued implementation of Salt and Nitrate Control Program Basin Plan Amendments and/or execution of management actions specified in relevant Groundwater Sustainability Plans (GSPs), when implemented. Other actions could be taken by districts to manage the quality of their groundwater.

Similar to the no action alternative, groundwater quality conditions for some constituents are expected to continue to exceed established groundwater quality thresholds even with management programs in place, partly due to elevated concentrations under existing conditions (see Table 3-2 in Section 3.6.1.1).

3.6.3 Cumulative Impacts

Construction activities associated with the proposed action could result in adverse and localized degradation of groundwater quality. Environmental commitments, specifically HAZ-1 (as summarized in Section 2.2 and described in detail in Appendix A of this EA), would be implemented by FWA to avoid/reduce impacts. Each cumulative project presented in Appendix B of this EA would be required to implement mitigation measures and/or best management practices to reduce construction-related effects on groundwater quality. With implementation of environmental commitments and adherence to regulatory requirements, the construction of the proposed action in combination with the cumulative projects described in Appendix B of this EA would not contribute to cumulatively considerable impacts on groundwater quality conditions or supplies.

Operations of the proposed action are expected to affect groundwater quality conditions. Implementation of Salt and Nitrate Control Programs in the Basin Plan and local Groundwater Sustainability Plans are intended to improve groundwater quality conditions in the region. However, due to elevated concentrations of TDS, nitrate, and constituents of consideration present in groundwater within the study area, groundwater quality conditions under operations of the proposed action may continue to be impaired. Many of the cumulative projects described in Appendix B of this EA are likely to alter groundwater conditions in the study area indirectly through changes in volume and water quality conditions of available surface water supplies and directly through changes in management of groundwater resources in the region. These cumulatively considerable impacts on groundwater quality under operations for the

proposed action are anticipated to be similar to the effects that would occur under the no action alternative.

Operations of the cumulative water supply projects described in Appendix B of this EA would result in an increase in available surface water supplies and would support conjunctive use activities within the study area, potentially decreasing groundwater pumping, resulting in beneficial effects. Operations of the proposed action in combination with the cumulative projects described in Appendix B of this EA would not contribute to cumulatively considerable impacts on groundwater supply.

3.7 Noise

3.7.1 Affected Environment

The study area for the evaluation of noise and vibration comprises areas where project construction and operation would occur, including the Shafter and Lake Woollomes checks (Kern County).

The predominant land use near the Lake Woollomes and Shafter checks is related to agricultural activities. Activities associated with land preparation, harvesting, and transporting of crops contribute to the existing noise and vibration environment near the two sites. Typical heavy off-road equipment used for agricultural activities include tractors, harvesters, bailers, tillers, and seeders. Overflights from crop spraying also occur over agricultural land uses.

Vehicular traffic is also a contributor to background noise and vibration in the study area. Railroad and aeronautical noise sources also exist around the Shafter and Lake Woollomes checks and are included in the background ambient noise and vibration condition. These rail and aeronautical noise and vibration sources are, however, at distances greater than 0.5 miles from the construction areas, which limits their contribution to the background noise and vibration levels experienced by identified sensitive receptors.

The closest location of sensitive receptors to the center of construction are residences approximately 8,110 feet from Shafter and approximately 2,800 feet from Lake Woollomes. At these locations, the estimated noise level is a daytime average level of 40 A-weighted decibels (dBA) and a nighttime average level of 30 dBA, based on the U.S. Environmental Protection Agency (EPA) *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA 1974).

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the no action alternative, ambient noise levels would be the same as existing conditions, as neither construction activities nor increased operational activities would occur. Therefore, there would be no impacts under the no action alternative.

3.7.2.2 Proposed Action

Construction

The installation and removal of the seasonal pumps under the proposed action would require the use of a deck truck and crane and be limited to a single day at each site. If permanent power is installed, a utility tractor and mining excavator would be required with four staff working approximately six days. The peak particle velocity for construction activities under the proposed action would not exceed the significance threshold of 0.3 in./sec (Table 13 in Appendix E of this EA). Additionally, noise levels at the residence on Fresno Ave would not exceed the daytime significance criterion of a 10 dBA increase during construction activities. The residence on Pond Road would exceed the daytime significance criterion during installation/removal of the seasonal pumps as well as installation of permanent power (Tables 2 and 3 in Appendix E of this EA). Although noise levels would increase above the daytime criterion, this increase would only be for a short period. As such, the short-term use of construction equipment under the proposed action would be temporary and consistent with the existing noise setting discussed in Section 3.7.1. No nighttime construction is proposed under the proposed action. Therefore, construction activities under the proposed action would not generate a substantial temporary increase in noise or vibration. As such, the proposed action would have a minimal potential impact to noise and vibration.

