

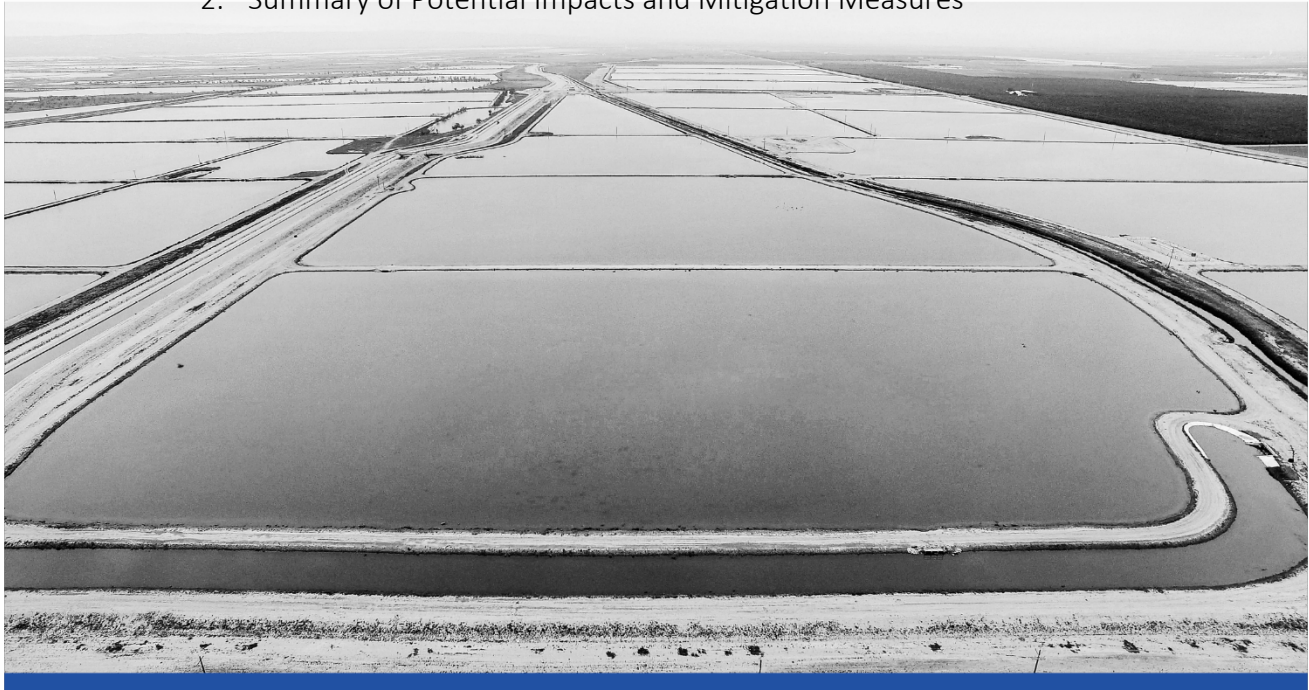
# Kern Fan Groundwater Storage Project

## FEASIBILITY REPORT

### Appendix E: Existing Water Bank Alternative

1. Uncertainty Analysis
2. Summary of Potential Impacts and Mitigation Measures

October 21, 2019  
Updated April 13, 2020



## Uncertainty Analysis

The sections below discuss the ability of the project to:

1. Provide public benefits flexibly with integration to the State water system, and
2. Respond to an uncertain future

### Flexibility and Integration

The Willow Springs Water Bank Conjunctive Use Project (WSWB or Water Bank) is flexible in its operation and is well integrated with the state water system. WSWB will leverage one-half million acre-feet of existing groundwater storage facilities and operate conjunctively with the State Water Project (SWP) to improve flexibility of SWP operations and provide tangible, near-term, and lasting benefits for the environment.

WSWB is a conjunctive use and reservoir reoperation project integrating the SWP reservoir and conveyance system with south-of-Delta groundwater storage. Through modest reoperation of Lake Oroville and San Luis Reservoir to shift water to the Water Bank, significant volumes of new yield can be captured during high flow periods when Delta outflows are above and beyond regulatory requirements. Under this Proposition 1 Water Storage Investment Program (WSIP) proposal, the Water Bank will pledge a portion of this new yield to enhance environmental resources.

**Adding WSWB diversifies the state storage portfolio.** The southern California location allows the State to have a more geographically distributed storage portfolio. Water will be stored downstream of the large pumping lift at Edmonston Pumping Plant, increasing the flexibility of when energy needs to be used to pump water over the Tehachapi Mountains. This can provide operational flexibility for the State and optimize when water is pumped to Southern California to minimize energy cost. Expanding storage south of the Delta is important because it mitigates the risk to water supplies in the event of Delta levee failure after earthquakes or floods. It also diversifies the risk from future dam safety issues and from operational issues such as toxic algae blooms. The WSWB project can be used flexibly to offset any existing or future SWP need or obligation.

**WSWB modeling assumptions preserve base water supply and regulatory flows.** WSWB model studies preserve all water supply deliveries and regulatory flows, and float WSWB operations on top of these base simulations. A comprehensive analysis fully integrating the WSWB into operation of the state-wide system would further improve water supply and ecosystem flows. The project is resilient and is expected to produce greater benefits as climate change progresses.

**Feather River pulse flow operations were identified as the preferred alternative** for demonstrating environmental benefit, based on directly addressing two of the high priority flow objectives identified by the California Department of Fish and Wildlife. These benefits are expected to increase as climate change impacts increase. WSWB is very flexible and adaptable. Other analyzed benefits include Delta

habitat creation funded from water supply revenues. These long-lasting benefits could be an integral part of WSWB implementation if desired.

**The WSWB is an early implementation project** with an on-line date of 2020. The land has been acquired, environmental documentation is complete, and facilities are partially designed and constructed. SGMA compliance is unambiguously simple; the groundwater basin is adjudicated, and ten percent of the recharged water will be left behind as a basin benefit. The project can begin demonstrating success 10 years or more before new surface water projects. The project will provide a substantial return on the State’s investment, with a 2.3 ratio of benefits to costs, a Public Benefits Ratio of 2.6 and public benefits equal to 82 percent of total benefits.

## Response to an Uncertain Future

Uncertainty is considered in this application by:

- A rigorous CalSim II analysis employing sensitivity analysis techniques to test system performance
- The ability to maintain public benefits under a range of hydrologic conditions and increasingly severe climate change scenarios
- Demonstrated high levels of project-developed water stored in the system during a drought
- Additional project features that reduce uncertainty and increase sustainability.

