

BIOLOGICAL ANALYSIS REPORT

KFT HOLDINGS, LLC. ZONE CHANGE PROJECT KERN COUNTY, CALIFORNIA



JANUARY 2019



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ACRONYMS AND ABBREVIATIONS

APN	Assessor Parcel Number
BAR	Biological Analysis Report
BIOS	Biogeography Information and Observation System
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Water
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

The report is to support the proposed change of the current zone district on two adjacent parcels for an approximate combined 4.89-acres (APN 532-050-03 and APN 532-050-05) (Project). The Project is in the south-central portion of the City of Bakersfield, Kern County, California.

This report provides information about the natural resources currently existing on and near the Project that may influence the decision-making process. Information on sensitive natural communities and special-status species that are known or have potential to occur on the site and nearby areas is provided based upon available database research and data collected during on-site field surveys. This report is designed to support evaluation of the Project pursuant to the California Environmental Quality Act (CEQA) and land use entitlement.

Reviews of agency-maintained databases were conducted on the Project to determine the potential presence of sensitive biological resources and special-status species. The results of the search indicated that four sensitive natural communities, 10 special-status plant species, and 27 special-status animal species occur within the vicinity of the Project. Reconnaissance-level field surveys were conducted to identify sensitive biological resources on-site and to document the suitability of the habitat on the Project site to support special-status species. No sensitive natural plant communities occur on the Project site. No special-status plant species were observed or have the potential to occur on the Project site. No special-status animal species were observed on-site; however, four special-status animal species have the potential to occur on the Project site.

The Project has the potential to impact Swainson's hawk (*Buteo swainsoni*), Western burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), and San Joaquin kit fox (*Vulpes macrotis mutica*), as well as other nesting migratory birds and raptors that are protected by the Migratory Bird Species Act and California Fish and Game Code. A survey just prior to the commencement of the Project could reveal special-status species on the Project site. However, if the suggested mitigation measures are followed, the Project would have a ***less than significant*** impact to biological resources.

Reviews of the databases indicated that there are no defined waters or wetlands on or near the Project site. There are no designated migratory corridors or linkages, significant nursery sites, or designated Critical Habitat on the Project site. There would be ***no impacts***.

SECTION 1 - INTRODUCTION

Quad Knopf, Inc. (dba QK) was retained by KFT Holdings, LLC. (KFT, Project proponent) to provide biological services in support of the zone change application (Project). QK reviewed readily-available technical documents and agency-maintained databases for sensitive biological resources and assessed biological conditions throughout the Project area during an on-site reconnaissance survey. The results of the desktop research and field survey are summarized in this biological analysis report (BAR), which provides the technical basis for the analysis of potential impacts to biological resources that may result from the construction, operation, and maintenance of the Project.

1.1 - Project Location

The Project site is located within the southern Central Valley (also referred to as the San Joaquin Valley) and the City of Bakersfield, Kern County, California. Bakersfield is near the center of Kern County, (Figure 1-1). State Route 99, which serves as a major arterial roadway between northern and southern California, is located east of the Project site. The Project site is at the northeast corner of the intersection of Taft Highway (SR 119) and Ashe Road in the City of Bakersfield (Figure 1-2).

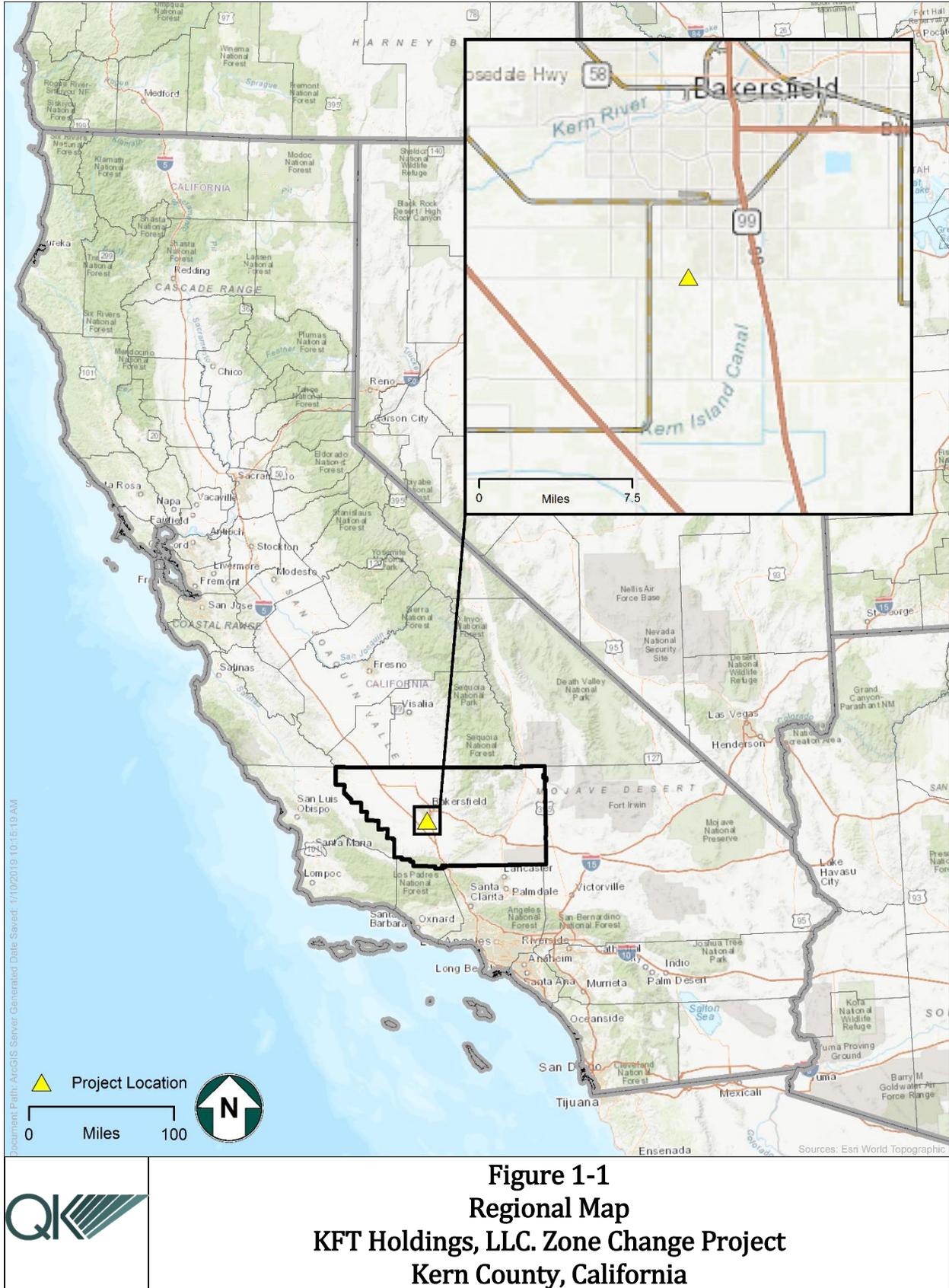
The Project is within the *Gosford*, California United States Geological Survey (USGS) 7.5-minute topographical quadrangle, and in the southwest corner of Section 34, Township, 30 South, Range 27 East, Mt. Diablo Base and Meridian (MDB&M). Taft Highway and Ashe Road provide access to the Project site.