Operation

No long-term project operations would occur that could generate vibrations or ground-borne noise or otherwise expose persons to such impacts. Noise associated with operation of the seasonal pump-back facilities and diesel-powered generators at the Shafter and Lake Woollomes checks would not exceed the 65 dBA Kern County threshold (Tables 5 and 6 in Appendix E of this EA). Operating the proposed action would not generate a substantial permanent increase in noise or vibration levels and therefore, operation of the proposed action would have minimal adverse effects to noise and vibration.

3.7.3 Cumulative Impacts

While the construction activities proposed under the cumulative projects presented in Appendix B of this EA require the use of construction equipment and vehicles, which

may contribute to an increase in ambient noise levels, the cumulative projects would not occur in the same vicinity and/or timeframe as construction of the proposed action. Noise increases during construction of the proposed action would be temporary and consistent with the existing noise setting, resulting in minimal adverse impacts. No nighttime construction is proposed under the proposed action. Therefore, the proposed action's incremental contribution to cumulative impacts for temporary noise impacts would not be considered cumulatively adverse.

Operation of the proposed action would not have significant permanent noise-related impacts. Therefore, the proposed action's incremental contribution to cumulative impacts for permanent noise-related impacts would not be considered cumulatively adverse.

3.8 Air Quality

3.8.1 Affected Environment

3.8.1.1 Criteria Air Pollutants

Air quality in California is regulated nationwide by the EPA, statewide by the California Air Resources Board (CARB), and locally by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

For evaluating air quality, the study area encompasses the area where air quality could be affected from implementing the proposed action, specifically, the immediate areas of the proposed project sites to which the public has general access (i.e., ambient air areas), and the broader region of the San Joaquin Valley Air Basin (SJVAB). Under the authority of the Clean Air Act (CAA), EPA sets National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health—ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM) (including PM that is less than 10 micrometers in diameter [PM_{10}] and fine particulate matter less than 2.5 micrometers in diameter [$PM_{2.5}$])—with the purpose of limiting pollutant concentrations considered harmful to public health and protecting the environment (including animals, crops, climate, vegetation, and visibility). Fugitive dust, which is considered a component of PM, can also affect air quality. Fugitive dust is released into the air by wind or human activities and can have human and environmental health impacts.

In the SJVAB, O_3 and $PM_{2.5}$ are pollutants of concern because ambient concentrations of these pollutants exceed the NAAQS, while PM_{10} concentration recently attained the NAAQS and the status is designated as maintenance. Table 3-3 summarizes the

attainment status for the western portion of Kern County, which is the location of the Shafter and Lake Woollomes seasonal pump-back sites under the proposed action.

Table 3-3. Federal Attainment Status of Criteria Pollutants

County	CO	Pb	NO_2	O_3	PM_{10}	$PM_{2.5}$	SO_2
Kern[1]	A	A	A	N[2]	M	N[3]	A

Sources: 40 Code of Federal Regulations (CFR) 81; EPA 2024a.
Notes:
[1] Only the western portion of Kern County is within the SJVAB. The eastern portion of Kern County is within the Eastern Kern Air Basin. The attainment status shown for Kern County refers to status applicable to the western portion of Kern County, the portion containing the FKC and proposed seasonal pump-back sites.
[2] O_3 classification = extreme (2015 NAAQS); extreme (2008 NAAQS).
[3] $PM_{2.5}$ classification = serious (2012 NAAQS); serious (2006 NAAQS); serious (1997 NAAQS)
Key: A – attainment; CO – carbon monoxide; M – maintenance (area formerly exceeded the ambient air quality standards [i.e., was designated nonattainment], but has since attained the standards); N – nonattainment (background air quality exceeds the ambient air quality standards); NO_2 – nitrogen dioxide; O_3 – ozone; Pb – lead; $PM_{2.5}$ – fine particulate matter; PM_{10} – inhalable particulate matter; SO_2 – sulfur dioxide

The predominant sources of air pollution in the study area are associated with agricultural land uses. Crop cycles, including land preparation and harvest, contribute to pollutant emissions, primarily particulate matter through the release of fugitive dust. When water resources from the FKC are not sufficient to maintain agricultural uses, groundwater pumping is used to supplement water from the FKC. Groundwater pumping with diesel and natural-gas-fueled engines emits air pollutants through exhaust. The primary pollutants emitted by diesel pumps are nitrogen oxides (NO_x), volatile organic compounds (VOCs), CO, PM_{10}, and $PM_{2.5}$, with small amounts of sulfur oxides (SO_x) emitted from the combustion of fuels. NO_x and VOC are considered precursors to O_3, resulting in O_3 formation in the atmosphere through secondary chemistry. Ammonia (NH_3), NO_x, SO_x, and VOC are considered precursors to $PM_{2.5}$.

Actions in nonattainment areas receiving federal funding are subject to conformity regulations (40 CFR Parts 51 and 93). Conformity regulations are designed to ensure that emissions of air pollutants from planned, federally funded activities would not interfere with a State or Tribe's ability to meet the NAAQS, would not increase the frequency or severity of existing NAAQS violations, and would not delay the timely attainment of the NAAQS or interim milestone. As the proposed action is not transportation-related, general conformity applies. General conformity establishes *de minimis* emission rates that apply to nonattainment and maintenance criteria pollutants and their precursors. If a proposed action's emissions are below these *de minimis* emission rates, then the federal action is considered to have a negligible impact on air quality. Table 3-4 presents the applicable *de minimis* rate thresholds (in units of tons per year [tpy]) for the western portion of Kern County.