## Analysis Methods

The analysis of the project’s response to an uncertain future was performed using CalSim II, an operations simulation model for the combined SWP and CVP supply systems. The analysis is described in Attachments 1 and 12 to the Benefit Calculation, Monetization and Resiliency tab.<sup>1</sup> The model analyzes an 82-year hydrologic trace for water years 1922 through 2003, modified to reflect expected climate change under 2030 and 2070 conditions. The base modeling was provided by CWC as part of the grant application materials. Project operations were imposed on these base models.

The model therefore considers a range of wet, dry, and critically dry hydrologic conditions, and evaluates possible future climate scenarios. Project rules such as flow targets and storage thresholds were developed iteratively to develop project benefits without affecting:

- SWP supplies including Table A, Article 21, and Article 56 amounts
- CVP supplies
- In-stream flow requirements
- Conveyance capacities
- Incursions below the San Luis Reservoir “low-point” threshold<sup>2</sup>

---

<sup>1</sup> See Benefit Calculation Tab, Attachment A1 - Project Conditions, File WSWB\_ProjConditions\_1of1, Section 6-1 and Benefit Calculation Tab, Attachment A12 - Uncertainty Analysis, File WSWB\_UncertaintyAnalysis\_1of1, Section 6-12

<sup>2</sup> Low water levels in San Luis Reservoir, generally regarded as around 300,000 acre-feet, may facilitate blooms of toxic algae which may compromise the water supply to Santa Clara Valley Water District.

- Water bank storage maximums, minimums and other constraints

In addition, sensitivity analysis was performed to test the predictive insight implicit in solving for operations rules iteratively. This analysis is detailed in the With-Project Conditions attachment to this application.<sup>3</sup>

## Sources of Uncertainty Analysis

(Section 6004 (a) (8) (A) on climate change)

The project is very flexible in meeting any SWP need or obligation. Storing water in the Antelope Valley allows supplying stored groundwater to SWP contractors in lieu of releases from Oroville or San Luis, or to meet emergency needs. Since 60 percent of SWP demands are downstream of WSWB, the project can meet a wide variety of needs under a wide variety of conditions.

Rising air temperatures and the shrinking snowpack due to climate change will increase the need for new storage capacity. Storage capacity south of the Delta will be especially valuable as more intense and severe floods coupled with sea level rise increase the risk of Delta levee failures. This emergency water is better held in a groundwater bank because it does not evaporate each year.

The project will pledge a portion of the new yield for ecosystem enhancement. As shown in Table 1 of Executive Summary,<sup>4</sup> overall recharge and ecosystem flows both increase by 15 percent under the 2070 climate change scenario above ecosystem supplies under 2030 conditions. In other words, this project produces more public benefits as climate change becomes more severe.

The project is located far inland at an elevation of about 2600' above sea level. Consequently, it will not be impacted directly by sea level rise. This increases the resilience of the state's water system to the sea level rise aspect of climate change. Its ability to store large amounts of water south of the Delta where it is not vulnerable to salt water intrusion also enhances the ability of the state's water infrastructure to deal with this additional aspect of climate change.

## Ability to integrate into the State's existing and planned infrastructure

(Section 6004 (a) (8) (B), future projects and water management actions)

This conjunctive use project cannot work properly unless it is used in conjunction with San Luis and Oroville Reservoirs. Without them, WSWB cannot produce new yield by capturing Delta outflows in excess of regulatory requirements. Consequently, it is the quintessential conjunctive use project. It will work even better if the SWP system has more storage and the Delta Fix in place. In particular, it provides:

---

<sup>3</sup> See Benefit Calculation Tab, Attachment A1 - Project Conditions, File WSWB\_ProjConditions\_1of1, Section 6-1, p. 6

<sup>4</sup> See Eligibility Tab, Attachment A1 - Exec Summary, File WSWB\_ExecSumm\_1of1, Section 3-1, Table 1

- Flexible integration into the SWP system; it works better with Sites and the twin tunnels, but it does not need them. Having more long-term storage available that does not evaporate leverages both Sites Reservoir and the twin tunnels.
- The project’s southern California location provides greater certainty of supply when Delta levees fail or when the fish create a bottleneck in the Delta.
- The project also supports the full integration of the Sustainable Groundwater Management Act into the SWP. By creating more yield out of the existing infrastructure and capturing surpluses when it is wet, more of these surpluses can be channeled into groundwater basins. It also provides operational flexibility to help move water among the various groundwater basins as well as San Luis Reservoir.
- The project may reduce the need to expand the East Branch of the California Aqueduct. A large groundwater bank upstream of Pearblossom Pumping Plant reduces the need to pump high volumes during wet years. It could be stored in WSWB instead and pumped during normal or dry years.

## Demonstrated high levels of project-developed water stored in the system during a drought

(Section 6004 (a) (8) (D), project performance during a drought)

The CalSim II modeling shows the project will store an average of 296,000 and 274,000 acre-feet under 2030 and 2070 hydrologic conditions, respectively.<sup>5</sup> These volumes can be realistically expected to be available to meet project needs throughout the modeled drought sequences. An emergency supply of 215,000 acre-feet is expected to be available 73 percent of the time to meet emergency supply needs such as a seismic failure of the Delta levees.<sup>6</sup>

The Regulation specifically asks for an uncertainty analysis during a five-year drought. The amount of water expected to be in storage could be borrowed annually during a severe five-year drought. This would add 215,000 acre-feet or approximately 43,000 acre-feet of annual yield<sup>7</sup> that could be borrowed during a severe, multi-year drought. The water would have to be paid back to WSWB when hydrologic conditions return to normal.

---

<sup>5</sup> See Benefit Calculation Tab, Attachment A1 - Project Conditions, File WSWB\_ProjConditions\_1of1, Section 6-1, Table 6

<sup>6</sup> This emergency supply is expected to be available 80 percent of the time under 2070 hydrologic conditions. See Public Benefits Tab, Attachment A1 - Emergency Response Benefits Supporting Documents, File WSWB\_EmergencyBenSupport\_1of1, Section 4-3.

