APPENDIX N
Friant-Kern Canal Middle Reach Capacity Correction Project

US Fish and Wildlife Service - Biological Opinion

BUREAU OF RECLAMATION

Bureau of Reclamation
Interior Region 10 California-Great Basin
California*, Nevada*, Oregon*
***Partial**

September 2020

The Endangered Species Act was established to protect and recover imperiled species and the ecosystems on which they depend. Two species (Buena Vista Lake shrew [BVLS] and San Joaquin kit fox [SJKF]) that are federally listed as endangered potentially occur in the Project area, and implementation of the Project may result in take of these species or their habitat. Reclamation and FWA coordinated with the USFWS early in the planning process. Reclamation prepared a BA to analyze the potential effects of the Project on federally listed species which concluded that the Project may adversely affect the endangered BVLS and SJKF. Reclamation submitted the BA to the USFWS on December 23, 2019. On July 23, 2020, Reclamation received a biological opinion from the USFWS that concluded the Project is not likely to jeopardize the continued existence of the SJKF and BVLS. This document presents the biological opinion that was received (08ESMF00-2020-F-0350).

United States Department of the Interior
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In Reply Refer to:
08ESMF00-
2020-F-0350

July 23, 2020

Memorandum

To: Anastasia T. Leigh, Regional Environmental Officer, Mid-Pacific Regional Office
Bureau of Reclamation, Sacramento, California, ALeigh@usbr.gov

J Hull

From: Josh Hull, Acting Field Supervisor, Sacramento Fish and Wildlife Office, U.S. Fish and Wildlife Service, Sacramento, California

Subject: Formal Consultation on the Proposed Friant-Kern Canal Middle Reach Capacity Correction Project

This memorandum is in response to the U.S. Bureau of Reclamation's (Reclamation) December 23, 2019, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Friant-Kern Canal Middle Reach Capacity Correction Project (proposed project) in Tulare and Kern counties, California. Your request was received by the Service on December 26, 2019. At issue are the proposed project's effects on the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*) and Buena Vista Lake ornate shrew (*Sorex ornatus relictus*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting is the proposed raising and realigning of the Friant-Kern Canal (FKC), which would restore the capacity of the 33-mile-long Middle Reach of the canal located within Tulare and Kern counties. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings concluded that the proposed project may adversely affect the federally endangered San Joaquin kit fox and Buena Vista Lake shrew.

In considering your request, we based our evaluation on the following:

1) Size and nature of the proposed project
2) Proposed minimization and avoidance measures
3) Protocol survey efforts and results

The remainder of this document provides our biological opinion on the effects of the proposed project on the species of concern.

Consultation History

October 3, 2018: Reclamation had a telephone conversation with the Service to discuss proposed immediate repair work on the FKC and confirm that the proposed work had existing Section 7 Endangered Species Act coverage for potential effects on San Joaquin kit fox under the *Formal Endangered Species Consultation on the Operations and Maintenance Program Occurring on Bureau of Reclamation Lands within the South-Central California Area Office* (2005 O&M BiOp) (Service, 2005).

November 7, 2018: Reclamation submitted draft San Joaquin kit fox avoidance and minimization measures, adapted from the 2005 O&M BiOp, for the FKC immediate repair work to the Service for review and approval.

November 15, 2018: The Service provided comments and edits to the draft San Joaquin kit fox avoidance and minimization measures submitted for the FKC immediate repair work.

November 27, 2018: Reclamation submitted the final San Joaquin kit fox avoidance and minimization measures for the FKC immediate repair work, and the resumes of five biologists proposed to conduct the measures, to the Service for approval.

November 30, 2018: The Service approved the final San Joaquin kit fox avoidance and minimization measures for the immediate repair work and approved the five biologists as qualified biologists under the 2005 O&M BiOp.

April 23, 2019: Reclamation, the Service, California Department of Fish and Wildlife (CDFW), Friant, and Friant's consultant, Stantec Consulting Services Inc. (Stantec), attended an initial site visit of the proposed project.

August 6, 2019: Reclamation sent a letter to the Service requesting concurrence with their determination that proposed geotechnical investigations to inform the FKC Middle Reach Capacity Correction Project were "Not Likely to Adversely Affect" San Joaquin kit fox.

September 5, 2019: The Service sent a letter to Reclamation concurring with their "Not Likely to Adversely Affect" determination for the proposed geotechnical investigations along the FKC.

October 30, 2019: Reclamation, the Service, and Stantec attended a follow-up site visit of the proposed project.

November 26, 2019: Reclamation, the Service, and Stantec held a conference call to discuss camera survey methods for Buena Vista Lake shrew and San Joaquin kit fox, and draft avoidance and minimization measures for San Joaquin kit fox. The *Draft San Joaquin kit fox and Minimization Work Plan for the Friant Kern Canal Middle Reach Capacity Correction Project* was provided to the Service for review.

December 3, 2019: The Service provided their initial comments on the *Draft San Joaquin kit fox Avoidance and Minimization Work Plan for the Friant-Kern Canal Middle Reach Capacity Correction Project* to Reclamation and Stantec.

BIOLOGICAL OPINION

Description of the Action

The proposed project would increase the capacity of the 33-mile-long Middle Reach of the FKC by both raising and realigning the canal. The proposed project also includes the United States Army

Corps of Engineers issuance of a 404 permit for the proposed work. Canal raising would occur over a total of approximately 13 miles of the existing canal in the northernmost and southernmost portions of the proposed project. Raising would consist of raising the embankments by increasing the height of the earthen canal banks and extending the lining by adding a one- to four-foot-high concrete lining (with a slope of 1.5:1 feet) above the existing lining. The canal would be raised from mile post (MP) 88.2 to MP 95.7 and from MP 115.9 to MP 121.5. The canal enlargement would remain within the existing FKC right-of-way; however, existing access roads would need to be re-built. Existing delivery turnouts (i.e., pump stations that deliver water to service areas) in enlarged portions of the canal would be maintained.

For the realignment portion of the proposed project, a new approximately 20-mile-long segment of canal would be constructed east of and adjacent to the existing canal. The realigned canal would provide a conveyance capacity of between 3,500 and 4,000 cubic feet per second (cfs).

Approximately 19 miles of the 33-mile Middle Reach of the existing FKC would be abandoned due to the realignment. In the abandoned portion of the canal, the concrete lining from the embankments would be demolished using heavy equipment (e.g., bulldozers) and could be reused as roadway base material or borrow material as needed; the remainder would be abandoned in place, along with the concrete lining on the bottom of the canal. The centerline distance between the abandoned segment and the realigned canal would vary, but would average 127 feet. Approximately 510 acres of new right-of-way would be required to accommodate the proposed project.