Table 3-4. De Minimis Emission Rates

County[1]	VOC[2]	CO[3]	NO_x[4]	O_3[5]	PM_{10}[6]	$PM_{2.5}$	SO_x[7]
Kern	10 tpy	n/a	10 tpy	10 tpy	100 tpy	70 tpy	70 tpy

Sources: 40 CFR 93.153(b).
Notes:
[1] There are no significant sources of Pb or NH_3 associated with the proposed action, therefore, these pollutants were not considered in this analysis.
[2] VOC is a precursor compound to O_3 formation and is thus subject to the same *de minimis* rate threshold as O_3.
[3] CO is an attainment pollutant; thus, no General Conformity threshold is applicable. The CAA Major Source threshold of 100 tpy is used for determination of adverse impacts instead.
[4] NO_x is a precursor compound to both O_3 and $PM_{2.5}$ formation. Since the *de minimis* rate threshold for O_3 is lower than that of $PM_{2.5}$, NO_x is thus subject to the same *de minimis* rate threshold as O_3.
[5] There are no direct sources of O_3 associated with the proposed action, therefore O_3 is evaluated through the emissions of its precursors.
[6] PM_{10} is a maintenance pollutant and is therefore subject to a *de minimis* rate threshold of 100 tpy.
[7] SO_2 is a precursor compound to $PM_{2.5}$ formation and is thus subject to the same *de minimis* rate threshold as $PM_{2.5}$.
Key: CO – carbon monoxide; NO_x – nitrogen oxides; O_3 – ozone; $PM_{2.5}$ – fine particulate matter; PM_{10} – inhalable particulate matter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compounds3.10.2 Environmental Consequences

3.8.1.2 Greenhouse Gases

Greenhouse gases (GHGs) are regulated nationwide by the U.S. EPA as air pollutants under the authority of the CAA. GHGs were first regulated by U.S. EPA in 2009, following the U.S. Supreme Court's ruling on *Massachusetts et al. v. U.S. EPA et al.* (2007), establishing that GHGs were air pollutants covered under the CAA. U.S. EPA's 2009 regulation ("Endangerment Finding") identified six key GHGs—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs)—which are emitted from human activities and natural systems into the atmosphere and threaten the public health and welfare of current and future generations. On January 20, 2025, Executive Order 14154 ("Unleashing American Energy") specifically directed the U.S. EPA to submit recommendations on the legality of the Endangerment Finding to the Office of Management and Budget within 30 days of the date of the order. Subsequently, on March 12, 2025, the U.S. EPA announced that it would formally reconsider the Endangerment Finding with agency partners; as of the time of publication, no further action has been taken (EPA 2025).

Agricultural emissions represented approximately 8.0% of California's GHG emissions in 2022 (CARB 2024c). Agricultural emissions represent the sum of emissions from agricultural energy use (from pumping and farm equipment), agricultural residue burning, agricultural soil management (the practice of using fertilizers, soil amendments, and irrigation to optimize crop yield), enteric fermentation (fermentation that takes place in the digestive system of animals), histosols (soils that are composed mainly of organic matter) cultivation, manure management, and rice cultivation.

In the absence of established NEPA GHG quantitative thresholds, the EPA's GHG emission threshold established for the CAA Prevention of Significant Deterioration (PSD) and Title V Major Source programs—100,000 tpy CO_2e for a new source or a 75,000 tpy carbon dioxide equivalent (CO_2e) increase for existing sources (40 CFR 52.21[b][49])—is presented for contextualization of proposed action GHG emissions.

GHG emissions are presented in units of CO_2e, which represents the quantity of CO_2 that would result in the same climate influence as all analyzed GHGs. Of the six GHGs identified in the Endangerment Finding, only three—CO_2, CH_4, and N_2O—are emitted from sources associated with the proposed action (e.g., engine exhaust); therefore, only these pollutants were considered in this analysis. CO_2e emissions are weighted based on the respective 100-year global warming potentials (GWPs)[8] of analyzed GHGs from the Intergovernmental Panel on Climate Change (IPCC) AR5 as specified by the EPA in the 2022 Inventory of U.S. Greenhouse Gas Emissions and Sinks (EPA 2024b).[9]

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

Under the no action alternative, no construction or operational changes would be implemented. Therefore, the no action alternative would result in no adverse impact to air quality or GHGs.