<sup>7</sup> Coincidentally, this is the expected annual yield from the proposed San Luis Reservoir expansion, described in the Cost Effectiveness attachments (See Benefit Calculation Tab, Attachment A12 - Uncertainty Analysis, File WSWB\_UncertaintyAnalysis\_1of1, Section 6-12)

## Additional project features that reduce uncertainty and increase sustainability

(Section 6004 (a) (8) (C), other sources of uncertainty)

In addition to the quantified increased water supply and ecosystem benefits, the project also provides the following unquantified benefits to reduction of uncertainty and increases in sustainability:

- The project is co-located with solar-electric arrays used to supplement project energy needs, and will be operated to meet energy grid demand response to minimize operation costs. This is a source of positive risk. In other words, the grid may be able to operate better and increase renewables penetration with the electric load shift enabled by WSWB.
- Increased certainty from storing water underground, reducing evaporative losses and operational problems due to toxic blue-green algae growth in surface reservoirs such as San Luis Reservoir
- Increased certainty by avoiding dam safety issues such as the Oroville spillway and the Perris dam seismic repairs. The State is currently reviewing the safety of its major dam facilities; this risk may grow over time.

## Implementation Risk

A completed feasibility study is required by January 1, 2022 as part of project eligibility requirement of the WSIP. A draft Feasibility Study<sup>8</sup> is provided with this application to assist the Commission to make a determination that the WSWP is feasible. The draft Feasibility Study and other materials submitted with this application describe:

- **Project objectives** including all public and non-public benefits the proposed project is designed to provide.
- A **project description including** facilities, operations, and relationships with existing facilities and operations.
- **Project costs, benefits, and a benefits-based cost allocation**
  - The capital cost of the project is \$343 million, and is expected to produce present value benefits of \$984 million. \$804 million of these benefits (82 percent) will be public benefits, for both the ecosystem and for emergency supply.
  - The project is a conjunctive use and reservoir reoperation project, both classes that are exempted from the 50 percent cost match.

---

<sup>8</sup> See Feasibility Tab, Attachments A1 through A5

- The value of the water supply and emergency response water will be used to defray the cost of providing ecosystem benefits. The public benefits to be provided assume that 100 percent of the grant funding requested will be approved by the Water Commission.
  - A 100 percent grant is being requested. This is intended to provide the state the flexibility to maximize the public benefit, especially for the ecosystem. If a lesser grant is awarded, the public benefits would need to be proportionately reduced.
  - Project proponents will benefit primarily from use of project facilities during periods when they are not needed for operations benefiting the ecosystem. In other words, non-public benefits will be operated on a second-priority basis. This makes them less valuable. Proponents may also benefit if water can be sold for more than the assumed unit values provided in the Technical Reference.
- **Demonstrated technical feasibility**
    - The project operations were analyzed using the CalSim II model using the base 2030 and 2070 hydrology provided by the Commission. The CalSim assumptions, data, and analytical methods are described in the With-Project Conditions attachment.<sup>9</sup>
    - The shows all flows and water supplies relevant to the benefits analysis for both the with- and without-project condition.
    - All CEQA documentation, feasibility analyses, and some facilities are in place. A master plan in 2011 and an update in 2016 has been completed. These incorporate actual operating experience. A groundwater model has been performed to make sure the bank conforms to the existing Adjudication requirements and that the bank does not interfere with adjacent facilities.
- **Economic feasibility**
    - The expected benefits of the project exceed the expected costs.
    - Both the public and non-public benefits are produced. Water transfer revenues adequate to fund operations to achieve the public benefits will be provided.
    - A mechanism is incorporated to pay for the operational cost of water dedicated to ecosystem benefits. The ecosystem has no revenue capability of its own.
- **Financial feasibility**
    - Cost allocation is described in the Cost Allocation attachment.<sup>10</sup>

---

<sup>9</sup> See Benefit Calculation Tab, Attachment A1 - Project Conditions, File WSWB\_ProjConditions\_1of1, Section 6-1

<sup>10</sup> See Benefit Calculation Tab, Attachment A10 - Cost Allocation, File WSWB\_CostAllocation\_1of1, Section 6-10

- Non-public beneficiaries will pay market rates for water supply benefits. A portion of the revenue from these payments will be used to fund operation costs needed to supply public benefits.
- CalPERS and CIM Group stand behind the project financially. Both have major financial resources that can be utilized to make sure the project is successful.
- **Constructability**
  - The project relies on proven standard construction techniques.
  - A portion of the project recharge facilities and extraction wells has already been constructed without issue.
  - The schedule<sup>11</sup> for project construction is based on similar projects constructed in the region, and on the experience of constructing the existing conveyance pipelines, recharge ponds, extraction wells, collector pipelines, and pumping plants for return of stored water from wells.
- **Demonstrated environmental feasibility**
  - Environmental documentation for the project has been completed.
  - Significant new ecosystem benefits will be provided, primarily from making pulse flow releases to benefit Feather River Chinook salmon attraction and outmigration.
  - A Statement of Overriding Considerations will not be required.
  - A status and schedule of permits is provided.<sup>12</sup>

## General

Willow Springs Water Bank (WSWB) seeks to fully comply with all aspects of Proposition 1. The general provisions of Water Code Chapter 4 are a significant portion of that compliance. Water Code Section 79707 states that “It is the intent of the people” that a number of provisions be complied with. These provisions, and how WSWB addresses them, are listed in Table 1.

*Table 1 - Incorporation of “Chapter 4 General Provisions” for Proposition 1 Grant Application*

Items in Section 79707	How the WSWB Conjunctive Use Project will implement it
<p><b>Section 79707. It is the intent of the people that:</b>                      (a) investment of public funds pursuant will result in public benefits that address the most critical statewide needs and priorities</p>	<p>WSWB provides 500,000 acre-feet of new storage. This storage is used to capture an average 33,000 acre-feet per year of new yield by capturing outflows in excess of regulatory requirements and directing these flows and revenues to provide \$804 million in present value public benefits</p>

<sup>11</sup> See Feasibility Tab, Attachment A3 - Schedule, file WSWBSchedule\_3of5, application p. 5-3-1

<sup>12</sup> See Feasibility Tab, Attachment A2 - Permit List, File WSWB\_Permits\_1of1, Section 5-2