1.2 - Project Description

The Project proponent proposes to a change in zone district for two parcels totaling approximately 4.89-acres to allow for the development of a commercial uses at the corner of SR 119 and Ashe Road.

1.3 - Purpose, Goals, and Objectives

The purpose of this BAR is to provide site-specific information and an evaluation of Project impacts on sensitive biological resources. The BAR will be used to provide Project environmental documentation and evaluation pursuant to the California Environmental Quality Act (CEQA). The Project is subject to discretionary approvals by the Bakersfield City Council. Acting in its capacity as a lead agency under CEQA, the City of Bakersfield would need to determine the potential for the Project to result in significant impacts, consider mitigation measures and alternatives to avoid significant impacts, and consider the environmental effects of the Project in its decision-making process. This BAR provides the substantial evidence upon which the required evaluation of feasibility, environmental analysis, and findings of fact in relation to biological resources can be made.



SECTION 2 - METHODS

2.1 - Definition of Biological Study Area

For the purposes of this report, the Biological Study Area (BSA) is a 250-foot buffer surrounding the proposed Project site (Figure 2-1).

2.2 - Definition of Special-Status Species

For the purposes of this report, special-status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the project,
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA),
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW),
- Other species included on the CDFW's Special Animals List,
- Plant species with a California Rare Plant Rank (CRPR) in categories 1 or 2, *or*
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- Habitat on and adjacent to the site is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- Conditions on the site may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Protocol surveys were conducted, but negative results do not exclude the potential for a species to occur.
- Species was observed on the site or has been recorded (e.g., CNDDDB, other reports) on the site recently (within the last 5 years).

2.3 - Literature Review and Database Analysis

The following sources were reviewed for information on special-status biological resources in the project vicinity:

- CDFW's California Natural Diversity Database (CNDDDB; CDFW 2019a)
- CDFW's Biogeographic Information and Observation System (BIOS; CDFW 2019)
- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988)

- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2019)
- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation system (USFWS 2018)
- USFWS Critical Habitat Mapper (USFWS 2018)
- USFWS National Wetlands Inventory (NWI; USFWS 2018)
- USGS National Hydrography Dataset (NHD; USGS 2018)
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2018)
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2018)
- California Protected Areas Data Portal (GreenInfo Network 2019)
- Current and historical aerial imagery (Google LLC 2019)
- Topographic maps (USGS 2018)

For each of these data sources, the search was focused on the *Gosford, California* USGS 7.5-minute quadrangle in which the project is located, plus the surrounding eight (8) quadrangles: *Conner, Rosedale, Oildale, Oil Center, Stevens, Lamont, Millux, and Weed Patch*. For the CNDDDB, a 10-mile search radius was used.

The CNDDDB provides element-specific spatial information on individually documented occurrences of special-status species and sensitive natural communities. Some of the information available for review in the CNDDDB is still undergoing review by the CDFW; these records are identified as unprocessed data. The CNPS database provides similar information as the CNDDDB, but at a much lower spatial resolution. Much of this information in these databases is obtained opportunistically and is often focused on protected lands or on lands where development has been proposed. Neither database represents a comprehensive survey for special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility that a special-status resource could be present.

Reviews of the National Wetlands Inventory (NWI; USFWS 2018b) and National Hydrography Dataset (USGS 2018) were completed to identify whether wetlands had previously been documented on or adjacent to the Project site. The NWI, which is operated by the USFWS, is a collection of wetland and riparian maps that depicts graphic representations of the type, size, and location of wetland, deep water, and riparian habitats in the United States. In addition to the NWI, regional hydrologic information was obtained from the USGS to evaluate the potential occurrence of blue-line streams within the Project Site.

Soils data were obtained from the Natural Resource Conservation District, United States Department of Agriculture (USDA 2018), weather and precipitation data were obtained from the Western Regional Climate Center (WRCC 2018), and land use information was obtained from available aerial imagery. Information about flood-prone areas were obtained from the

Federal Emergency Management Agency, Department of Homeland Security (FEMA 2018) and information on protected lands were obtained from the Greeninfo Network (Greeninfo Network 2018).

The results of the database inquiries were reviewed to develop a list of special-status resources that may be present within vicinity of the Project. This list was then evaluated against the existing conditions observed during the reconnaissance site visit of the BSA to determine which special-status resources have the potential to occur, and then the potential for impacts to those resources as a result of implementation of the Project.

2.4 - Reconnaissance-Level Field Surveys

A reconnaissance-level biological survey was conducted on January 9, 2019, by QK Senior Associate Biologist Kate Eldredge. A second reconnaissance-level biological survey was conducted on January 29, 2019, by QK Associate Biologist Karissa Denney. Weather conditions during the both site surveys were at the optimal survey conditions and generally conducive to the detection of diurnally active animal species. The Surveys consisted of walking meandering pedestrian transects and using binoculars to spot occurrences throughout the Project site and BSA such that 100% of the site was observed. Current land uses within the Project were documented along with the presence of all plants, wildlife, and wildlife sign (scat, burrows, feather, tracks, etc.). All suitable habitats that could potentially support wildlife within the Project were documented and photographs were taken. The survey focused on determining the locations and extent of vegetation communities and the potential for occurrences of sensitive plant and wildlife species within the Project.



Figure 2-1
Biological Study Area
KFT Holdings, LLC. Zone Change Project
Kern County, California

SECTION 3 - REGULATORY SETTING

Regulated or sensitive resources that were studied and analyzed include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement areas, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by federal, state, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the City of Bakersfield).

Potential impacts to biological resources were analyzed based on the following list of statutes. Summaries of these statutes are provided below.

- FESA
- CEQA
- CESA
- Federal Clean Water Act
- California Fish and Game Code
- Migratory Bird Treaty Act
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- San Joaquin Valley Upland Species Recovery Plan
- Metropolitan Bakersfield Habitat Conservation Plan (MBHCP)
- Metropolitan Bakersfield General Plan

3.1 - Applicable Federal Regulations

3.1.1 - FEDERAL ENDANGERED SPECIES ACT OF 1973 (USC, TITLE 16, SECTIONS 1531-1543)

The Federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS and NMFS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although “take” of a listed species is generally prohibited, “take” can be permitted when it is incidental to an otherwise legal activity. The FESA defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” The definition of “harm” is defined as an act which actually kills or injures wildlife and includes certain types of significant habitat modification or degradation that results in death or injury to listed species

by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued by the USFW and/or NMFS with an incidental take statement that exempts the activity from FESA's take prohibitions. The San Lauren Project lacks federal funding or any other nexus to federal jurisdiction, and Section 7 does not apply.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur. The incidental take permit would be part of an approved Habitat Conservation Plan.