The FKC parallels County Road 192 near MP 115.3 for approximately 1.7 miles. There is insufficient room for the realigned canal between the existing FKC and County Road 192, so the realigned canal would be located approximately 120 feet east of the road (from centerline of the road to centerline of the canal). A similar situation occurs adjacent to County Road 184, beginning south of Avenue 40 at approximately MP 111.5 and continuing south for approximately 2 miles to Avenue 24.

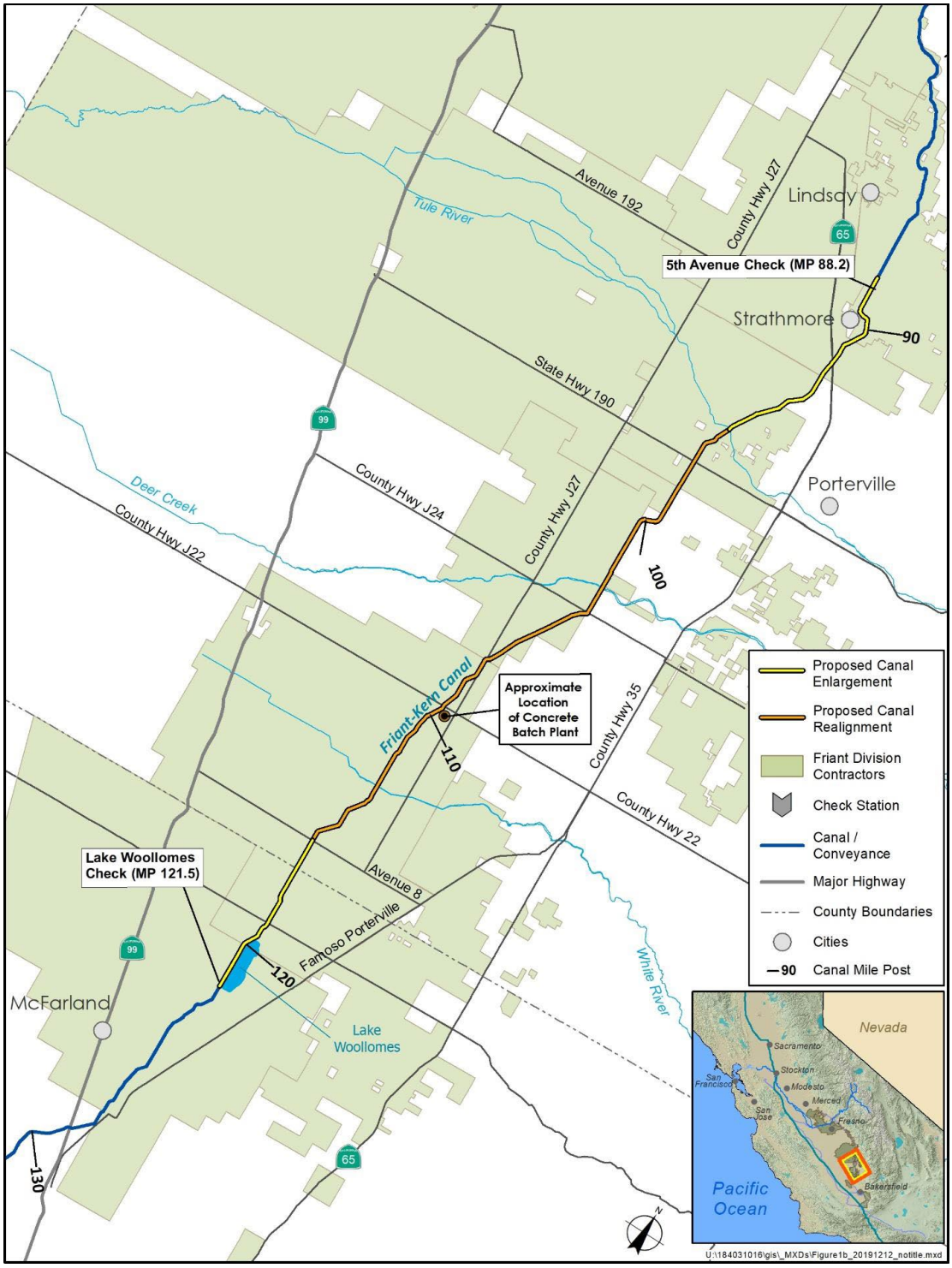

Figure 1: Locations of Canal Enlargement and Realignment

To accommodate existing water deliveries in the area of the realigned canal, new turnouts consisting of new cast-in-place concrete structures and delivery piping would be constructed as needed. Additionally, small segments of the FKC would be left in place to accommodate existing turnouts and maintain water deliveries to existing distribution systems. Maintaining existing turnouts and deliveries would be accomplished by retaining approximately 100 to 200 feet of the FKC upstream of existing pump stations; this would allow water to be delivered from the realigned canal to a

controlled water level in the delivery pool without affecting existing pumps and distribution systems.