Items in Section 79707	How the WSWB Conjunctive Use Project will implement it
(b) leverage private, federal, or local funding or produce the greatest public benefit	Funds invested to date include private and local sources as well as a federal ARRA grant in 2010. This leverages the use of State funds. The high (2.6) public benefit ratio of this project produces the greatest public benefit.
(c) advances the purposes of the chapter from which the project received funding	WSWB provides 500,000 acre-feet of new storage for California. Most of the storage capacity will be dedicated to public purposes. It may be possible to expand the bank to 1,000,000 in the future.
(d) best available science	WSWB utilized GEI and MWH to model the bank's ability to create new yield using the CalSim II model. It also utilized HDR to develop a groundwater model of its put/take operations
(e) innovative technology or practices	Use of water loaning concept from a groundwater basin to address emergency response needs, use of water/energy bank to help meet statewide energy needs
(f) review by professionals	Both the \$0.2 M California Energy Commission project for onsite hydropower (EPC-15-049) and the \$1.0 M water/energy bank proof-of-concept study (EPC-16-029) include Technical Advisory Committees made up of professional and academic experts.
(g) signage informing the public	Signs will be added to the site to publicize the use of Proposition 1 funds similar to existing ARRA signage (see Figure 1).
(h) consistent with Division 7 of the Water Code and Section 13100 of the Government Code	WSW is consistent with the goals and objectives of the 5-year California Infrastructure funding plan.
(i) promote state planning priorities and sustainable communities strategies	The hydropower and water/energy bank components of this project help implement California's sustainable communities strategies and 505 renewables goal by 2030. In particular, it can result in a greenhouse gas reduction of 293,000 metric tons of CO <sub>2</sub> /year through a combination of onsite renewables of solar and hydropower, electric load shifting, and the lack of methane creation associated with large surface reservoirs.
(j) California's working agricultural and forested landscapes will be preserved	Currently 290 acres out of roughly 1,000 available are being cultivated for alfalfa and carrots. Another 320 acres of percolation ponds are used for animal grazing when not being used for recharge.

Figure 1- Existing signage at the Willow Springs Water Bank



**Willow Springs Water  
Bank**

**Summary of Potential  
Impacts and Mitigation  
Measures**

**Table 1-2.** Summary of Potential Impacts and Mitigation Measures

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.1 AGRICULTURAL RESOURCES</b>			
<b>4.1-1:</b> Convert Important Farmland to Nonagricultural Use ( <i>temporary impacts</i> associated with Project construction)	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.1-1:</b> Convert Important Farmland to Nonagricultural Use ( <i>periodic impacts</i> associated with flooding of the recharge basins)	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.1-1:</b> Convert Important Farmland to Nonagricultural Use ( <i>permanent impacts</i> related to wellhead and aboveground infrastructure construction)	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.1-2:</b> Conflict with Existing Agricultural Zoning or Williamson Act Contracts	No Impact	No additional mitigation is proposed	NA
<b>4.1-3:</b> Involve Other Changes in the Existing Environment That, Because of Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.1-4:</b> Potential Adverse Soil and Crop Effects from Elevated Groundwater Levels	Significant	<b>4.1-1:</b> The Antelope Valley Water Bank monitoring committee will develop a monitoring procedure to discern whether recharge-induced shallow water tables are rising toward the root zones of adjacent farmlands and, if so, whether they would adversely affect crop production. If the monitoring committee concludes that crops may be (or have been) affected, the committee will require the owner/operator to constrain or adjust the locations of recharge operations to prevent the impact or to reimburse the affected farmer for the impact that has occurred.	Less than significant
<b>4.1-5:</b> Cause the Cancellation of an Open Space Contract Made Pursuant to the California Land Conservation Act or Farmland Security Zone Contract for Any Parcel of 100 or More Acres	No Impact	No additional mitigation is proposed	NA

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.2 AIR QUALITY</b>			
<b>4.2-1:</b> Short-Term Increase in PM10 Emissions from Construction Activities	Significant	<p><b>4.2-1:</b> The following control measures for construction emissions of PM10 are recommended by the KCAPCD for land preparation and/or demolition. The following dust control measures will be implemented:</p> <ol style="list-style-type: none"> <li>1. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. Watering will occur a minimum of twice daily on unpaved/untreated roads and on disturbed areas with active operations.</li> <li>2. All clearing, grading, earth moving and excavation activities will cease during periods when dust plumes of 20 percent or greater opacity affect public roads or occupied structures.</li> <li>3. All material transported off site will be either sufficiently watered or securely covered to prevent excessive dust.</li> <li>4. If more than 5,000 cubic yards of fill material will be imported or exported from the site, then all haul trucks will be required to exit the site via an access point where a gravel pad or grizzly has been installed.</li> <li>5. Areas disturbed by clearing, earth moving or excavation activities will be minimized at all times.</li> <li>6. Stockpiles of dirt or other fine loose material will be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.</li> <li>7. Where acceptable to the fire department, weed control will be accomplished by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.</li> </ol>	Less than significant