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

3.1.2 - MIGRATORY BIRD TREATY ACT (USC, TITLE 16, SECTIONS 703-711)

The MBTA, first enacted in 1918, is a series of treaties that the United State has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

3.1.3 - BALD AND GOLDEN EAGLE PROTECTION ACT OF 1940 (USC, TITLE 16, SECTION 668)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take

of bald and golden eagles includes to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

3.1.4 - FEDERAL CLEAN WATER ACT (USC, TITLE 33, SECTIONS 1521-1376)

The federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) that regulates the discharge of the dredged or fill material into waters of the U.S., including wetlands. The USACE implementing regulations are found in CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts. Section 401 requires that a Project applicant that is pursuing a Section 404 permit obtain a State Certification of Water Quality, thereby ensuring that the discharge will comply local state water quality requirements. The Regional Water Quality Control Board (RWQCB) administers the certification program in California.

3.1.5 - SAN JOAQUIN VALLEY UPLAND SPECIES RECOVERY PLAN

San Joaquin Valley Upland Species Recovery Plan (Plan) was implemented in 1998 by U.S. Fish and Wildlife Service. The Plan covers a total of 34 species including 19 plant and 5 mammal species. The Plan also includes ten species that are State-listed or federal candidates, or species of concern. These ten species include three invertebrates, six mammal, and one bird species. The ultimate goal of the recovery plan is to delist the endangered and threatened species and ensure the long-term conservation of the 34 State- or federally- listed species, candidates or species of concern. An interim goal is to reclassify the endangered species to threatened status. USFWS is responsible for implementation of the recovery plan and the plan does not have the legal force of laws or regulations.

3.1.6 - APPLICABLE STATE REGULATIONS**3.1.7 - CALIFORNIA ENVIRONMENTAL QUALITY ACT (CALIFORNIA PUBLIC RESOURCES CODE, SECTION 21000-21178, AND TITLE 14 CCR, SECTION 753, AND CHAPTER 3, SECTIONS 15000-15387)**

CEQA is California's broadest environmental law. CEQA helps guide the issuance of discretionary permits and approval for projects. Courts have interpreted CEQA to afford the fullest protection of the environment within the reasonable scope of the statutes. CEQA applies to all discretionary projects proposed to be conducted or approved by a State, County, or City agency, including private projects requiring discretionary government approval.

The purpose of CEQA is to disclose to the public the significant environmental effects of a proposed discretionary project; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision making process to approve discretionary projects; enhance public participation in the environmental review process; and improve interagency coordination.

State CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State Endangered Species lists may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals.

3.1.8 - CALIFORNIA ENDANGERED SPECIES ACT (CALIFORNIA FISH AND GAME CODE SECTION 2050 ET SEQ)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the CDFW has the option of issuing a Consistency Determination (Section 2080.1) for projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the "fully mitigate" standard of CESA, and other applicable conditions.

3.1.9 - PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Regional Water Quality Control Board (RWQCB) regulates waters of the State under the authority of the Porter-Cologne Water Quality Control Act (Porter Cologne Act), including all ground and surface water within State boundaries. The RWQCB requires that projects avoid

impacts to wetlands whenever feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the State. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste into waters of the State, and such discharges are authorized through an Order of Waste Discharge (or waiver of discharge) from the RWQCB.

3.1.10 - VARIOUS SECTION OF THE CALIFORNIA STATE AND FISH AND GAME CODE

Sections 1600 through 1616

Under these sections of the FGC, a project operator is required to notify the CDFW prior to implementing any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the California Code of Regulations, a “stream” is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Altered or artificial watercourses valuable to fish and wildlife may be subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

Sections 3511, 4700, 5050, and 5515

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species, except as allowed for in an approved Natural Communities Conservation Plan (NCCP), or through direct legislative action.

Sections 1900 through 1913 – Native Plant Protection Act

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

3.2 - Applicable Regional and Local Regulations

3.2.1 - METROPOLITAN BAKERSFIELD GENERAL PLAN

Last revised and approved on December 11, 2007, the Metropolitan Bakersfield General Plan has been prepared as a joint planning effort between the City of Bakersfield and Kern County

to govern land use decisions within the city limits and unincorporated Kern County land within the Bakersfield Metropolitan Area. Its purpose is to give long-range guidance to those making decisions affecting the future character of the Metropolitan Bakersfield planning area. It represents the official statement of the community's physical development as well as its economic, social, and environmental goals. The general plan also acts to clarify and articulate the relationship and intentions of local government to the rights and expectations of the general public, property owners, and prospective investors. Through the plan, the local jurisdiction can inform these groups of its goals, policies, and development standards, thereby communicating what must be done to meet the objectives of the plan (City of Bakersfield 2007).

Chapter V. Conservation Element

Biological Resources

Goal 1. Conserve and enhance Bakersfield's biological resources in a manner which facilitates orderly development and reflects the sensitivities and constraints of these resources.

Goal 2. To conserve and enhance habitat areas for designated "sensitive" animal and plant species.

Policy 1. Direct development away from "sensitive biological resource" areas, unless effective mitigation measures can be implemented.

Policy 2. Preserve areas of riparian vegetation and wildlife habitat within floodways along rivers and streams, in accordance with the Kern River Plan Element and channel maintenance programs designed to maintain flood flow discharge capacity.

Policy 3. Discourage, where appropriate, the use of off-road vehicles to protect designated sensitive biological and natural resources.

3.2.2 - METROPOLITAN BAKERSFIELD HABITAT CONSERVATION PLAN

The City of Bakersfield and Kern County developed the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) that allows take of federally listed species included in the MBHCP area. The current MBHCP was issued by the USFWS under Section 10(a)(1)(B) of the FESA in 1994 and is currently undergoing renewal. A separate permit was issued by the CDFW under Section 2081 of the CESA (CESA 9322) in 2014 to align with the MBHCP for those species covered under both FESA and CESA. The MBHCP is designed to offset impacts resulting from the incidental take of listed species and the loss of habitat incurred through the authorization of otherwise lawful activities. The goal of the MBHCP is to acquire, preserve, and enhance native habitats that support special-status species while allowing development to proceed as set forth in the MBGP. The study area covered by the MBHCP contains both the City of Bakersfield and Kern County jurisdictions.

The MBHCP program is funded through the collection of one-time mitigation fees, prior to ground disturbance, paid on all new construction taking place within the program

boundaries. Upon payment of the mitigation fee and receipt of County project approval, a development permit applicant would be allowed the “incidental take” of special-status species in accordance with State and Federal Endangered species laws. The mitigation funds collected will be deposited into a trust fund and are administered by the Implementation Trust, which is composed of representatives from the City of Bakersfield and Kern County trustees, USFWS, CDFG, and members of the public as advisors. The mitigation fees will provide for the acquisition and/or enhancement of natural lands and restorable lands for the purpose of creating preserves supporting the covered species. The MBHCP would also provide for reduction of take within the developed areas through relocation or displacement of individuals in areas affected by development. In addition, the MBHCP provides for monitoring of the quality of habitat within the preserves, the status of special-status species, and habitat restoration and enhancement programs, which will be used to indicate the success or failure of the plan.