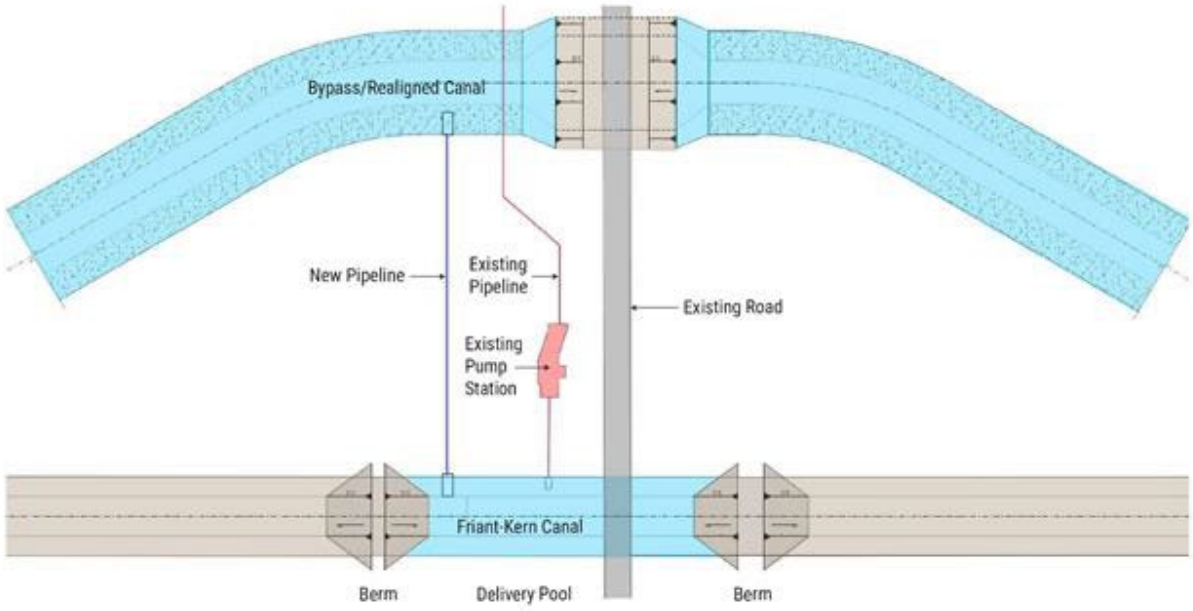

Figure 2: Drawing of a Delivery Pool

Within the realigned segment, replacement of the existing check structures, wasteways, and siphons at Deer Creek and White River would be required. The existing structures would generally be left in place, and the existing siphons would be filled with sand and abandoned in place. Control buildings and associated electrical, mechanical, and control equipment at these facilities would be replaced as required.

Up to 21 bridges would be removed and replaced with new inverted siphons. Up to 10 miles of existing utility crossings would be removed, modified, or replaced to accommodate the proposed project. The proposed project would also require the modification, relocation, abandonment, or removal of existing facilities on lands adjacent to the FKC and realigned canal; affected facilities include, but are not limited to, wells, irrigation systems, farm roads, miscellaneous structures (such as small control buildings), and power lines.

A concrete batch plant would be built on-site and would be primarily used for preparation of the lining material. The batch plant would be located within a 30-acre parcel on Avenue 56 near the FKC in Tulare County, and would be fenced in with chain-link fencing. The property would also be used for contractor staging, offices, and equipment and material storage. New 24-foot-wide operations and maintenance roads would be developed on the realigned canal segment, similar to the existing operations and maintenance roads along the canal. One side of the realigned canal operations and maintenance roads would have an all-weather finish (i.e., gravel with chip-seal); the other side would be a drivable dirt road (i.e., no gravel). The side of the realigned canal road with an all-weather finish versus drivable dirt finish may alternate along the canal reach. Aggregate for the new all-weather road finishes would be obtained from regional commercial sources.

Construction would begin with the relocation of existing facilities adjacent to the FKC (e.g., utilities, wells) and mass-excavation associated with replacement check structures, siphons, and the realigned canal. Mass excavated areas would not be left for long periods of time, but excavation would be continuous in the borrow areas during construction of the realigned portion of the canal.

Construction activities would not be continuous at any individual location throughout the entire anticipated three-year construction period. It is expected that the maximum duration of construction for any one project element would be seven months.

Once completed, the FKC and FKC right-of-way, including the newly acquired FKC right-of-way, would be maintained in accordance with the 2005 O&M BiOp (Service, 2005).

If San Joaquin kit foxes are detected during den monitoring activities or survey efforts, artificial escape dens would be installed to replace destroyed known dens at a 2:1 ratio once construction is complete. The artificial dens would be constructed in locations as close as possible to apparent kit fox detections, and where logistically feasible, as determined through coordination with Reclamation, Friant, and the Service. The artificial dens would provide immediately available alternative habitats, but would be considered temporary (i.e., unmonitored, not maintained, and potentially removed upon confirmation of vacancy and after natural potential kit fox dens have become reestablished along the canal).

- Escape Dens- Designed to provide escape cover for San Joaquin kit fox. Dens would consist of a 10–20-foot-long length of pipe placed on the ground surface and covered with several inches of dirt to provide thermal insulation.

- Chamber Dens- Designed to provide escape cover and diurnal resting cover for San Joaquin kit fox and provide a chamber for resting or reproduction. Chamber dens would consist of a box buried approximately three feet deep. Plastic irrigation valve boxes (approximately 20–30 inches long, 15–20 inches wide, and 15–20 inches tall) or Igloo-style dog house (for "small" dogs - approximately 30-inch diameter at base and 24 inches tall) would be used to construct the chamber. Both chamber designs would have open bottoms. Holes would be cut to accept two opposing 5–7-foot-long entrance pipes (Cypher et al., 2012) leading into the den box. Entrances may be lengthened to 10–15 feet to reflect San Joaquin kit fox preference for longer entrances (Tim Ludwick, pers. comm., 10/30/2019). Tunnel entrances would consist of either rigid polyvinyl chloride (PVC) pipe with the bottom removed, intermittent sections removed, or holes drilled for drainage, or flexible, corrugated high-density polyethylene (HDPE) pipe. Regardless of material used for entrance tunnels, a bend would be created between the entrance at ground level and the buried chamber box, to obscure light and direct visibility into the chamber.

Conservation Measures

The following measures would be implemented by Reclamation and their representative(s) to minimize and avoid potential environmental consequences associated with the proposed project.

1) Prior to the initiation of ground-breaking, a qualified biologist shall conduct a Worker Environmental Awareness Training for all construction personnel. Training sessions shall be repeated for all new employees before they access the proposed project site. Sign-up sheets identifying attendees and the contractor/company they represent shall be prepared for each training session, and records of attendance will be maintained by the proposed project. At a minimum, the training shall include a description of the protected species and biological resources that may occur in the project footprint and their physical description, habitats, and natural history, as well as the measures that are being implemented to avoid or minimize project-related impacts, penalties for non-compliance, and the boundaries of the work area. So that employees and contractors understand their roles and responsibilities, training shall

be conducted in languages other than English, as appropriate. A written summary of the training will be provided to all attendees, and an electronic copy provided for future distribution.

2) A litter control program shall be instituted at each proposed project site. All workers shall place their food scraps, paper wrappers, food containers, cans, bottles, and other trash in covered or closed trash containers. The trash containers should be removed from the area at the end of each working day.

3) No firearms (except as possessed by Federal, State, or local law enforcement officers) or pets shall be permitted on the construction site.