**Table 1-2.** Continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.2-2:</b> Increase in Pollutant Emissions as a Result of Operation and Maintenance	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.2-3:</b> Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region Is in Non-attainment under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions that Exceed Quantitative Thresholds for Ozone Precursors)	Significant	<b>4.2-1:</b> see above <b>4.2-2:</b> Reduce Emissions Associated with Idling Equipment. The owner/operator will require that all diesel engines be shut off when not in use to reduce emissions from idling.	Significant and unavoidable
<b>4.3 BIOLOGICAL RESOURCES</b>			
<b>4.3-1:</b> Potential Loss or Temporary Disturbance of Annual Grassland and Agricultural Habitats	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-2:</b> Potential Temporary Disturbance of Rabbitbrush Scrub Habitat	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-3:</b> Potential Loss or Temporary Disturbance of up to 19 Acres of Joshua Tree Woodland Habitat	Significant	<b>4.3-1:</b> Impacts on the Joshua Tree Woodland habitat shall be minimized to the extent possible during the design phase by making minor adjustments to the corridor width to avoid Joshua trees. A corridor plan shall be developed showing the location of all Joshua trees and, after review and recommendation by a qualified biologist, trees to be avoided are to be clearly identified.  <b>4.3-2:</b> Joshua tree woodland habitat located in or adjacent to the construction corridor or site will be protected by placing orange construction barrier fencing or stakes and flags, including buffer zones where appropriate. The locations of these resources will be clearly identified on the construction drawings and marked in the field by the environmental monitor. Fencing or other barriers will remain in place until all construction and restoration work that involves heavy equipment is complete. Construction vehicles, equipment, or materials will not be parked or stored within the fenced area. No signs, ropes, cables, or other items will be attached to individual Joshua trees.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.3-4:</b> Temporary Disturbance of 0.19 Acre of Ephemeral Drainages	Significant	<b>4.3-3:</b> Prior to any work in or near ephemeral drainages, the applicant will apply to DFG for a streambed alteration agreement and to the Lahontan Regional Water Quality Control Board for a water quality certification or waiver and will abide by any measures that those agencies may impose.	Less than significant
<b>4.3-5:</b> Potential Loss or Disturbance of Swainson’s Hawk Nests during Construction	Significant	<p><b>4.3-4:</b> If construction activities occur during the Swainson’s hawk nesting season (March 1–September 15), the Project will provide a qualified biologist to conduct preconstruction surveys to locate all active nest sites within 0.5 mile of the construction area.</p> <p>If occupied Swainson’s hawk nests are found, the Project, in consultation with DFG, shall establish a buffer zone around active Swainson’s hawk nests in the vicinity of the Project area. The buffer zone shall be marked with specific identifiable flagging or fencing. Construction activities shall be restricted from the buffer around the active nests until after chicks have fledged.</p> <p>Whenever construction occurs within 0.25 mile of an active nest, a biological monitor shall observe the nesting hawks for stressed/detrimental behavior that threatens nest success. If there appears to be a threat to nesting success resulting from construction activity within the 0.25-mile buffer, work shall be halted until the hawk’s behavior normalizes. The most obvious and dangerous “detrimental behavior” occurs when the hawk is scared off the nest. If that occurs (even momentarily), construction shall stop immediately within 0.25 mile of the nest for at least 1 hour after the hawk returns to the nest and her behavior appears to normalize. When construction resumes, if the hawk is scared off the nest a second time, construction will be prohibited within that 0.25-mile zone until having consulted with DFG to discuss further options. Other stressors/detrimental behaviors that the monitor shall look for include the hawk</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		being off the eggs while still on the nest (e.g., circling/walking around the nest and calling). The biological monitor shall also watch for signs that the hawks are paying attention to construction instead of behaving normally (e.g., sitting calmly on the nest, watching out for or scaring away potential predators).	
<b>4.3-6:</b> Potential Disturbance of Nesting Swainson’s Hawks as a Result of Project Operations and Maintenance	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-7:</b> Potential Loss or Disturbance of Burrowing Owl Nests and Burrows during Construction	Significant	<p><b>4.3-5:</b> Preconstruction surveys shall be conducted by a qualified biologist within the work area and a 250-foot buffer to locate active burrowing owl burrows. The Project will provide a qualified biologist to conduct these preconstruction surveys for active burrows according to DFG guidelines. The preconstruction surveys will include a nesting season survey and a wintering season survey the season immediately preceding construction. If no burrowing owls are detected, no further mitigation is required.</p> <p><b>4.3-6:</b> If burrowing owls are detected within 250 feet of proposed construction within the Project area, the following measures will be implemented.</p> <ul style="list-style-type: none"> <li>• Occupied burrows will not be disturbed during the nesting season (February 1–August 31).</li> <li>• When destruction of occupied burrows is unavoidable during the non-nesting season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris).</li> </ul> <p>If owls must be moved away from the Project area, passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping. At least 1 week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows.</p>	Less than significant



Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		If avoidance is the preferred method of dealing with potential impacts, no disturbance should occur within 160 feet of occupied burrows during the non-breeding season (September 1–January 31) or within 250 feet during the breeding season.	
<b>4.3-8:</b> Potential Disturbance of Burrowing Owl Nests as a Result of Project Operations and Maintenance	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-9:</b> Potential Disturbance to Special-Status Bird Nests during Construction	Significant	<p><b>4.3-7:</b> A qualified biologist shall conduct preconstruction surveys each construction year to locate all active nest sites within 0.25 mile of the Project area.</p> <p>Direct disturbance, including activities in the immediate vicinity of active nests, shall be avoided during the breeding season (March through August) where feasible. No-disturbance buffers shall be established around each active nest to avoid disturbing nesting birds where feasible. The size and configuration of buffers shall be based on the proximity of active nests to construction, existing disturbance levels, topography, the sensitivity of the species, and other factors, and shall be established through coordination with DFG representatives on a case-by-case basis. Where it is determined to be infeasible to schedule construction to avoid constructing within 300 feet of an active nest, the Project shall monitor nest status to determine whether construction is disturbing nesting activities. If it is determined by a qualified biologist that the construction is adversely affecting nesting activities, construction within 300 feet shall cease pending completion of nesting activities.</p>	Less than significant
<b>4.3-10:</b> Potential Loss of Foraging Habitat for Mountain Plovers and Long-Billed Curlews as a Result of the Recharge Basins	Less than significant	No additional mitigation is proposed	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.3-11:</b> Potential Impacts to California Horned Lizards and California Legless Lizards during Construction	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-12:</b> Potential Disturbance to Roosting Bats during Construction of Recharge Basins	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-13:</b> Potential Impacts to American Badger and Southern Grasshopper Mouse during Construction of the Phase 2 Delivery Pipeline	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.3-14:</b> Potential Impacts on Desert Tortoise and Mohave Ground Squirrel	No Impact	No additional mitigation is proposed	—
<b>4.4 CULTURAL RESOURCES</b>			
<b>4.4-1:</b> Damage or Destroy a Significant Historical Resource	Significant	<p><b>4.4-1:</b> Prior to ground disturbance of the areas of the Project, identified on Figure 4.4-1 as not fully evaluated, a cultural resource survey and a written report shall be prepared. The report shall include findings and recommendations, if any, for further work to ensure protection of any discoveries. The report shall be submitted to the Kern County Planning Department, the Los Angeles County Planning Department, and the tribes identified by the Native American Heritage Commission for SB 18 consultation. All recommendations shall be incorporated into grading and construction plans.</p> <p><b>4.4-2:</b> A certified archaeologist shall monitor all Project-related initial ground-disturbing activities along the proposed Phase 2 delivery pipeline alignment between Avenue A and Avenue D. All discoveries shall be documented, and a report of findings prepared and submitted to <i>the Los Angeles County Planning Department and the tribes identified by the Native American Heritage Commission for SB 18 consultation.</i> Archaeological deposits shall be further evaluated for significance according to California Register criteria. Recovery of significant archaeological deposits shall</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>occur using standard archaeological techniques, including but not limited to, manual or mechanical excavations, monitoring, soils testing, photography, mapping, or drawing to adequately recover the scientifically consequential information from and about the archaeological resource. An adequate sample of cultural materials shall be recovered. The applicant shall arrange for permanent curation of artifacts and documents in a repository consistent with the National Park Service guidelines for the curation of archaeological collections (36CFR79).</p> <p><b>4.4-3:</b> If buried cultural resources are uncovered during construction, all work shall be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource.</p> <p>In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code 7050.5, State CEQA Guidelines 15064.5(e), and Public Resources Code 5097.98 shall be implemented.</p>	
<b>4.4-2:</b> Damage or Destroy a Significant or Unique Paleontological Resource	Significant	<p><b>4.4.4:</b> A qualified paleontologic monitor shall monitor excavation in areas identified as likely to contain paleontologic resources. These areas are defined as all areas within the proposed Project area where planned excavation would exceed depths of 5 feet. The drilling of wells is excluded from this provision, because mechanical drilling does not allow for fossil recovery. This monitoring shall be required along the proposed alignment of the Phase 2 delivery pipeline as well as areas within the recharge and recovery basins that would involve ground disturbance to a depth below 5 feet. The qualified paleontologic monitor shall retain the option to reduce monitoring if, in his or her professional opinion, sediments being monitored are previously disturbed.</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Monitoring may also be reduced if the potentially fossiliferous units, previously described, are not found to be present or, if present, are determined by qualified paleontologic personnel to have low potential to contain fossil resources.</p>	
		<p>The monitor shall be equipped to salvage fossils and samples of sediments as they are unearthed to avoid construction delays and shall be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Because the older Quaternary deposits yield small fossils specimens likely to go unnoticed during typical large scale paleontological monitoring, matrix samples shall be collected and processed to determine the potential for small fossils to be recovered prior to substantial excavations in those sediments. If this sampling indicates these units do possess small fossils, a matrix sample of up to 6,000 pounds shall be collected at various locations, to be specified by the paleontologist, within the construction area. These matrix samples shall also be processed for small fossils.</p>	
		<p>Recovered specimens shall be prepared to a point of identification and permanent preservation, including washing of sediments, to recover small invertebrates and vertebrates. Specimens shall be curated into a professional, accredited museum repository with permanent retrievable storage.</p>	
		<p>A report of findings, with an appended itemized inventory of specimens, shall be prepared. The report and inventory, when submitted to the Kern County Planning Department and Los Angeles County Planning Department, will signify completion of the program to mitigate impacts to paleontologic resources.</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.5 GEOLOGY AND SOILS</b>			
<b>4.5-1:</b> Potential Exposure of Structures to Damage from Surface Fault Rupture	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.5-2:</b> Potential Exposure of Structures to Damage from Strong Seismic Groundshaking	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.5-3:</b> Potential Exposure of Structures to Damage from Seismic-Related Liquefaction	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.5-4:</b> Potential Damage from Subsidence Caused by Drafting Groundwater	No impact	No additional mitigation is proposed	NA
<b>4.5-5:</b> Potential Structural Damage Caused by Expansive Soil	No impact	No additional mitigation is proposed	NA
<b>4.5-6:</b> Potential Substantial Soil Erosion or Loss of Topsoil from Land Grading and Project Operation	Significant	<p><b>4.5-1:</b> Topsoil materials will be stripped from most areas to be graded, temporarily stockpiled, and reapplied as a top-dressing once final grade is attained.</p> <p>Temporary stockpiles will be watered to prevent topsoil loss from wind erosion.</p> <p>For soils having little organic matter in the surface layer and little evidence of soil profile development (i.e., similar texture between surface soil and substrate at depth), this measure will not need to be applied because it would provide little or no benefit. This determination will be made during preparation of a SWPPP.</p> <p><b>4.5-2:</b> To control water and wind erosion during construction of the Project, the owner/operator will prepare a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The Lahontan Regional Water Quality Control Board will administer the SWPPP. The SWPPP will prescribe temporary Best Management Practices (BMPs) to control wind and water erosion</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>during and shortly after construction of the Project and permanent BMPs to control erosion and sedimentation once construction is complete. An erosion-control plan shall be prepared and submitted in conjunction with the application for a grading permit from Kern County Engineering and Survey Services Department. The SWPPP shall include:</p> <ul style="list-style-type: none"> <li>• areas where top-dressing will be applied after final grading and location and maintenance of temporary stockpiles,</li> <li>• where and how ephemeral watercourses will be protected from soil erosion and sedimentation;</li> <li>• whether nutrients in post-grading soils in basin bottoms should be supplemented to counter effects of soil disturbance to ensure that agricultural uses in them can continue, so that soils continue to be protected from erosive wind and water;</li> <li>• whether and where berms and pipeline backfill should be artificially revegetated (e.g., hydroseeded) to ensure protection of soils against wind and water; and</li> <li>• what performance standards are appropriate for plant cover in this environment to ensure soil protection, including a plant and seed list.</li> </ul>	
<b>4.6 HAZARDS AND HAZARDOUS MATERIALS</b>			
<b>4.6-1:</b> Potential for Disturbance of Hazardous Materials or Wastes during Construction	No impact	No additional mitigation is proposed	NA
<b>4.6-2:</b> Potential for Inadvertent Release of Hazardous Materials during Construction and Operation	Significant	<b>4.6-1:</b> Prior to any construction activities, the applicant shall develop and implement a Spill Prevention Control and Countermeasures Plan (SPCCP) to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities for all contractors. The plan and methods shall be in	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>conformance with all state and federal water quality regulations.</p>	
		<p>The applicable agency, Kern County Environmental Health Services Department and Los Angeles County Environmental Health Services, shall review the SPCCP before the onset of construction activities. The applicant shall provide for routine inspection of the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained and further ensure that contractors are notified immediately if there is a noncompliance issue and will require compliance.</p>	
		<p>The federal reportable spill quantity for petroleum products, as defined in EPA’s CFR (40 CFR 110), is any oil spill that 1) violates applicable water quality standards, 2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or 3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.</p>	
		<p>If a spill is reportable, the contractor’s superintendent shall notify the applicant who shall inform the applicable County agency and arrange for the appropriate safety and cleanup crews to ensure the spill prevention plan is followed. A written description of reportable releases must be submitted to the Regional Water Quality Control Board and the applicable County agencies. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form.</p>	
		<p>If a spill has occurred, the applicant shall coordinate with responsible regulatory agencies to implement measures to control and abate contamination.</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p><b>4.6-3:</b> Potential to Increase the Risk of Wildlife Strikes to Aircraft</p>	<p>Significant</p>	<p><b>4.6-2:</b> Prior to application of water to the recharge basins, the Project operator will notify Skyotee Ranch Airport and the Flight Safety Office for the R-2508 Air Complex of anticipated recharge operations.</p> <p><b>4.6-3:</b> Whenever water is present in the recharge basins, the Project operator will monitor the basins for bird activity. Monitoring will be particularly important during initial application of water because prey animals fleeing the advancing water could attract predatory bird species. Additionally, the Project operator will maintain routine coordination with the local Audubon Society chapters in Bakersfield and Ridgecrest regarding when and where bird migration activity should be expected during periods of recharge activity.</p> <p>If large birds (e.g., geese, gulls, pelicans) or large flocks of small birds (e.g., starlings, blackbirds) are observed, the Skyotee Ranch Airport and the Flight Safety Office for the R-2508 Air Complex will be notified of the potential hazard immediately.</p> <p><b>4.6-4:</b> If flocks of large birds (e.g., geese, gulls, pelicans) or large flocks of small birds (e.g., starlings, blackbirds) are observed, the Applicant or the Project operator will harass the birds through legal means to discourage use of the recharge basins, such as use of pyrotechnic equipment or depredation permitted by the California Department of Fish and Game (DFG).</p>	<p>Less than significant</p>
<p><b>4.6-4:</b> Potential for Increase in Adult Mosquito Populations</p>	<p>Significant</p>	<p><b>4.6-5:</b> Prior to the issuance of a grading permit, the applicant shall enter into an agreement with an existing or new Mosquito Abatement District. The agreement will consist of a Project-specific mosquito abatement program that would allow the existing or new Mosquito Abatement District to access the Project site and would also include quantitative abatement thresholds and financial compensation requirements for Mosquito Abatement</p>	<p>Less than significant</p>



Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>District activities, if necessary. The agreement shall be to the satisfaction of the Kern County Environmental Health Services Department.</p> <p>The Mosquito Abatement District would monitor mosquito larvae production in the recharge basins, drainages, and distribution. Larvae populations would be tracked using methods and thresholds approved by the Mosquito Abatement District, and suppression measures would be employed when thresholds are exceeded.</p>	
<b>4.7 HYDROLOGY AND WATER QUALITY</b>			
<p><b>4.7-1:</b> Degradation of Water Quality Resulting from Construction Runoff</p>	<p>Significant</p>	<p><b>4.7-1:</b> To reduce or eliminate construction-related water quality effects, before onset of any construction activities, the owner/operator or its contractor will obtain coverage under the NPDES General Construction Permit. The owner/operator will be responsible for ensuring that construction activities comply with the conditions in this permit, which will require development of a SWPPP, implementation of BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized.</p> <p>As part of this process, the owner/operator will implement erosion and sediment control BMPs in areas with potential to drain to surface water. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure may include, but are not limited to, the following measures.</p> <p>As part of this process, the owner/operator will implement erosion and sediment control BMPs in areas with potential to drain to surface water. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>part of this mitigation measure may include, but are not limited to, the following measures.</p> <ul style="list-style-type: none"> <li>• Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.</li> <li>• Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to the Lahontan Regional Water Quality Control Board.</li> </ul> <p>The owner/operator or its agent will perform routine inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The owner/operator will notify its contractors immediately if there is a noncompliance issue and will require compliance.</p> <p><b>4.7-2:</b> Prior to any construction activities, the applicant shall develop and implement a Spill Prevention Control and Countermeasures Plan (SPCCP) to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities for all contractors. The plan and methods shall be in conformance with all state and federal water quality regulations.</p> <p>The applicable agency, Kern County Environmental Health Services Department and Los Angeles County Environmental Health Services, shall review the SPCCP before the onset of construction activities. The applicant shall provide for routine inspection of the construction area to verify that the measures specified in the SPCCP are properly implemented and maintained and further ensure that contractors are notified immediately if there is a noncompliance issue and will require compliance.</p> <p>The federal reportable spill quantity for petroleum products, as defined in EPA’s CFR (40 CFR 110), is any</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>oil spill that 1) violates applicable water quality standards, 2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or 3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.</p> <p>If a spill is reportable, the contractor’s superintendent shall notify the applicant who shall inform the applicable County agency and arrange for the appropriate safety and cleanup crews to ensure the spill prevention plan is followed. A written description of reportable releases must be submitted to the Regional Water Quality Control Board and the applicable County agencies. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form.</p> <p>If a spill has occurred, the applicant shall coordinate with responsible regulatory agencies to implement measures to control and abate contamination.</p>	
<p><b>4.7-2:</b> Depletion of Groundwater Supplies within Antelope Valley</p>	<p>Beneficial</p>	<p>No additional mitigation is proposed</p>	<p>NA</p>
<p><b>4.7-3:</b> Substantial Impacts on Surrounding Groundwater Wells Attributable to Recovery Operations</p>	<p>Significant</p>	<p><b>4.7-3:</b> A monitoring committee shall be formed to monitor the impact of operations on groundwater levels and quality and to ensure that adjacent landowners are protected. The monitoring committee would be responsible for development of a detailed monitoring and operational constraints plan and would ensure that it is implemented. The plan shall include the following:</p> <ul style="list-style-type: none"> <li>• monitoring recovery operations to ensure that 10 percent of the stored water is left behind to help alleviate overdraft;</li> </ul>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>• monitoring water quality in recovered water and in groundwater flowing away from the Project to ensure that water quality remains appropriate for designated beneficial uses;</li> <li>• during recharge operations, monitoring water levels in perimeter wells, and shutting down recharge operations in the event that offsite water levels rise to within 20 feet of the ground surface; and</li> <li>• during recovery operations, monitoring water levels in offsite wells and adjusting operations, providing compensation, or providing an alternate source of water in the event that water levels drop to unacceptable levels in offsite wells as a consequence of operations.</li> <li>• Composition of the monitoring committee shall include the following representatives:               <ul style="list-style-type: none"> <li>• the owner/operator,</li> <li>• the Rosamond Community Service District,</li> <li>• the Antelope Valley State Water Project Contractors Association (a joint powers authority including AVEK, Palmdale Water District, and Littlerock Creek Irrigation District),</li> <li>• neighboring landowners and/or other selected representatives, and</li> <li>• Kern and Los Angeles County representatives.</li> </ul> </li> </ul> <p>The monitoring committee would meet monthly during recharge/recovery periods and semiannually during other periods when the Project is not in operation.</p>	
<p><b>4.7-4:</b> Substantially Alter the Existing Drainage Pattern or Contribute to Existing Local or Regional Flooding</p>	<p>No impact</p>	<p>No additional mitigation is proposed</p>	<p>NA</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.7-5:</b> Potential Impacts on Groundwater or Surface Water Quality from Recharge or Recovery Operations	Significant	<b>4.7-1:</b> see above <b>4.7-2:</b> see above	Less than significant
<b>4.8 LAND USE AND PLANNING</b>			
<b>4.8-1:</b> Physically Divide an Established Community	No impact	No additional mitigation is proposed	NA
<b>4.8-2:</b> Conflict with Any Applicable Land Use Plan, Policy, or Regulation of an Agency	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.8-3:</b> Conflict with Any Applicable Habitat Conservation Plan or Natural Community Conservation Plan	No impact	No additional mitigation is proposed	NA
<b>4.9 MINERAL RESOURCES</b>			
4.9-1: Potential Loss of Availability of Sand and Gravel Resources	No impact	No additional mitigation is proposed	NA
<b>4.10 NOISE</b>			
<b>4.10-1:</b> Exposure of Residences to Noise from Grading and Construction Activities	Significant	<b>4.10-1:</b> If residences are present within the threshold distances determined above, the construction contractor will employ noise-reducing construction practices so that noise from construction does not exceed Kern County noise-level standards at adjacent residences. Measures to be implemented may include the following: <ul style="list-style-type: none"> <li>• providing construction equipment with sound-control devices no less effective than those provided on the original equipment (no equipment will have an unmuffled exhaust);</li> <li>• restricting construction to beyond 2,800 feet from residences during nighttime hours (10 p.m. to 7 a.m.) and beyond 1,200 feet at all other times; and</li> <li>• in the event that construction activities occur close to sensitive noise receptors, implementing appropriate additional noise mitigation measures, including but not limited to:</li> </ul>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>- changing the location of stationary construction equipment,</li> <li>- shutting off idling equipment,</li> <li>- rescheduling construction activity,</li> <li>- notifying adjacent residents in advance of construction work, and</li> <li>- installing acoustic barriers around stationary construction noise sources.</li> </ul>	
<b>4.10-2:</b> Exposure of Residences to Noise from Well Drilling Operations	Significant	<p><b>4.10-2:</b> If sensitive noise receptors are present within the threshold distances cited above, the drilling contractor will employ noise-reducing construction practices so that noise from drilling does not exceed Kern County noise-level standards at adjacent residences. Measures to be implemented may include the following:</p> <ul style="list-style-type: none"> <li>• restricting well drilling to beyond 1,800 feet from residences during nighttime hours (10 p.m. to 7 a.m.), and 700 feet during daytime hours; or</li> <li>• using sound attenuation enclosures around noise-generating elements of the drilling operation.</li> </ul>	Less than significant
<b>4.10-3:</b> Exposure of Residences to Noise from Operation of Engines at Wells	Significant	<p><b>4.10-3:</b> If wells are to be located within the distance and noise thresholds cited above for residences, the owner/operator will employ noise reducing practices so that noise from well operations does not exceed Kern County noise-level standards at adjacent residences. Measures to be implemented may include:</p> <ul style="list-style-type: none"> <li>• restricting well installations to beyond 1,600 feet from residences, where feasible;</li> <li>• using electric pumps when feasible where well installations are within 1,600 feet of residences; and</li> <li>• using sound attenuation enclosures designed to</li> </ul>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		achieve noise reductions sufficient to comply with Kern County standards for noise-generating elements of the well operation when no other feasible control method is available.	
<b>4.10-4:</b> Exposure of Residences to Noise from Operation of Engines at Lift Stations	Significant	<p><b>4.10-4:</b> If the noise and distance thresholds cited above are to be exceeded, the owner/operator will employ noise-reducing practices so that noise from lift station operations does not exceed Kern County noise-level standards at adjacent residences. Measures to be implemented may include:</p> <ul style="list-style-type: none"> <li>• restricting lift station installations to beyond 2,800 feet from residences, where feasible;</li> <li>• using electric pumps where lift station installations are within 2,800 feet of residences; and</li> <li>• using sound attenuation enclosures designed to achieve noise reductions sufficient to comply with Kern County standards for noise-generating elements of the lift station operation when no other feasible control method is available.</li> </ul>	Less than significant
<b>4.11 POPULATION AND HOUSING</b>			
<b>4.11-1:</b> Potential Growth-Inducing Impacts Related to Construction	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.12 TRANSPORTATION AND TRAFFIC</b>			
<b>4.12-1:</b> Cause an Increase in Traffic That is Substantial in Relation to the Existing Traffic Load and Street System Capacity	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.12-2:</b> Exceed a Level of Service Standard Established by the County	Less than significant	No additional mitigation is proposed	Less than significant
<b>4.12-3:</b> Result in a Change in Air Traffic Patterns, Including an Increase in Traffic Volume or Change in Location that Results in Substantial Safety Risks	No impact	No additional mitigation is proposed	NA