The KFT Project site is located within the boundaries of the Metropolitan Bakersfield Habitat Conservation Plan. The MBHCP provides incidental take authorization for four special-status species that are known to occur within the plan area. The MBHCP requires payment of a mitigation fee for all new development that necessitates a grading permit or conditional use permit on previously undeveloped land, which includes agricultural land.

SECTION 4 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project and describes existing baseline conditions. The environmental setting of the BSA was documented during site surveys conducted by QK biologists (Table 4-1).

Table 4-1
Field Survey Personnel and Timing.

Date	Personnel	Time	Weather Conditions	Survey Type
01/09/2019	K. Eldredge	09:00-11:00	Cool and Breezy	Reconnaissance
01/29/2019	K. Denney	08:50-09:30	Cool and Sunny	Reconnaissance

4.1 - Physical Characteristics

The Project site is a an approximate 4.89-acres. The Project site is flat with no wetland or water features on or near the immediate area. The BSA has been historically disturbed. The BSA is vegetated with non-native trees, non-native grasses, ornamental perennial shrubs, and with Russian thistle (*Salsola tragus*). Household refuge is currently present throughout Project site and BSA. Reference photographs of the site are located the Appendix A.

The BSA adjacent to the Project site include; a residential home to the north, residential development to the east, SR 119 and Ashe Road and undeveloped agricultural fields to the south and west. A partially demolished homesite, and dead and dying ornamental trees is located in the south/central portion of the site.

4.1.1 - TOPOGRAPHY

The Project site is relatively flat with an approximate elevation at 347-feet above mean sea level (AMSL). The surrounding land is relatively flat and exhibits little topographic variation.

4.1.2 - CLIMATE

The San Joaquin Valley has a Mediterranean-type climate, characterized by hot, dry summers and cool, relatively moist winters. Average high temperatures range from approximately 97 degrees Fahrenheit (°F) in the summer to approximately 60°F in the winter (WRCC 2018). Summer daytime high temperatures frequently exceed 100°F. Average overnight lows range from 59°F in the summer to 36°F in the winter. The mean annual temperature is 65°F. Average annual rainfall for the area is approximately 6.45 inches, most of which falls from November and April. A dense, persistent ground fog, known as “tule fog,” can develop in winter, resulting in overcast, damp, cool weather.

4.1.3 - LAND USE

The Project site is located on highly disturbed land and consists of ruderal non-native vegetation, situated at well-traveled intersection of paved roads (Figure 1-2). Surrounding

land use consists of residential, ruderal, and current and historically disturbed non-native grassland habitat. Existing developments in the vicinity are residential in nature. The northern and eastern portions of the Project site are bordered by a residential lot. The southern edge of the Project site is bound by SR 119. The southern edge of the Project site is bound by SR 119.

4.1.4 - SOILS

Two soil types occur on the Project site, Granoso sandy loam, which consists of excessively drained soils found on alluvium derived from rocks of mixed mineralogy. The Granoso soils are found on alluvial fans and floodplains that slope from 0 to 5 percent (Figure 4-1). The other soil type, Kimberina fine sandy loam, consists of very deep, well drained soils. This soil type is found on flood plains and recent alluvial fans that slope 0 to 9 percent.

4.2 - Hydrology

The Project is situated entirely within an area of minimal flood hazard (Figure 4-2). No major natural waterways, streams or rivers are located on or adjacent the Project site. The Kern River is the closest natural waterway, at approximately 10-miles north of the Project site.

4.3 - Vegetation and Other Land Cover

In general, the Project site can be described as ruderal (Figure 4-3). The Project does not have vegetation that qualifies as a specific categorized plant community under plant community descriptions (Holland 1986). Ruderal refers to vegetation growing on waste ground or among refuse. There are 10 types of non-native type vegetation and two types of native trees observed growing on the BSA. The survey was conducted in January, so not all annual vegetation had germinated, other annuals could appear later in the blooming cycle but are likely to be non-native (See Appendix B, Table B-1). The Project site contained a lot of road and construction trash, as well as the remains of an old house. Russian thistle scattered throughout the site and is several layers deep against the adjacent fences (Appendix A, Representative Photographs).

4.4 - General Wildlife Observations

Four native bird species and domestic dog, cat, and chickens were observed on the Project site. The birds were utilizing existing vegetation for a variety of uses, including foraging, cover, and roosting. Several crows were observed throughout the Project site and on adjacent property. No special-status wildlife or their sign was observed on the BSA. A list of wildlife observations during the site visit is included in Appendix B, Table B-2.