4) To prevent inadvertent entrapment of wildlife during construction, all excavated steep-walled holes or trenches greater than two feet deep (excluding excavation work on either the FKC itself or the realigned canal) should be covered or filled at the end of each working day or provided with one or more escape ramps no greater than 200 feet apart. Before such trenches or holes are filled, they must be thoroughly inspected for trapped animals. If protected species are found in any of the holes or trenches, work shall cease until an escape ramp is provided and the animal leaves on its own volition, or until the animal has been relocated by a Service-approved biologist, and/or in coordination with the Service as appropriate.

5) All construction activity would be confined within the proposed project site, which may include temporary access roads, haul roads, and staging areas specifically designated and marked for these purposes.

6) Tightly woven fiber netting or similar material should be used for erosion control or other purposes at the proposed project site to minimize the potential for animals to become trapped (i.e., no plastic mono-filament netting).

The following species-specific measures will be implemented to avoid and minimize effects to San Joaquin kit fox and Buena Vista Lake Ornate Shrew:

7) Determine the presence of kit fox dens.
    - Pedestrian inventories of potential and occupied dens will be completed to determine the need for pre-construction monitoring. Pedestrian inventories of potential and occupied dens shall be conducted within 90 calendar days prior to the start of construction (i.e., before any activity that covers or disrupts surface soils [e.g., clearing and grubbing; grading; excavation, soil or equipment stockpiling; equipment or vehicle storage or parking]). To the extent practicable, these surveys would be conducted nearer in time to the start of construction.
    - Pre-construction monitoring will be performed to confirm and document kit fox presence or absence at potential and occupied dens identified during the inventory.
    - Areas within which pedestrian den inventories or pre-construction monitoring have been completed more than 30 days prior to construction will be re-inventoried not more than 30 days prior to construction. Pre-construction monitoring will be performed on potential and occupied dens discovered during re-inventory that have not been previously monitored.

- Pedestrian inventories and pre-construction monitoring for dens shall be conducted by qualified biologists familiar with San Joaquin kit fox biology, natural history, and potential dens. Pipes and culverts shall be searched for kit foxes immediately prior to being moved or sealed to confirm that an animal has not been trapped; if a San Joaquin kit fox is observed it will be gently encouraged to leave the area. Reclamation has defined "gently encouraged" to mean without using loud noise, physical force, or physical movement of the pipe or culvert such that the animal could be injured or startled while it is leaving the area.
- Any such action shall be conducted by a Service-approved biologist.

8) Identify and document locations of potential or occupied dens (natal or non-natal) and their status (occupied or unoccupied). Definitions:
    - Known den: any existing natural den or human-made structure for which conclusive evidence or circumstantial evidence can show that the den is used or has been used at any time in the past by San Joaquin kit fox.
    - Potential den: any natural den or burrow within the range of the species that has entrances of appropriate dimensions (4 to 12 inches in diameter) to accommodate San Joaquin kit fox. A qualified biologist will survey and investigate using remote cameras or a track plate.
    - Natal/pupping den: any known San Joaquin kit fox den (as defined) used by San Joaquin kit fox to whelp and/or rear pups.
    - Atypical den: any known San Joaquin kit fox den that has been established in, or in association with, a human-made structure.

9) Identify and execute appropriate action(s) regarding notification, buffers, excavation and fill, or seal-off:
    - Occupied natal den: if an occupied natal den is visible or encountered within the proposed project or on publicly accessible land sufficiently close to the proposed project construction area such that it would be disturbed (based on qualified biologist opinion and monitoring), the Service shall be contacted immediately, before any project action occurs to determine permissible actions to permit resumption of work.
    - Pipes or culverts with a diameter greater than 4 inches shall be capped or taped closed when it is ascertained that no San Joaquin kit fox are present. Any San Joaquin kit fox found in a pipe or culvert shall be allowed to escape unimpeded.

10) If a natural den or burrow is determined to meet size criteria (i.e., >4-inches in diameter) and cannot be avoided and must be destroyed, the following guidelines shall be followed:
    - Prior to den destruction, areas scheduled for construction within the vicinity of potential kit fox dens shall be monitored by a qualified biologist to determine their status. Monitoring would begin with pedestrian surveys to identify locations of potential kit fox dens and observe for suitable surrounding habitat. Because it is logistically impractical to monitor all dens using remote cameras and tracking medium (or hand excavate to confirm vacancy), baited camera traps will also be used to assess presence or absence of San Joaquin kit fox activity. Prior to ground disturbing activities in project segments that require excavation (i.e., realigned canal), baited camera traps will be deployed in approximate ¼ mile increments for four consecutive nights. Baited camera traps may be placed further than ¼ mile apart depending on suitability of surrounding habitat/land uses that are observed during

pedestrian surveys and in areas with lower densities of potential kit fox dens. If no kit foxes are detected by the camera traps during this time period, it can be assumed that kit foxes are not currently using the area and ground disturbing activities may commence in that area. If a kit fox is detected by a camera trap, then further investigation will be required as described below.

- If a kit fox is detected by a baited camera trap, or otherwise observed in an area, further preconstruction monitoring will be conducted to determine which den(s) are being used. Baited camera traps will be deployed in the area and tracking medium will be placed at the entrances of suspected dens to monitor the area for four consecutive nights. If no San Joaquin kit fox activity is observed during this period, the den(s) shall be deemed unoccupied and destroyed immediately to preclude subsequent use. If San Joaquin kit fox activity is observed at a den during this period, the den shall be monitored for at least five consecutive days from the time of observation to allow any resident animal to vacate the den during its normal activities. Use of the den can be discouraged during this period by partially plugging the entrance(s) with soil in such a manner that any resident animal can escape easily. Destruction of the den(s) may begin when, in the judgment of a qualified biologist, the animal has vacated. The biologist shall be trained and familiar with San Joaquin kit fox biology and must be approved by the Service to conduct such an activity. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may be excavated when, in the judgment of a qualified biologist, it is temporarily vacant, for example during the animal's normal foraging activities.
- All dens requiring excavation shall be excavated under the supervision of a Service-approved biologist. In no event would an excavation that meets the definition of a confined space (i.e., a space large enough and so configured that a person can bodily enter but has limited or restricted means for entry or exit) be initiated. In this circumstance, discouragement (as described above) would be used.
- The den shall be fully excavated and then filled with dirt and compacted so that San Joaquin kit fox cannot reenter or use the den during the construction period. If, at any point during excavation a San Joaquin kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den shall be resumed. Destruction of the den may be resumed, when in the judgment of a Service-approved biologist, the animal has escaped from the partially destroyed den.