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.12-4:</b> Substantially Increase Hazards Due to a Design Feature or Incompatible Use	Significant	<p><b>4.12-1:</b> The owner/operator will require the construction contractor to prepare and implement a traffic safety plan before the onset of the construction phase of the Project. The traffic safety plan shall be reviewed and approved by the Kern County Roads Department for affected roads in Kern County and the Los Angeles County Public Works Department for affected roads in Los Angeles County. The plan shall address:</p> <ul style="list-style-type: none"> <li>• appropriate vehicle size and speed,</li> <li>• travel routes,</li> <li>• detour or lane-closure plans,</li> <li>• flagperson requirements,</li> <li>• locations of turnouts to be constructed,</li> <li>• coordination with law enforcement and fire control agencies,</li> <li>• coordination with California Department of Transportation personnel (for work affecting state road rights-of-way),</li> <li>• emergency access to ensure public safety, and</li> <li>• traffic and speed limit signs.</li> </ul>	Less than significant
<b>4.12-5:</b> Result in Inadequate Emergency Access	Significant	<p><b>4.12-2:</b> Before beginning construction activities, the applicant or the construction contractor shall contact local emergency-response agencies (Kern County and Los Angeles County Sheriff and Fire Departments) to provide information on the timing and location of any traffic control measures required to complete the Project. Emergency-response agencies would be notified of any change to traffic control measures as the construction phases proceed, so that emergency-response providers can modify their response routes to ensure that response time would not be affected.</p>	Less than significant
<b>4.12-6:</b> Result in Inadequate Parking Capacity	No impact	<p><b>4.12-3:</b> Prior to issuance of a grading permit, the applicant shall submit a plot plan detailing the location of</p>	NA



Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>4.12-7:</b> Conflict with Adopted Policies, Plans, or Programs Supporting Alternative Transportation (e.g., bus turnouts, bicycle racks)	No impact	buildings to be used for operational staff. The plan shall have a minimum of 10 parking spaces and shall comply with Chapter 19.82 (Off-Street Parking) of the Kern County Zoning Ordinance.	NA
<b>4.13 PUBLIC SERVICES AND UTILITIES</b>			
<b>4.13-1:</b> Temporary Disruption of AVEK West Feeder as a Result of Construction or Operation	Less than significant	No additional mitigation is proposed	Less than significant