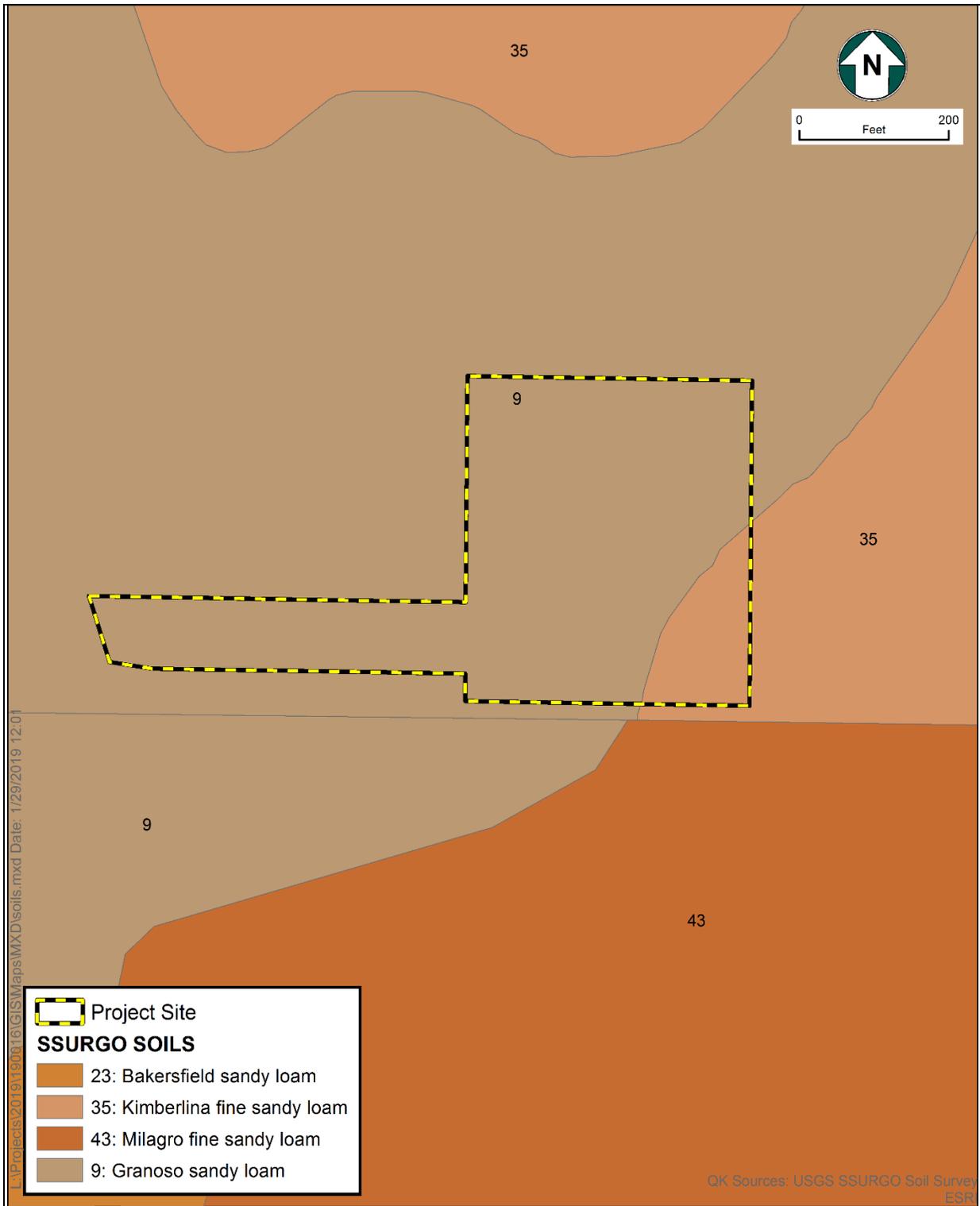


Figure 4-1
Soils Mapped within the BSA
KFT Holdings, LLC. Zone Change Project
Kern County, California

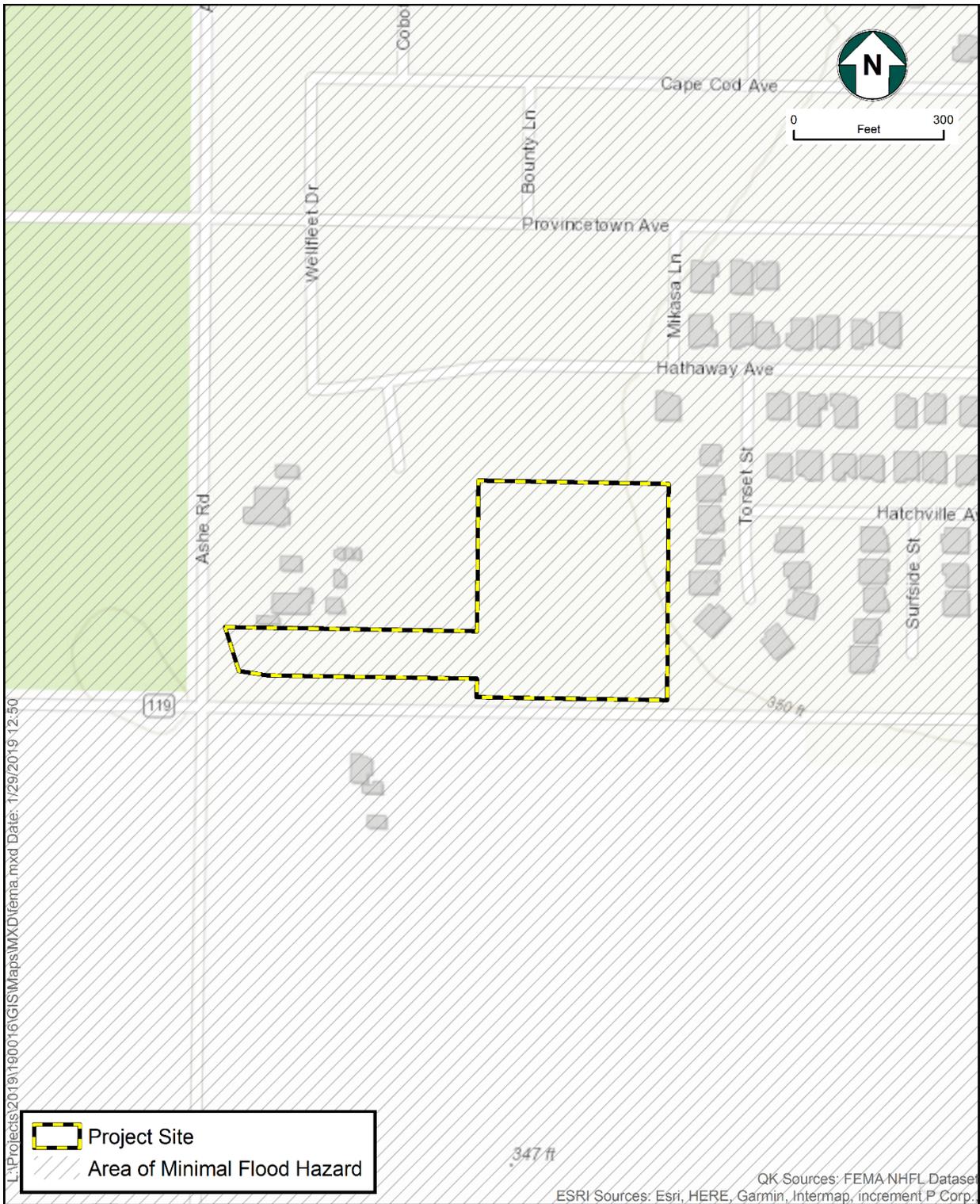


Figure 4-2
FEMA Flood Zone Map
KFT Holdings, LLC. Zone Change Project
Kern County, California



Figure 4-3
Vegetation Communities within the BSA
KFT Holdings, LLC. Zone Change Project
Kern County, California

SECTION 5 - SPECIAL-STATUS RESOURCES

Local, State, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed on the project site and evaluates the potential for the project site to support additional sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDDB and CNPS, species occurrence records from other sites in the vicinity of the survey area, previous reports for the project site, and the results of surveys of the Project site.

5.1 - Special-Status Species

Table 5-1 presents the list of special-status plant and animal species determined to have potential to occur on-site and identifies if the Project may affect the species and threaten the viability of the species population. The complete list of species evaluated for this Project is included in Appendix C. Each species is further discussed in the subsections below.