11) In areas of suitable habitat for Buena Vista Lake shrew within the project footprint (i.e., the Deer Creek crossing and adjacent areas), all above-ground herbaceous vegetation within the construction footprint will be cleared using hand tools (i.e., electric or non-gasoline powered tools, including weed whackers and/or mowers) under the supervision of a Service-approved biologist or biological monitor. All leaf litter will be removed using rakes or similar hand tools. All woody vegetation will be cut as closely to the ground as possible using hand tools (which can include chainsaws). Vegetation will be removed immediately and stored away from areas of suitable Buena Vista Lake shrew habitat. Such vegetation hand-removal efforts will be implemented in the areas that require vegetation removal in order to clearly detect Buena Vista Lake shrew and will continue in each area of suitable habitat until it is reasonably certain that Buena Vista Lake shrew can be detected within the cleared areas, if present.

12) After vegetation has been cleared from areas of suitable Buena Vista Lake shrew habitat, non-disturbance exclusion fencing will be installed along the edges of the proposed project where vegetation was cleared from areas of suitable habitat; fencing would be buried to a

> minimum depth of six inches. Fencing will be placed between areas of active construction and adjacent to nearby suitable habitat to preclude Buena Vista Lake shrew from running through the proposed project area. In areas where installation of fencing is not practicable, the Service will be contacted and will provide direction on a case-by-case basis. The exclusionary fencing will be installed under the supervision of the Service-approved Buena Vista Lake shrew biological monitor, and fence placement/configuration will be determined by a Service-approved Buena Vista Lake shrew biologist, with input from the Service as required. Fencing may consist of a combination of both Environmentally Sensitive Area fencing and Wildlife Exclusion fencing with one-way exit/escape points. As discussed above, these types of fencing are constructed of tightly woven netting to preclude entrapment that is buried to prevent animals from entering the area above and below ground.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." For the proposed project, the action area encompasses all potential project components, potential staging areas and areas of ground disturbance.

The project footprint is generally centered on the FKC beginning at the 5th Avenue check just north of the community of Strathmore in Tulare County, and extending 33 miles south-southwest to Lake Woollomes, approximately 0.5 mile north of Pond Road and southeast of the city of Delano in Kern County. The proposed project is located within the Lindsay, Porterville, Ducor, Sausalito School, Delano East, and McFarland, California U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangles, and within the Sections, Townships, and Ranges of the Mount Diablo Base and Meridian.

Effects are expected to largely be contained to areas where construction activities occur. Due the nature of these construction activities including digging and excavation, noise and dust are expected to be produced throughout the life of the proposed project. Additionally, project-related traffic is expected for the purpose of transporting supplies, moving equipment, employee commuting, etc.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Endangered Species Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) the

Cumulative Effects, which evaluates the effects of future, non-federal activities in the action area on the species.

Status of the Species

San Joaquin Kit Fox

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *San Joaquin kit fox 5-year Review: Summary and Analysis* (Service, 2010). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in this document have continued to act on the species since the 2010 5-year review was finalized, with loss of habitat being the most significant effect. While there have been continued losses of kit fox habitat throughout the region identified in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service, 1998) (Recovery Plan), to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

Buena Vista Lake Ornate Shrew

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Buena Vista Lake Ornate Shrew (Sorex ornatus relidus) 5-Year Review: Summary and Evaluation* (Service 2011a). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in this document have continued to act on the species since the 2011 5-year review was finalized, with loss of habitat being the most significant effect. While there have been continued losses of the shrew habitat throughout the region identified in the 1998 Recovery Plan, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species.

Environmental Baseline

The project footprint consists primarily of active agricultural lands (1,710.5 acres) and fallow agricultural lands (366.6 acres) adjacent to the FKC, as well as the barren and ruderal areas (519.9 acres) of the maintained FKC access roads and right-of-way. FKC right-of-way is subjected to routine maintenance activities including blading, discing, squirrel baiting and application of contact and pre-emergent herbicides (Service, 2005). These routine maintenance activities may damage or destroy burrows and decrease populations of small mammal and insect prey in the action area, making them less suitable for San Joaquin kit foxes and Buena Vista Lake shrews.

The agricultural lands within the action area consist primarily of citrus, almond, and pistachio orchards and vineyards. The understory of the vineyards and some of the orchards are largely barren and are therefore unlikely to support a reliable prey base for San Joaquin kit foxes. Potential kit fox prey (e.g., squirrels, gophers) may also be actively poisoned in orchards, which further reduces potential prey populations. Pesticides are commonly used on agricultural lands and reduce the abundance of insects; which may result in inadequate food supplies to support the high metabolic needs of Buena Vista Lake shrew in adjacent areas of otherwise suitable riparian habitat. Pesticide use could also negatively affect shrews through direct exposure from pesticide drift or through consumption of affected insects (Service, 2011).

Overall, the action area is highly disturbed from ongoing routine maintenance activities and agricultural operations and provides only marginally suitable habitat for listed species.

San Joaquin Kit Fox

The proposed project is located within the southeastern portion of the current range of the San Joaquin kit fox, which extends from the Los Padres National Forest south of Bakersfield north to Concord, California (Service, 2019a). The proposed project is located east of the Southwestern Tulare County Recovery satellite area and a portion of the proposed project (from approximate MP 97.5 to MP 104.0) overlaps the Tulare County Foothills Recovery satellite area identified in the most recent 5-Year Review of the species (Service, 2010). The population trend of kit foxes in the Southwestern Tulare County satellite area, located west of the proposed project, was identified as "isolated" and kit foxes were last observed in this area in 2004. The population trend of the Tulare County foothills satellite area, located within and east of the proposed project, was identified as "unknown" and the most recent recorded observation of kit foxes in this area was from 1992 (Service, 2010; CDFW, 2019). There is likely some linkage between these satellite areas and the Bakersfield area (located about 25 miles south of the proposed project) which supports a population of San Joaquin kit foxes and could be a source of dispersing kit fox individuals. This linkage is likely significant, as the kit fox population in Bakersfield is known to be established and stable (Service, 2010). The dispersal of foxes from this source population to the satellite areas, or vice versa, may benefit the species in maintaining genetic diversity.

The action area is located within a landscape which is dominated by agricultural practices. The mass transformation of natural land to developed agricultural land has severely decreased available habitat to the San Joaquin kit fox and many other species. Managed plant crops surrounding the action area include irrigated row crops, vineyards, orchards, herbaceous field crops (alfalfa), and fallow land. While kit foxes are known to venture into agricultural areas to forage, actively farmed land is not suitable habitat for kit foxes. Kit foxes are more successful foraging in orchards than row crops, but orchards are still not sufficient habitat for kit foxes because they do not provide means of escape from predators, denning opportunities, or a reliable prey base (Warrick, 2007). Additionally, small mammals may be actively poisoned in orchards, which decreases their prevalence and may result in second-hand poisoning to kit foxes if affected small mammals are consumed.