3.8.2.2 Proposed Action

Construction

Construction-related emissions were estimated using emission factors and assumptions from the following sources: OFFROAD web database (CARB 2024a), EMFAC 2021 web database (CARB 2024b), paved road dust emission factors (EPA 2011), and the California Air Pollution Control Officers Association's (CAPCOA's) California Emissions Estimator Model (CalEEMod) User's Guide (CAPCOA 2022). Appendix F of this EA provides detailed information on the criteria air pollutant and GHG emission calculations for off-road construction equipment exhaust; on-road hauling and vendor delivery truck exhaust; and construction worker commute vehicle exhaust. Table 3-5 summarizes the construction-related emissions associated with the proposed action. Table 3-6

[8] GWPs provide a basis for comparing the global warming impacts of various GHGs by measuring how much energy the emission of one ton of a GHG will absorb over a specified time, relative to the emission of one ton of CO_2. The larger a GWP, the more energy a given GHG absorbs over that specific time.

[9] In April 2024 the U.S. EPA's Greenhouse Gas Reporting Program (GHGRP) was updated requiring the use of AR5 GWPs (89 FR 31802). While not specifically prescribed for use in GHG analyses under NEPA, AR5 GWPs are used throughout this analysis for consistency with other Federal programs, assessments, and policies.

summarizes the construction-related GHG emissions associated with the proposed action.

Under the proposed action, *de minimis* rates for criteria pollutants would not be exceeded. Additionally, construction-related GHG emissions would be temporary and relatively small. Therefore, construction of the proposed action would result in no adverse impact to air quality or GHGs.

Table 3-5. Total Construction-Related Emissions Under the Proposed Action

Source	VOCs (tpy)	CO (tpy)	NO_x (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_x (tpy)
Lake Woollomes	<0.01	0.06	0.02	<0.01	<0.01	<0.01
Shafter	<0.01	0.05	0.01	<0.01	<0.01	<0.01
Total Emissions[1]	<0.01	0.10	0.03	<0.01	<0.01	<0.01
Threshold	10	100	10	100	70	70
Exceed *de minimis* Rate Threshold?	No	No	No	No	No	No

Note:
[1] Totals may not add exactly because of rounding.
Key: < – less than; CO – carbon monoxide; NO_x – nitrogen oxides; $PM_{2.5}$ – fine particulate matter; PM_{10} – inhalable particulate matter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compounds

Table 3-6. Total Construction-Related GHG Emissions Under the Proposed Action

Source	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2e (MT/yr)
Lake Woollomes	1	<0.01	<0.01	1
Shafter	1	<0.01	<0.01	1
Total Emissions[1]	3	<0.01	<0.01	3
PSD/Title V Major Source Threshold[2,3]	—	—	—	68,025

Notes:
[1] Totals may not add exactly because of rounding.
[2] The PSD/Title V Major Source threshold is not a quantitative threshold for significance under NEPA but is included to contextualize proposed action GHG emissions relative to previously established annual emission values deemed "significant".
[3] The PSD/Title V Major Source Threshold is 75,000 tons per year, equivalent to 68,025 metric tons per year.
Key: < – less than; CH_4 – methane; CO_2 – carbon dioxide; CO_2e – carbon dioxide equivalent; MT – metric tons; N_2O – nitrous oxide; PSD – prevention of significant deterioration; yr – year

Operation

Under the proposed action, seasonal pump-back facilities would be operated to manage water flows. The seasonal pump-back facilities would either be electrically driven or

powered by portable generators. If electrical driven, no local criteria pollutant emissions would occur during operation; however, regional GHG emissions could indirectly occur at the utilities. If powered by portable diesel generators, seasonal operations-related emissions would occur. Additional operational emissions would occur from on-road equipment delivery vehicles, a crane at the start and end of the seasonal operation period to place and remove the pumps, and daily maintenance worker commute vehicles.

Operations-related criteria air pollutant and GHG emissions were estimated using emission factors and assumptions from the same sources used for the estimation of construction-related emissions. Additionally, electrical utility emission factors from The Climate Registry (TCR) (TCR 2023) were used to estimate indirect GHG emissions from the use of purchased electricity. Table 3-7 summarizes the annual operations-related criteria pollutant emissions under the proposed action (Appendix F of this EA contains detailed calculations). Table 3-8 and Table 3-9 summarize operational GHG emissions associated with the proposed action if grid power or portable generators are used, respectively.

Under the proposed action, *de minimis* rates for criteria pollutants would not be exceeded. Furthermore, operations-related GHG emissions, whether using grid power or using portable generators, would be relatively small. Therefore, operation of the proposed action would result in no adverse impact to air quality or GHGs.

Table 3-7. Annual Operations-Related Emissions Under the Proposed Action

Source	**VOCs (tpy)**	**CO (tpy)**	**NO_x (tpy)**	**PM_{10} (tpy)**	**$PM_{2.5}$ (tpy)**	**SO_x (tpy)**
Lake Woollomes	0.73	5.20	1.85	0.10	0.09	0.02
Shafter	0.36	2.61	0.92	0.05	0.05	0.01
Total Emissions[1,2]	1.09	7.80	2.77	0.16	0.14	0.03
Threshold	10	100	10	100	70	70
Exceed *de minimis* Rate Threshold?	No	No	No	No	No	No

Note:

[1] Totals may not add exactly because of rounding.