Table 5-1 Special-Status Species with Potential to Occur On-Site

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potentially Affected by Project? Yes/No	Viability Threat? Yes/No
Plants			
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk vetch	-/1B.1	No	No
<i>Atriplex tularensis</i> Bakersfield small scale	-/SE 1A	No	No
<i>Chloropyron mole</i> ssp. <i>hispidum</i> hispid bird's-beak	-/1B.1	No	No
<i>Delphinium recurvatum</i> recurved larkspur	-/1B.2	No	No
<i>Eremalche parryi</i> ssp. <i>kernensis</i> Kern mallow	-/SE 1B.2	No	No
<i>Imperata brevifolia</i> California satintail	-/2B.1	No	No
<i>Monolopia congdonii</i> San Joaquin woollythreads	-/SE 1B.2	No	No

<i>Opuntia basilaris</i> var. <i>treleasei</i>	FE/SE	No	No
Bakersfield cactus	1B.1		
<i>Puccinellia simplex</i>	-/1B.2	No	No
California alkali grass			
Crustaceans			
<i>Branchinecta lynchi</i>	FT	No	No
Vernal pool fairy shrimp			
Fishes			
<i>Hypomesus transpacificus</i>	FT/ST	No	No
Delta smelt			
Mollucks			
<i>Helminthoglypta callistoderma</i>	FE	No	No
Kern shoulderband			
Amphibians			
<i>Lithobates pipiens</i>	-/SSC	No	No
Northern leopard Frog			
<i>Rana draytonii</i>	FT	No	No
California red-Legged frog			
<i>Spea hammondi</i>	-/SSC	No	No
Western spadefoot toad			
Reptiles			
<i>Masticophis flagellum ruddocki</i>	-/SSC	No	No
San Joaquin coachwhip			
<i>Anniella pulchra pulchra</i>	-/SSC	No	No
Bakersfield legless lizard			
<i>Arizona elegans occidentalis</i>	-/SSC	No	No
California Glossy Snake			
Gambila sila	FE/SE	No	No
Blunt-nosed leopard lizard			
<i>Emys marmorata</i>	-/SSC	No	No
Western pond turtle			
Birds			

<i>Athene cunicularia</i> Burrowing owl	-/SSC	Yes	No
<i>Buteo swainsoni</i> Swainson's hawk	-/ST	Yes	No
<i>Coccyzus americanus</i> Yellow-billed cuckoo	FT/SE	No	No
<i>Agelaius tricolor</i> Tricolored blackbird	FE/ST	No	No
<i>Elanus leucurus</i> White-tailed kite	-/SFP	No	No
<i>Dendrocygna bicolor</i> Fulvous whistling duck	-/SSC	No	No
<i>Charadrius nivosus nivosus</i> Western snowy plover	FT	No	No
<i>Plegadis chihi</i> White-faced ibis	-/SSC	No	No
Mammals			
<i>Dipodomys ingens</i> Giant kangaroo rat	FE/SE	No	No
<i>Dipodomys nitratooides brevinasus</i> Short-nosed kangaroo rat	-/SSC	No	No
<i>Dipodomys nitratooides nitratooides</i> Tipton kangaroo rat	FE/SE	No	No
<i>Eumops perotis californicus</i> Western mastiff bat	-/SSC	No	No
<i>Lasiurus cinereus</i> Hoary Bat	SSC	No	No
<i>Sorex ornatus relictus</i> Buena Vista Lake ornate shrew	FE/SE	No	No
<i>Taxidea taxus</i> American badger	-/SSC	Yes	No

<i>Vulpes macrotis mutica</i>	FE/ST	Yes	No
San Joaquin kit fox			

<u>CRPR (California Rare Plant Rank):</u>	FE	Federally Endangered
1A Presumed Extinct in California	FT	Federally Threatened
1B Rare, Threatened, or Endangered in California and elsewhere	FC	Federal Candidate Species
2A Plants presumed extirpated in California, but more common elsewhere	FS	Federally Sensitive
	SE	State Endangered
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere	ST	State Threatened
	SC	State Candidate
<u>CRPR Threat Code Extension:</u>	SS	State Sensitive
.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)	SSC	State Species of Special Concern
	SFP	State Fully Protected
.2 Fairly endangered in California (20-80% occurrences threatened)	SR	State Rare
.3 Not very endangered in California (<20% of occurrences threatened)		

5.1.1 - SPECIAL-STATUS PLANT SPECIES

There are 10 special-status plants listed, that are not limited to those that have been listed by State or federal agencies but include any plants that, based on all available data, are shown to be rare, threatened, or endangered in California. A species, subspecies, or variety of plant is “endangered” when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

5.1.2 - SPECIAL-STATUS ANIMAL SPECIES

The literature review identified 27 special-status animal species known or with potential to occur in the vicinity of the project (see evaluation table in Appendix C). Of those, four were determined to have the potential to occur on-site:

- **Swainson’s hawk** (*Buteo swainsoni*) – State Threatened
- **San Joaquin kit fox** (*Vulpes macrotis mutica*) – Federally Endangered, State Threatened
- **American badger** (*Taxidea taxus*) – State Species of Special Concern
- **Western burrowing owl** (*Athene cunicularia*) – State Species of Special Concern

Swainson's Hawk

Swainson's hawk prefer larger isolated trees or small woodlands for nesting, usually with grassland or dry-land grain fields nearby for foraging. No nesting habitat for Swainson's hawk are located on the Project site, however suitable nesting sites are located within 0.5-miles. Swainson's hawks are known to occur and nest in the region and the grassland habitat nearby could support foraging for nesting Swainson's hawks.

San Joaquin kit fox

No San Joaquin kit fox or diagnostic sign (e.g., tracks, scat, prey remains, or dens) of the kit fox were observed during the time of the reconnaissance survey. This species is a highly mobile transient forager which preys on small burrowing mammals and is well adapted in the urbanized setting. The nearest recorded occurrence is located approximately one-half mile west of the Project site. The species is known to occur throughout the City of Bakersfield. The San Joaquin kit fox could potentially forage on-site but likely would not establish dens due to the small size of the Project site, and the established roads with high traffic that run adjacent to the Project site.

American Badger

No American badger or diagnostic sign (e.g., tracks, scat, digging signs, or dens) of the badger were observed during the reconnaissance survey. This species is a highly mobile transient forager which preys on small burrowing mammals. The nearest recorded occurrence is located approximately six miles east of the Project site. The surrounding area has been developed with residential properties, agricultural activities, and paved roadways. The Project site does allow for the species to move through the area while foraging. The American badger could potentially forage on-site but likely would not establish dens due to the small size of the Project site, and the established roads and residential areas that are adjacent to the Project site.

Western Burrowing Owl

No western burrowing owl or diagnostic sign (e.g., burrows, whitewash, pellets, prey remains) of burrowing owls were observed during the reconnaissance survey. Burrowing owls are present year-round in the Central Valley and typically use multiple burrows within their ranges. Burrowing owls have also been known to occur in urban and agriculturally developed areas, including within the City of Bakersfield. The nearest recorded occurrence for burrowing owl is approximately 1.3 miles southeast of the Project site.

5.2 - Sensitive Natural Communities

Sensitive natural communities are designated by various resource agencies including the CDFW, USFWS, BLM, Forest Service, or are designated by local agencies through policies, ordinances, and regulations. Sensitive natural communities generally have important

functions or values for plants and wildlife or are recognized as declining in extent or distribution and warrant some level of protection.