Aquaduct and canal ROW's are known to be valuable habitat to kit foxes (Warrick et al., 2007). Especially given that the action area consists primarily of developed agricultural land, the ROW bordering the canal offers a strip of natural habitat that is far more suitable for kit foxes than the developed habitat which surrounds it. The ROW bordering the canal likely offers a much more abundant prey base and presence of den sites in relation to the bordering habitat, and kit foxes are therefore most likely to occur within the ROW of the action area (Warrick et al., 2007).

As previously discussed, human influence via agriculture and development likely preclude kit fox residency within the action area. However, the project area offers a strip of natural habitat which stretches along the length of the action area. Because this habitat is more suitable to kit foxes than the agricultural landscapes that dominate the area, it is likely that this habitat is used predominantly as a dispersal corridor through which kit foxes move between populations or disperse. The action area may be used by kit foxes to disperse north from Bakersfield, or to migrate between satellite populations to the east and the Bakersfield population.

In addition to the probability of the action area to be used for dispersal, there is an abundance of small mammal burrows within the project footprint which kit foxes may utilize. Kit foxes are dependent on the presence of small mammal burrows for survival and successful dispersal. Kit foxes use these burrows to shelter themselves from heat stress and water loss in the summer, to minimalize metabolic costs in the winter, and for predator evasion year round (Koopman et al., 1998).

Additionally, kit foxes utilize a greater amount of small mammal burrows when dispersing (Koopman et al., 1998) As juveniles disperse and begin to seek mating opportunities, they benefit from abundant small mammal burrows as they are able to more effectively shelter themselves. Despite ample small mammal burrows, the unsuitable nature of the surrounding habitat likely limits prey availability and creates the potential for frequent human disturbances that may be incompatible with permanent occupancy.

While it is not expected that kit foxes reside in the area in the long term, it is probable that the canal ROW serves as a habitat corridor through which kit foxes migrate between populations and forage. This could have implications in maintaining a healthy genetic diversity and adequate gene flow for the species.

Despite this potential, kit foxes have not been observed in the last 15 years. There are multiple CNDDB records of San Joaquin kit foxes in, and within five miles of, the proposed project (CDFW, 2019), with the majority of the records from 1975 and the most recent observation of a known den recorded in 2005, less than one mile west of MP 120.35 on the FKC. There is also a 2001 observation of a roadkill kit fox about 5.5 miles northwest of the northernmost extent of the proposed project (CDFW, 2019).

Stantec conducted several biological field surveys along the FKC to evaluate habitat and San Joaquin kit fox presence in the action area. Stantec biologists surveyed the action area from September 30, 2018, to October 3, 2018, and identified several potential kit fox dens (i.e., subterranean holes or manmade structures with opening 4–12-inches in diameter), most of which were created by California ground squirrels (*Otospermophilus beecheyi*); no San Joaquin kit foxes were observed during the surveys.

In December of 2018, surveys for potential kit fox dens were conducted in the action area between MP 103.66 and MP 107.34, during which time 58 potential kit fox dens were identified. The 58 potential dens were each monitored for three consecutive nights using remote cameras and tracking medium between January and March 2019, and no kit foxes were detected.

Between October 15, 2019, and November 20, 2019, pre-construction surveys and monitoring of potential kit fox dens were conducted in compliance with the *Informal Consultation on the Proposed Geotechnical Investigation for the Friant-Kern Canal Middle Reach Capacity Correction Project in Tulare and Kings Counties, California* (Service, 2019b). Approximately 140 potential kit fox dens were identified during the surveys, of which 41 were monitored for four consecutive nights using remote cameras and tracking medium (i.e. diatomaceous earth); no San Joaquin kit foxes were detected during the surveys or monitoring.

From November 8, 2019, through December 17, 2019, Stantec conducted San Joaquin kit fox surveys throughout the entire action area using ecological scent-detection dogs trained to recognize the specific scent of San Joaquin kit fox scat and alert their handler to the location of the scat. No San Joaquin kit foxes, kit fox scat, or alerts by scent dogs were detected during the surveys.

From December 2, 2019, through December 9, 2019, Stantec deployed two arrays of remotely operated cameras enhanced with scent attractants (e.g., cans of cat food or tuna with small punctures to promote long-lasting scent dispersal) in two locations within the action area: the first (northern) array included 10 cameras beginning adjacent to the Tulare County Mid-Valley Disposal site Teapot Dome at Avenue 128 south along the eastern embankment of the FKC approximately 2.76 miles to about 0.5 miles south of Avenue 112. The second (southern) array included eight cameras beginning near the Kern County/Tulare County border and extending 2.5 miles south to

the north end of Lake Woollomes. In both arrays, cameras were placed at 0.25- to 0.5-mile intervals facing east of and down the outboard embankment of the canal with scent attractants in view of the camera. In seven nights of continuous monitoring, resulting in 126 camera-nights, no San Joaquin kit foxes were detected. Several other mammalian species were recorded by the cameras deployed in the two arrays, including coyote and domestic dog, which are known predators and/or competitors of San Joaquin kit fox.

The action area consists primarily of agricultural lands and the barren and ruderal areas of the maintained FKC right-of-way. The ongoing disturbances in these areas decrease the suitability of the habitat within the action area by reducing prey populations and the number of available burrows. Despite this, San Joaquin kit foxes may use the FKC right-of-way and access roads as a migration corridor, and may forage in the margins of agricultural lands at night.

Buena Vista Lake Shrew

The extent of the Buena Vista Lake shrew's current range is not fully known due to a lack of survey data and studies on the species (Service, 2011; Cypher et al., 2017). Historically, the species is believed to have occupied wetlands around Buena Vista Lake and wetlands and riparian habitats throughout the Tulare Basin. The species' range declined substantially in the early 1900s as rivers were impounded and diverted and riparian and wetland habitats were converted to agricultural lands (Service, 2011). As of 2011, the species was detected in only eight of 21 locations surveyed: Goose Lake, Atwell Island, Main Drain Canal/Chicca & Sons Twin Farms South Field Ranch, Lemoore Wetlands preserve, Coles levee ecosystem preserve, Kern fan water recharge area, the Kern National Wildlife Refuge, and the Kern Lake preserve (Service, 2011). Surveys conducted between 2014 and 2017 detected Buena Vista lake shrews in seven of 16 locations surveyed, including four areas where they were not previously detected: Wind Wolves Preserve, Kern River overflow canal, Atwell Island wetland, and the Pixley National Wildlife Refuge (Cypher et al., 2017). Other patches of suitable wetland and riparian habitat in the former range of the Buena Vista Lake shrew may support the species, but have not been surveyed (Service, 2011).