[2] The emissions in this table present a conservative analysis of potential environmental impacts based on 24/7 operations of the pumps at Shafter and Lake Woollomes for 12 months. Actual operations of the seasonal facilities would occur when recaptured Restoration Flows and the other sources of water are available. The facilities would generally be taken offline outside of the irrigation season.

Key: < – less than; CO – carbon monoxide; NO_x – nitrogen oxides; $PM_{2.5}$ – fine particulate matter; PM_{10} – inhalable particulate matter; SO_x – sulfur oxides; tpy – tons per year; VOC – volatile organic compounds

Table 3-8. Total Operations-Related GHG Emissions Under the Proposed Action, Using Grid Power

Source	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2e (MT/yr)
Lake Woollomes	88	0.03	<0.01	89
Shafter	292	0.09	0.01	298
Total Emissions[1,2]	379	0.12	0.02	387
PSD/Title V Major Source Threshold[3,4]	—	—	—	68,025

Notes:
[1] Totals may not add exactly because of rounding.
[2] The emissions in this table present a conservative analysis of potential environmental impacts based on 24/7 operations of the pumps at Shafter and Lake Woollomes for 12 months. Actual operations of the seasonal facilities would occur when recaptured Restoration Flows and the other sources of water are available. The facilities would generally be taken offline outside of the irrigation season.
[3] The PSD/Title V Major Source threshold is not a quantitative threshold for significance under NEPA but is included to contextualize proposed action GHG emissions relative to previously established annual emission values deemed "significant".
[4] The PSD/Title V Major Source Threshold is 75,000 tons per year, equivalent to 68,025 metric tons per year.
Key: < – less than; CH4 – methane; CO2 – carbon dioxide; CO2e – carbon dioxide equivalent;
MT – metric tons; N2O – nitrous oxide; PSD – prevention of significant deterioration; yr – year

Table 3-9. Total Operations-Related GHG Emissions Under the Proposed Action, Using Portable Generator Power

Source	CO_2 (MT/yr)	CH_4 (MT/yr)	N_2O (MT/yr)	CO_2e (MT/yr)
Lake Woollomes	2,260	0.22	0.21	2,322
Shafter	1,132	0.11	0.10	1,163
Total Emissions[1,2]	3,392	0.34	0.31	3,485
PSD/Title V Major Source Threshold[3,4]	—	—	—	68,025

Notes:
[1] Totals may not add exactly because of rounding.
[2] The emissions in this table present a conservative analysis of potential environmental impacts based on 24/7 operations of the pumps at Shafter and Lake Woollomes for 12 months. Actual operations of the seasonal facilities would occur when recaptured Restoration Flows and the other sources of water are available. The facilities would generally be taken offline outside of the irrigation season.
[3] The PSD/Title V Major Source threshold is not a quantitative threshold for significance under NEPA but is included to contextualize proposed action GHG emissions relative to previously established annual emission values deemed "significant".
[4] The PSD/Title V Major Source Threshold is 75,000 tons per year, equivalent to 68,025 metric tons per year.
Key: < – less than; CH_4 – methane; CO_2 – carbon dioxide; CO_2e – carbon dioxide equivalent;
MT – metric tons; N_2O – nitrous oxide; PSD – prevention of significant deterioration; yr – year

3.8.3 Cumulative Impacts

3.8.3.1 Criteria Air Pollutants

Air pollution is primarily a cumulative impact, as a region's nonattainment status results from past and present development within the region. While no one project can determine the region's attainment status, it can add to any existing air quality issues and have a significant cumulative effect. The general conformity *de minimis* rate thresholds are specifically designed to indicate an emission level wherein a proposed action would not interfere with a State or Tribe's ability to meet the NAAQS, would not increase the frequency or severity of existing NAAQS violations, and would not delay the timely attainment of the NAAQS or interim milestone. As discussed above, neither construction nor operation of the proposed action would result in an exceedance of the general conformity *de minimis* rate thresholds. Therefore, the proposed action would have no cumulative adverse impact to air quality.

3.8.3.2 Greenhouse Gas

Impacts from GHG emissions are inherently cumulative, with global emissions of GHG contributing to global and regional climate impacts. No single action can measurably change the global temperature; however, when considered in relation to all past, present, and future development, implementation of an action could result in a significant cumulative impact. The PSD/Title V Major Source criterion used to contextualize the proposed action's GHG emissions indicates that the proposed action would not be considered a source triggering more stringent permitting action in order to protect air quality and public health. Therefore, the incremental contribution of the proposed action would not be cumulatively adverse with respect to global and regional GHG impacts.

3.9 Traffic and Transportation

3.9.1 Affected Environment

The study area for traffic and transportation comprises the state routes (SRs) and county roads where traffic volumes could be affected during implementation of the proposed action. Table 3-10 provides the existing (2022) operating conditions of relevant roadway locations in the study area.