5.2.1 - SENSITIVE PLANT COMMUNITIES

The database listed the occurrence of four natural communities occurring in the region of the Project; Great Valley Mesquite Scrub, Great Valley Cottonwood Riparian Forest, Valley Sink Scrub, and Valley Saltbush Scrub. Great Valley Mesquite Scrub is composed of an open woodland or savanna dominated by *Prosopis glandulosa torreyana* and *Atriplex polycarpa*. Understories are grassy in good rainfall years, though usually dominated by introduced annuals. Mesquite requires a high-water table. Sierra snowmelt provided the necessary groundwater for the perennial phreatophytes. Great Valley Cottonwood Riparian Forest is dominated by Fremont cottonwood (*Populus fremontii ssp. fremontii*) and Goodding's black willow (*Salix gooddingii*). The understory is usually dense, with abundant vegetative reproduction of canopy dominants and California wild grape is the most conspicuous vine. This community requires fine-grained alluvial soils adjacent to perennial or semi-perennial streams with frequent flooding and with permanent ground water in the tree root zone. Valley Saltbush Scrub consists of open, gray or blue-green chenopod scrubs, usually over a low herbaceous annual understory. Cover types dominated by *Atriplex polycarpa* or *Atriplex spinifera* are differentiable. This community type also consists of sandy to loamy soils without surface alkalinity usually found on rolling, dissected alluvial fans (Holland 1987).

According to the database, no Sensitive Plant Communities are located within 5-miles of the Project site.

5.2.2 - CRITICAL HABITATS

This section describes the occurrence of Critical Habitat, movement corridors, and linkages known to occur within the vicinity of the Project site. Habitat may be designated as Critical Habitat by the USFWS, which are blocks of habitat that may or may not be currently occupied by species, but which are of the highest priority for the survival, conservation, and recovery of threatened or endangered species. Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another.

There are no mapped Critical Habitats on or near the Project. The nearest Critical Habitat is located approximately 13-miles south of the Project for the Buena Vista Lake ornate shrew (*Sorex ornatus relictus*), which is not present on the Project site nor does the site provide suitable habitat (Figure 5-1).

5.3 - Jurisdictional Aquatic Resources

This section describes the results of the database queries and focused delineations of waters and wetlands on Project site.

5.3.1 - WATERS AND WETLANDS

The literature review and Natural Hydrology Dataset (NWI) searches identified freshwater ponds located approximately 0.25-mile northwest and the Farmers Canal located approximately 0.6- mile southeast of the Project site (Figure 5-2).

5.4 - Wildlife Movement

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes [*Canis latrans*], mule deer [*Odocoileus hemionus californicus*]). They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

The literature review and database search did not identify wildlife movement corridors near the Project site.

5.5 - Habitat Conservation Plans

The City of Bakersfield and Kern County developed the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) that allows take of federally listed species included in the MBHCP area. The current MBHCP was issued by the USFWS under Section 10(a)(1)(B) of the FESA in 1994 and is currently undergoing renewal. A separate permit was issued by the CDFW under Section 2081 of the CESA (CESA 9322) in 2014 to align with the MBHCP for those species covered under both FESA and CESA. The MBHCP is designed to offset impacts resulting from the incidental take of listed species and the loss of habitat incurred through the authorization of otherwise lawful activities. The goal of the MBHCP is to acquire, preserve, and enhance native habitats that support special-status species while allowing development to proceed as set forth in the MBGP. The study area covered by the MBHCP includes both the City of Bakersfield and Kern County jurisdictions.

The MBHCP program is funded through the collection of one-time mitigation fees, prior to ground disturbance, paid on all new construction taking place within the program boundaries. Upon payment of the mitigation fee and receipt of County project approval, a development permit applicant would be allowed the “incidental take” of special-status species in accordance with State and federal endangered species laws. The mitigation funds collected will be deposited into a trust fund and are administered by the Implementation Trust, which is composed of representatives from the City of Bakersfield and Kern County trustees, USFWS, CDFW, and members of the public as advisors. The mitigation fees will provide for the acquisition and/or enhancement of natural lands and restorable lands for the purpose of creating preserves supporting the covered species. The MBHCP would also provide for reduction of take within the developed areas through relocation or displacement of individuals in areas affected by development. In addition, the MBHCP provides for

monitoring of the quality of habitat within the preserves, the status of special-status species, and habitat restoration and enhancement programs, which will be used to indicate the success or failure of the plan.

The Project site is located within the boundaries of the Metropolitan Bakersfield Habitat Conservation Plan. The MBHCP provides incidental take authorization for four special-status species that are known to occur within the plan area. The MBHCP requires payment of a mitigation fee for all new development that necessitates a grading permit or conditional use permit on previously undeveloped land, which includes agricultural land.