The action area includes riparian habitat along Deer Creek that may be suitable for Buena Vista lake shrews. Flows in Deer Creek come from precipitation, snowmelt, and water deliveries from the FKC (Esralew, et. al., 2016). The Deer Creek channel flows into the Pixley National Wildlife Refuge (approximately 14 miles west of the proposed project) where Buena Vista Lake shrews were detected in December 2016 (Cypher et al., 2017). Surface flows from Deer Creek occasionally reach the Pixley National Wildlife Refuge during flood events, however hydrologic connectivity between the Deer Creek site and the Pixley National Wildlife Refuge is likely rare due to extensive diversions along the creek and high conveyance loss rates through the very permeable channel (Esralew, et. al., 2016). During a survey of the area conducted in December 2019, biologists noted that there is a fairly large accumulation of gravel downstream of the proposed project in Deer Creek (under Road 208); during periods of low or no flow, Buena Vista Lake shrews coming from downstream areas (like the Pixley National Wildlife Refuge) may not be able to reach the area of potentially suitable habitat in the action area due to this large area of gravel.

While there are barriers to dispersal, the current understanding of Buena Vista Lake shrew dispersal is not sufficient to conclude with confidence that the species cannot be present. Due to the habitat conditions and proximity to known Buena Vista Lake shrew habitat, it is possible that the riparian habitat within the Deer Creek Site may be suitable for Buena Vista Lake shrew residency; additionally, it is possible that the species could disperse into this habitat in the future.

The portion of the project footprint that may provide suitable habitat for the Buena Vista Lake shrew is bordered by actively cultivated agricultural lands and the maintained FKC right-of-way. The FKC right-of-way is maintained to be generally free of vegetation (Service, 2005), and pesticides are commonly used on agricultural lands; these activities may reduce the abundance of insects and other invertebrate prey items of the Buena Vista Lake shrew in the action area.

From December 2, 2019 through December 9, 2019, remote camera trap surveys were conducted in and near the Deer Creek portion of the proposed project. Four close-focus automated Reconyx camera stations, baited with live and dried mealworms, were deployed per the methodology described in the *Conservation of Endangered Buena Vista Lake shrews (Sorex ornatus relictus) through Investigation of Taxonomic Status, Distribution, and Use of Non-Invasive Survey Methods* (Cypher et al., 2017). In 28 trap nights, no Buena Vista Lake shrews were detected.

Based on the lack of nearby observations of the species, surrounding land uses, and the negative survey results, Buena Vista Lake shrews are considered unlikely to occur in the action area. However, negative survey results do not preclude the presence of the species, and the potential for species occupancy remains. Additionally, the dispersal capabilities of Buena Vista Lake shrews are not currently known due to a lack of research, so there may be potential for dispersing individuals of the species to move in to the project area via Deer Creek during wet periods over the three-year course of construction activities and beyond.

Effects of the Action

San Joaquin Kit Fox

Although San Joaquin kit fox are not likely to reside within the action area, the proposed project may affect transient San Joaquin kit fox individuals if any are present at the time of construction.

Destruction of occupied kit fox dens during construction may displace kit foxes and make them more susceptible to predation. Construction may also result in reproductive failure by disrupting foraging activities and increasing human disturbance, though the potential for kit fox reproduction to occur within the action area is considered to be low.

As previously discussed, the FKC right-of-way within the action area may serve as a migration corridor for San Joaquin kit foxes; kit fox movement through the area would likely be impaired during the construction phase of the proposed project. The FKC right-of-way generally provides more suitable foraging habitat for kit foxes than the surrounding agricultural lands; construction of the proposed project would likely result in the temporary loss of these areas as foraging habitat for the species. Furthermore, while night-time construction would be limited to the maximum extent possible, some nighttime construction may occur in the summer months which could further interfere with kit fox movement and foraging in the area as the species is typically active at night.

Although the proposed project may adversely affect kit fox individuals during construction, these adverse effects are expected to be temporary in nature and would cease once construction is completed. Because construction would be phased, only portions of the canal are expected to be disturbed at any one time during the three-year construction period, so kit foxes, if present, could potentially use the other undisturbed areas of the canal. Once construction is complete, the action area would return to the same general condition as before construction (i.e., canal and canal right-of-way bordered by agricultural lands), except that the FKC right-of-way would be larger as it would include the abandoned canal segment. The FKC right-of-way provides more suitable foraging habitat for kit foxes than the surrounding agricultural lands, more space for dens, and a travel

corridor through a landscape dominated by vineyards and orchards which are unsuitable for the species (Warrick et. al., 2007); therefore, the action area may provide greater habitat value for kit foxes following construction due to the increase in canal right-of-way following construction.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures to minimize potential disturbance to any individuals that may be present within the action area at the time of construction activities.

Buena Vista Lake Ornate Shrew

Based on the results of the remote camera surveys, the location of the proposed project in relation to known occurrences of the species, and the disturbed nature of the action area, Buena Vista Lake shrews are not expected to occur within the action area. However, potentially suitable habitat is present, and will be rendered unsuitable by construction activities. Construction activities include the alteration and filling of riparian habitat which may crush or otherwise kill shrews within the area that these activities occur.

Although no Buena Vista Lake shrews were detected during the December 2019 survey, negative survey results do not preclude the presence of the species. Additionally, dispersal capabilities of the species are not understood, so there may be some potential for the species to move into the action area via Deer Creek prior to construction. Buena Vista Lake shrew occurrence in an area can be variable and dynamic, as demonstrated by a recent case in which Buena Vista Lake shrew was detected in a small patch of riparian habitat where it had not been detected in previous surveys conducted in the same location just two years before (Brian Cypher, pers. comm., 11/6/2019). Based on the duration of the proposed project, the lack of knowledge on the dispersal capabilities of the species, and the connectivity of the action area to an area where the species is known to occur (i.e., the Pixley National Wildlife Refuge), the loss of potentially suitable habitat at Deer Creek may adversely affect the species by removing the potential for dispersal, and eliminating any individuals that may occupy the habitat in which construction activities will occur.