Table 3-10. Existing Roadway Operations

Highway	Location	Lanes	Road Type	2022 Annual Average Daily Traffic	Level of Service
SR 65	North of SR 155	2	Rural Highway (Class I-Rolling)	8,000	D
SR 155	West of SR 65	2	Rural Highway (Class I-Rolling)	480	B
	East of SR 99	2	Rural Highway (Class II-Rolling)	18,550	E
SR 99	South of SR 155	6	Rural Freeway	69,000	C
	North of SR 46	6	Rural Freeway	68,000	C
	North of Lerdo Highway	6	Rural Freeway	71,000	C
SR 46	West of SR 99	2	Rural Highway (Class I-Level)	6,800	C
	East of SR 43	2	Rural Highway (Class I-Level)	6,800	C
	East of Interstate 5	2	Rural Highway (Class I-Level)	6,600	C
	East of Brown Material Road	2	Rural Highway (Class I-Level)	9,800	D
Lerdo Highway	West of SR 43	2	Urban Street	6,059	D
	West of SR 99	4	Rural Multilane Highway	16,255	B
Pond Road	East of SR 99	2	Rural Highway (Class I-Level)	4,233	B
Scofield Avenue	North of Lerdo Highway	2	Rural Highway (Class I-Level)	414	B
Holloway Road	North of SR 46	2	Rural Highway (Class I-Level)	741	B

Sources: Study Team, Caltrans 2022, Kern County 2022

Note: The 2021 volume for Scofield Ave in Kern County is projected to 2022 based on the assumed compound annual growth rate of 0.5%, road type based on Highway Capacity Manual (Transportation Research Board 2022 and 2016) definitions.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

There would be no construction or changes to existing operations within the study area. There would be no short- or long-term impacts to traffic operations under the no action alternative.

3.9.2.2 Proposed Action

Construction

The proposed action would require one to two workers approximately 1-2 days per site for seasonal pump installation/removal and four workers approximately six days for permanent power installation. Construction traffic is expected to be distributed along SRs and county roads in the surrounding rural area. The construction-related trips would be temporary and localized and are not expected to substantively change the surrounding vehicle transportation system conditions or worsen the level of service to a level exceeding the significance criteria at any of the study roadway segments. Therefore, construction-related traffic under the proposed action would not conflict with the goals and objectives of any applicable programs, plans, ordinances, or policies in Kern County. As such, construction of the proposed action would have minimal adverse impact on the surrounding vehicle transportation system conditions and construction-generated vehicle miles traveled.

Due to the limited nature of worker trips, there would be a limited increase in traffic hazards at key roadway segments and intersections close to the project sites that could potentially conflict with emergency vehicles. As such, construction of the proposed action would have a minimal adverse impact on traffic hazards and emergency access.

Operation

Under the proposed action, occasional maintenance trips would be necessary to ensure the pump-back facilities at the Shafter and Lake Woollomes checks remain in working order. If diesel-powered generators are used to power the seasonal pumps, up to two daily maintenance trips would be required for regular generator maintenance. As the potential additional maintenance trips necessary to maintain the generators would be minimal, operation of the proposed action would have a minimal adverse impact to traffic and transportation.

3.9.3 Cumulative Impacts

Construction and operational traffic associated with the proposed action could result in minimal adverse impact. Most of the construction activities proposed under the cumulative projects described in Appendix B of this EA would not be near construction activities related to the proposed action. Although construction and operation of the FKC Middle Reach Capacity Correction Project and the Delano-Earlimart Irrigation District Turnipseed Water Bank Expansion Project would occur along or near the FKC, it is not expected that the construction timelines of the cumulative projects would coincide with the timeline of the proposed action, therefore construction-related trips under the cumulative projects and the proposed action are not expected to overlap. The

impacts on traffic and transportation of the proposed action when combined with the cumulative projects would not be cumulatively considerable.

3.10 Utilities

3.10.1 Affected Environment

The study area for public utilities includes existing public utilities and services in local jurisdictions associated with construction in Kern County, with the cities of Delano and Shafter as the closest major cities. The solid waste material would be transported to the closest solid waste landfills, Shafter-Wasco Landfill, which has a remaining capacity of 12,835,041 cubic yards as of 2021 and a projected closure date of 2054 (CalRecycle 2021a), and Lost Hills Environmental Waste Facility, which has a remaining capacity of 3,777,340 cubic yards and an anticipated closure date of 2030 (CalRecycle 2021b).

Electric services within Kern County are provided by Eastside Power Authority, Pacific Gas and Electric (PG&E), and Southern California Edison (California Energy Commission 2020). The Lake Woollomes check falls within the Southern California Edison coverage area and the Shafter check falls within the PG&E coverage area. In 2022, the power plants within Kern County produced approximately 14,860,851 megawatt-hours of power (CEC 2022).

Kern County Fire Department provides fire protection services in Kern County and unincorporated areas of Kern County and several cities, including the cities of Delano and Shafter (Kern County Fire Department Nd.). Kern County has its sheriff's office providing law enforcement services. The cities of Delano and Shafter have individual police departments to serve their respective communities.

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

Under the no action alternative, no new facilities would be constructed and no changes to existing operations would occur. Under the no action alternative, there would be no construction or operational impacts related to public utilities, services, energy, or power.

3.10.2.2 Proposed Action

Construction

Construction of the temporary pump-back facilities at Shafter and Lake Woollomes would not result in the need for additional water treatment or expansion of wastewater treatment facilities. Potable water and wastewater handling capacity demands generated by construction activities and the presence of construction workers would be

met by existing local facilities. Installation/removal of the seasonal pumps would require 1-2 workers per site and the installation of permanent power would require four workers. The limited number of workers would not result in the need for additional water treatment or expansion of wastewater treatment facilities. Therefore, construction of the proposed action would have a minimal adverse impact related to the relocation or construction of new or expanded utility facilities and availability of sufficient water supplies.

Construction of the proposed action would generate minimal solid waste. If it is determined that permanent power must be installed, any construction waste associated with trench excavation would have a negligible impact on the permitted capacity at landfills within the area given the current available landfill capacity (Section 3.10.1). The proposed action would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure. Disposal of solid waste generated by the proposed action would comply with federal, state, and local statutes and regulations. Therefore, construction of the proposed action would have minimal adverse impacts related to generation of solid waste in excess and compliance with statutes and regulations related to solid waste management.

Construction of the proposed action would require the use of electricity, diesel, and/or natural gas to operate construction equipment. Once construction is complete, the operation of construction equipment would cease and their demand for energy resources would end. Therefore, construction of the proposed action would have minimal adverse impacts related to the consumption of energy resources.

Operation

The proposed action would involve the seasonal installation and operation of refurbished electric pumps. Power for the pumps would either be from diesel generators or an upgraded permanent power connection. Upgrading to permanent power at the sites would require coordination with PG&E for the Shafter check and Southern California Edison for the Lake Woollomes check, respectively. FWA would obtain any required permits from Kern County's building and planning departments and submit an application with PG&E and Southern California Edison to upgrade their services. At this time, FWA has begun coordination with PG&E and Southern California Edison. The Shafter and Lake Woollomes checks in Kern County would generate, on average, approximately 8,487 megawatt-hours or 8.4 gigawatt-hours in new demand annually, or

less than 0.057% of the total energy generated by Kern County.[10] The energy demand for the installation and operation of the electric pumps would be met by existing power capacity in the region. Reducing water users' reliance on older less efficient groundwater pumps would not conflict with statewide plans or local general plans. Though the proposed action would increase operational energy consumption, there would be no wasteful, inefficient or unnecessary consumption of energy resources. The proposed action would result in minimal adverse impacts.

3.10.3 Cumulative Impacts

Over time, construction debris from other construction projects and from future growth and development could cause the regional landfills to reach capacity, resulting in a significant cumulative impact. The FKC Middle Reach Capacity Correction Project and the Delano-Earlimart Irrigation District (DEID) Turnipseed Water Bank Expansion Project are not anticipated to be in construction nor using the same landfills concurrently as the proposed action. Potable water and wastewater handling capacity demands generated by the cumulative projects and the proposed action's construction activities and the presence of construction workers would be met by existing local facilities.

Under the proposed action, the pumps would be powered either by diesel generators or the installation of permanent power. The new demand in electricity would be met by current energy production. It is expected that the cumulative projects would also use standard construction equipment which could be met by regional supplies and any new energy demand would be met by current production. In addition, the cumulative groundwater recharge and banking projects, presented in Appendix B of this EA, could lower energy use associated with groundwater pumping. Therefore, the proposed action in combination with concurrent projects' incremental contribution to cumulative impacts for construction and operation impacts on public utilities and power would not be considered cumulatively adverse.

[10] This analysis assumes 24/7 operation of the pumps for 12 months at the Shafter and Lake Woollomes checks to capture the highest potential energy consumption associated with the project and presents a conservative analysis of potential environmental impacts. Actual operations of the seasonal facilities would occur when recaptured Restoration Flows and the other sources of water are available. The facilities would generally be taken offline outside of the irrigation season.

Section 4 Other Environmental Compliance Requirements

4.1 Indian Trust Assets

Indian Trust Assets (ITAs) are defined as legal interests in property held in trust by the United States government for Indian tribes or individuals, or property protected under United States law for federally recognized Indian tribes or individuals. ITAs can include land, minerals, federally reserved hunting and fishing rights, federally reserved water rights, and in-stream flows associated with a reservation or Rancheria. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the United States government. There are no tribes possessing legal property interests held in trust by the United States in the lands involved with the proposed action. The ITA in closest proximity to the project is the Tule River Tribe, approximately 39 miles northeast of the Shafter check and 27 miles northeast of the Lake Woollomes check. The project is not in an area that will impact Indian hunting or fishing resources or water rights. Therefore, implementing the proposed action would not affect ITAs.