The proposed project would result in temporary impacts to 1.0 acre of Fremont cottonwood forest and 0.5 acres of mulefat thicket habitat, and permanent impacts to 1.0 acre of Fremont cottonwood forest and 1.0 acre of mulefat thickets. Removal of this vegetation would reduce the amount of available foraging habitat and vegetative cover, which may increase the risk of Buena Vista Lake shrew mortality from starvation and/or exposure to the elements, if any shrews are present in or near the action area. If any Buena Vista Lake shrews are present in or near habitat where construction activities will occur, there is potential for these individuals to take refuge in the adjacent recharge area to the east, or along Deer Creek upstream and downstream of these activities.

The removal of potentially suitable habitat would be permanent in the area where the new re-aligned canal and Deer Creek check structure are constructed; however, flow conditions in Deer Creek would return to pre-project conditions following construction and similar habitat is expected to re-colonize the areas upstream and downstream.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures to further decrease the likelihood of species occupancy within the action area at the time of construction activities.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of San Joaquin kit fox and Buena Vista Lake Ornate shrew, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Friant Kern Canal Middle Reach Capacity Correction project, as proposed, is not likely to jeopardize the continued existence of the San Joaquin kit fox and Buena Vista Lake Ornate shrew. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following:

1) Based on ongoing disturbances from canal maintenance and agricultural operations, as well as negative survey results, federally listed species are considered unlikely to occur within the proposed action area.
2) The proposed project includes avoidance and minimization measures to reduce potential adverse effects on federally listed species, if any are present in the action area.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Reclamation so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of

incidental take, Reclamation or the applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

San Joaquin Kit Fox

The Service anticipates that incidental take of San Joaquin kit fox will be difficult to detect due to the life history and ecology of the species. Specifically, kit fox are nocturnal, and inhabit dens or burrows when they are not foraging, mating, dispersing, or exhibiting other above-ground behaviors. Finding an injured or dead kit fox is unlikely due to their relatively small body size, cryptic coloration that serves as camouflage in their natural environment, and the possibility of bodies being scavenged. Kit fox may range over a wide territory, and are primarily active at night. Losses of kit fox may also be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, or additional environmental disturbances. The number of individuals in the action area is unknown and estimates of population density are not available. The kit fox is not known to be resident in the project area, though it is likely that individual kit foxes may attempt to disperse through the area. The proposed project footprint includes vegetative cover and small mammal burrows which provide cover, feeding, and breeding habitat for the species.

The proposed project is expected to take three years. There is a risk of harm, injury and mortality as a result of the proposed construction activities and the permanent and temporary loss/ degradation of suitable habitat. Activities including, but not limited to, grading, clearing, grubbing, excavating, compacting, trenching, blasting, and materials processing and transport may degrade habitat by crushing burrows, removing vegetation, contamination, or altering/reducing the available prey base. In addition, project related activities have potential to cause injury or mortality from contact with equipment, collision with vehicles, crushing, entrapment, entombment, starvation, and increased risk of predation. Further take may include behavioral changes such as displacement and alteration of dispersal and reproductive patterns to surviving individuals. Proper implementation of avoidance and minimization measures should be effective in reducing incidental take due to harm, injury, or mortality. Therefore, the Service anticipates that all kit fox inhabiting the action area of the proposed project will be subject to incidental take in the form of non-lethal harm, and due to the expected minimal use of the area by kit foxes, no more than (1) adult or juvenile San Joaquin kit fox will be killed or injured as a result of proposed project-related activities per year. No other forms of take are exempted under this opinion.

Buena Vista Lake Shrew

The Service anticipates that incidental take of individual shrew as a result of the proposed project will be difficult to determine because it is small, cryptic, and difficult to detect, its current distribution across the landscape is not well known due to limited survey efforts, and its life history is not well understood. There is a risk of injury and mortality to any individual shrews that occupy the action area as a result of the proposed construction activities and the permanent and temporary loss/degradation of suitable habitat; therefore, the Service anticipates take incidental to the proposed project. The amount of suitable shrew habitat that will be impacted as a result of the proposed project will be used as a surrogate for quantifying take of individuals. The Service anticipates that 1.0 acre of suitable mulefat thicket habitat and 1.0 acre of suitable Fremont cottonwood habitat will be permanently lost due to the removal of vegetation and siphon installation. Additionally, the Service anticipates that up to 1.5 acres of suitable habitat will be temporarily affected by activities associated with the proposed project. Upon implementation of the *Reasonable and Prudent Measures*, these levels of incidental take associated with the proposed project in the form of harm, injury, and death of the shrew caused by habitat loss, habitat disturbance, and construction activities will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

Accordingly, the Service will consider take of the shrew exceeded if more than 2.0 acres of suitable habitat is permanently lost and if more than 1.5 acres of suitable habitat is temporarily affected at the Deer Creek siphon location.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to either species.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the kit fox and shrew resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the kit fox and shrew:

1) All conservation measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1: Reclamation shall include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the project.

2: Reclamation shall require that all personnel associated with this project are made aware of the conservation measures and the responsibility to implement them fully.

3: Monitoring:

a. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Reclamation shall provide a precise accounting of the total acreage of habitat impacted to the Service after completion of construction.
b. Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6544 to report direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death occurs. If the encounter occurs after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Reclamation shall follow the steps outlined in the Salvage and Disposition of Individuals section below.
c. For those components of the action that will require the capture and relocation of any listed species, Reclamation shall immediately contact the SFWO at (916) 414-6544 to report the action. If capture and relocation needs to occur after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day.

Salvage and Disposition of Individuals:

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is the San Joaquin Valley Division Chief of the Endangered Species Program at the SFWO at (916) 414-6544.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Construction activities will likely result in the destruction of many small mammal burrows that could serve as potential kit fox dens for sheltering while they traverse through the action area. The Service recommends that, in order to maintain some options for kit fox sheltering when small mammal burrows are lost, artificial dens are constructed even when no known kit fox dens are identified. The Service recommends artificial escape dens are constructed every five miles, or where locations are identified to be appropriate based on construction schedule, landscape, density of destroyed potential dens, etc.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the proposed Friant Kern Canal Middle Reach Capacity Correction project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law, and:

1) If the amount or extent of taking specified in the incidental take statement is exceeded;

2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or

4) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Matthew Nelson (matthew_nelson@fws.gov) or Patricia Cole (patricia_cole@fws.gov) at (916) 414-6544 or at the letterhead address.

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