4.2 Indian Sacred Sites

As defined by Executive Order 13007: Indian Sacred Sites, a sacred site "means any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

In the APE, the FKC is the only Federal land potentially affected. As discussed in Section 3.1.1.1, Cultural Resources, the study area was substantially disturbed during the construction of the Friant-Kern Canal and the non-Federal lands adjacent to the canal are used to support agricultural production and thus have been similarly disturbed by regular tillage and irrigation activities. Reclamation identified six federally recognized Indian tribes who may attach religious and cultural significance to historic properties in the APE including the North Fork Rancheria of Mono Indians, the Picayune Rancheria of Chukchansi Indians, the Santa Rosa Rancheria/Tachi Yokut Tribe, the Table Mountain Rancheria, the Tejon Indian Tribe, and the Tule River Indian Tribe. Reclamation requested information on cultural resources eligible for the National Register of Historic

Places, including sites of religious and cultural significance pursuant to 36 CFR § 800.4(a)(4) and sites of a sacred nature pursuant to Executive Order 13007, to determine the potential effect of the proposed undertaking on such properties under the proposed action.

4.3 Socioeconomics

Under the proposed action, two seasonal pump-back facilities would be constructed, installed, and operated in Kern County. Construction-related activities would temporarily increase employment, labor income, and output in Kern County. This would be an economic benefit to the regional economy.

Operation of the proposed action would result in an overall increase in surface water supply to the entire Friant Division. Increased surface water supply would help maintain crop production and would also support municipal and industrial uses in the Friant Division. Continuing crop production would support employment and incomes for farm workers and others employed by a farm. Growers would also continue to purchase inputs from suppliers, which would provide revenues to these businesses. Household spending in the region would also increase as farm workers, business owners, and other employees spend a portion of their incomes in the regional economy relative to the no action alternative. These would be positive regional economic effects in the Friant Division.

4.4 Consultation and Coordination

4.4.1 NEPA

An administrative draft of this EA was reviewed by the SJRRP Implementing Agencies and Settling Parties for consistency with the Settlement. The Draft EA will be available to the public for a 30-day review period.

4.4.2 National Historic Preservation Act

Implementation of the proposed action will require compliance with 54 U.S.C. Section 306108, commonly known as NHPA Section 106. To complete the NHPA Section 106 process, as outlined in 36 CFR Part 800, Reclamation will consult with the SHPO and afford the Advisory Council on Historic Preservation the opportunity to comment regarding the effects of the proposed undertaking on historic properties. Historic properties are cultural resources that are listed or eligible for listing in the NRHP. Reclamation will continue consultation with consulting parties under the 2020 Amended Programmatic Agreement Among the Bureau of Reclamation – California-Great Basin

Region (Region 10), and the California State Historic Preservation Officer Regarding Modifications to the Friant-Kern Canal, Fresno, Tulare, and Kern Counties, California (Amended PA). Pursuant to Stipulation II.A of the Amended PA, which prescribes time frames and review, Reclamation will consult with the United States Army Corps of Engineers (USACE), Friant Water Authority (FWA), and other consulting parties. Pursuant to Stipulation II.B of the Amended PA, Reclamation will document and report substantive written comments for SHPO review and concurrence.

4.4.3 Endangered Species Act

Reclamation will complete consultation with USFWS on the effects of the proposed action on listed species in accordance with Section 7(a)(2) of the Endangered Species Act (ESA) prior to finalization of this EA. No anadromous fish species would be affected by the proposed action. Therefore, ESA consultation with NMFS on the effects of the proposed action is not required.

4.4.4 Magnuson-Stevens Fishery and Conservation Management Act

The study area does not contain designated essential fish habitat (EFH); therefore, there would be no effect on EFH, and consultation is not needed.

4.4.5 Bald and Golden Eagle Protection Act

Reclamation will conduct preconstruction nesting bird surveys and coordinate with USFWS as necessary before any ground-disturbing activities are initiated, as described in Environmental Commitment TERR-3 in Appendix A of this EA.

4.4.6 Clean Air Act

Under the proposed action *de minimis* rates would not be exceeded, therefore, general conformity regulations do not apply to the proposed action.

4.4.7 Clean Water Act

Sections 401 and 404 of the Clean Water Act (CWA) do not apply to the proposed action, as no construction activities would occur in Waters of the U.S. As noted in Section 2, the total anticipated ground disturbance is less than 0.25 acres at the Shafter check and less than 0.12 acres at the Lake Woollomes check. Therefore, Section 402 of the CWA would not be triggered. However, construction BMPs would be implemented consistent with HAZ-1 as discussed in Section 3.5.2.

4.4.8 Executive Orders 11988 (Floodplain Management); Executive Order 11990 (Protection of Wetlands); Executive Order 13112 (Invasive Species)

The proposed action would not alter floodplains. As discussed in Section 3.3, no wetlands have been identified overlapping the proposed action study area. The proposed action would not result in the introduction of invasive species to the project sites. Environmental Commitment TERR-9 includes preventative measures related to invasive species.