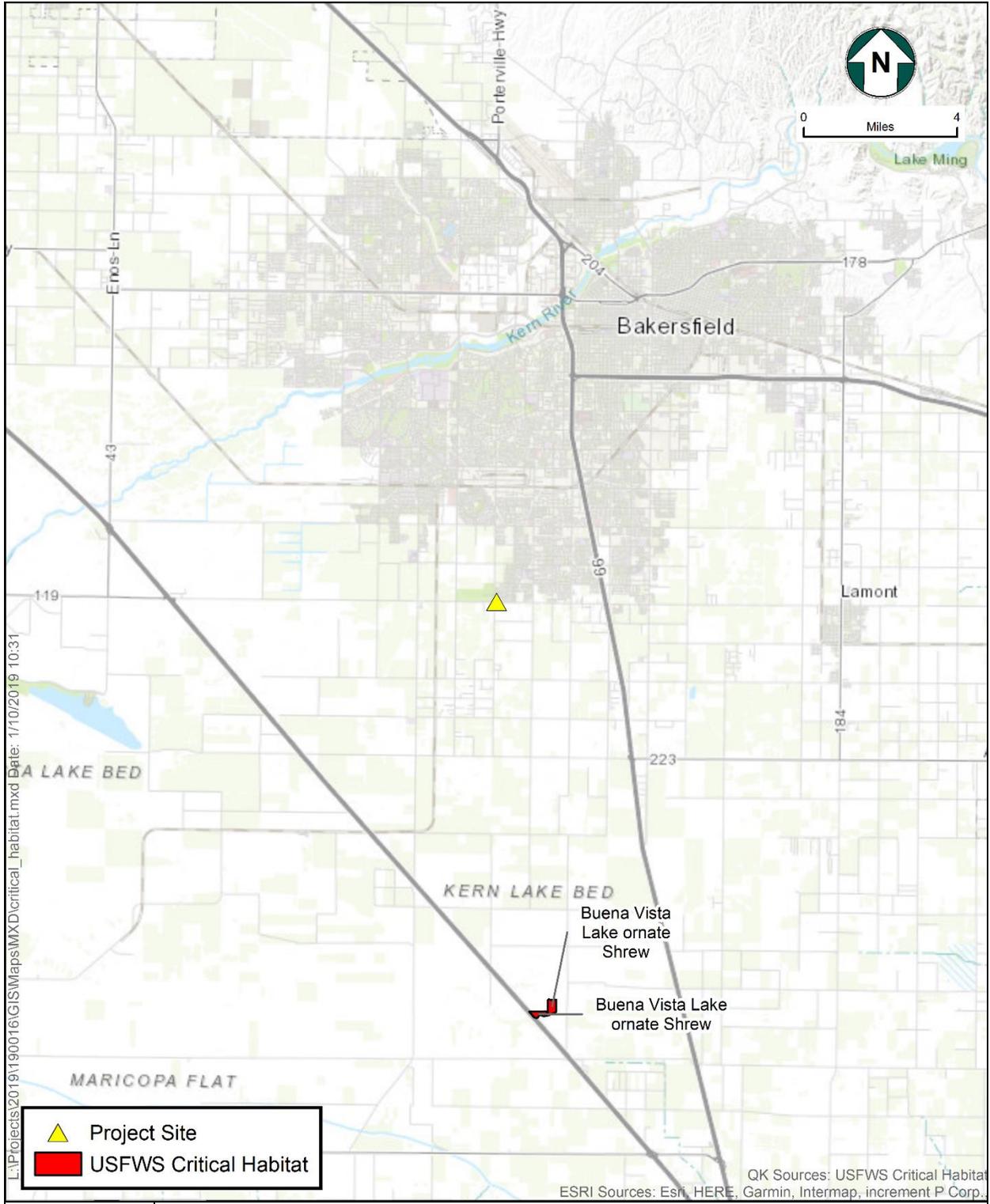


Figure 5-1
Mapped Critical Habitat in the Project Vicinity
KFT Holdings, LLC. Zone Change Project
Kern County, California

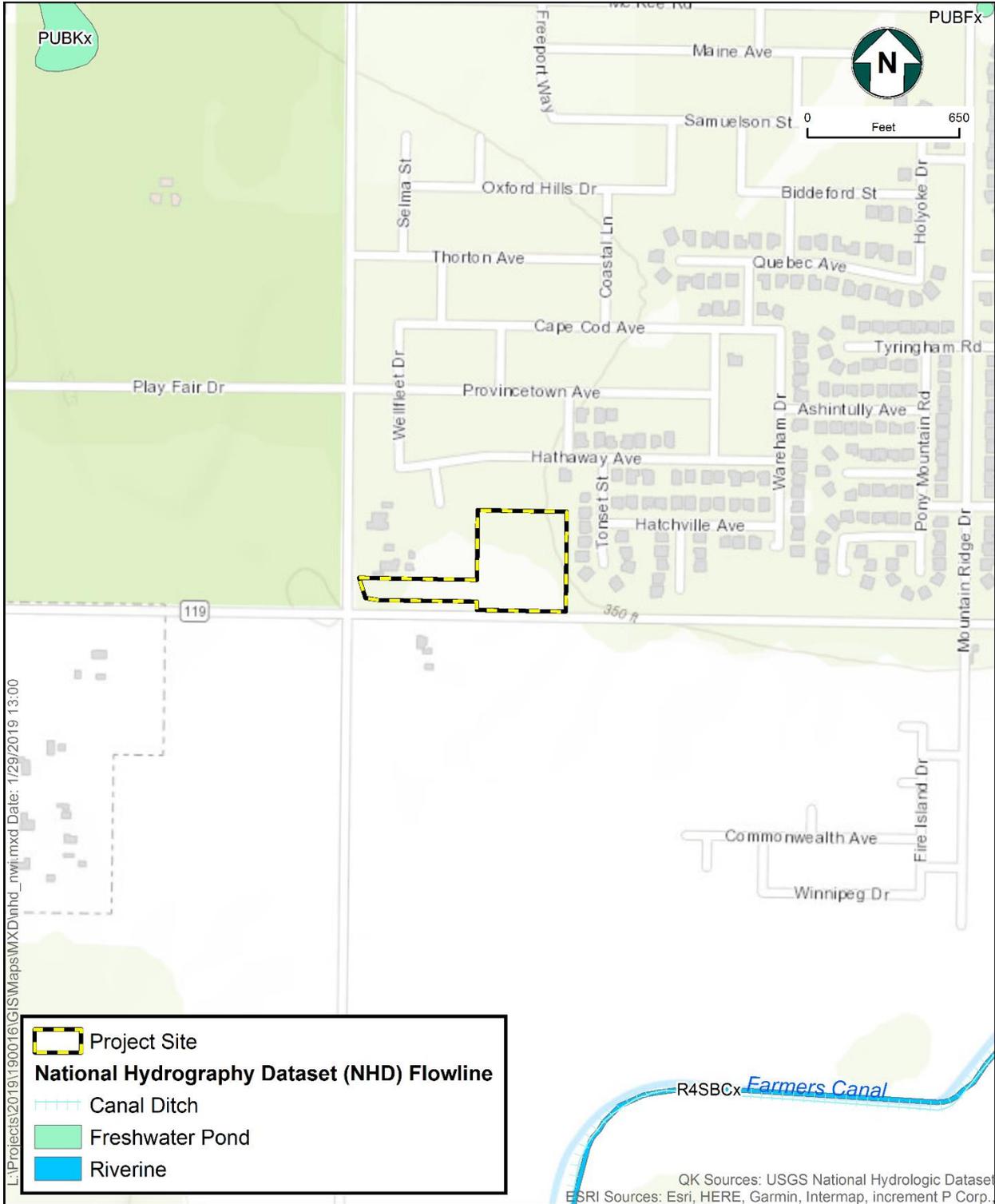


Figure 5-2
Potential Jurisdictional Aquatic Resources
KFT Holdings, LLC. Zone Change Project
Kern County, California

SECTION 6 - IMPACT ANALYSIS AND RECOMMENDED AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

This section evaluates Project-related impacts to sensitive biological resources. Direct and indirect impacts are identified. Temporary impacts are defined as impacts with a maximum duration of one calendar year. When significant impacts are identified or when they would be anticipated to occur, recommended measures to avoid or reduce those impacts to less than significant levels are provided.

The analysis of impacts that is provided is based upon the requirements of CEQA, and the associated thresholds of significance. The fundamental definition of significant effect under CEQA is “a substantial adverse change in physical conditions.” This criterion underlies the evaluation of environmental impacts for most of the impact issues identified in the CEQA Guidelines Appendix G Environmental Checklist Form. The significance threshold for evaluation of impacts under CEQA will not necessarily equate to a regulatory limit or standard. Instead, under CEQA, most thresholds are set at meaningful levels, independent of regulatory thresholds. Some thresholds are driven by regulatory standards (HCP compliance, Air Quality plan compliance, etc).

For each of the existing biological conditions described in this report, potential impacts are addressed in accordance with the biological issues listed in CEQA Guidelines Appendix G, which are:

- (A) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
- (B) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, any regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?
- (C) Would the project have a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- (D) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- (E) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Biological Analysis Report Impact Analysis and Recommended Avoidance, Minimization, and Mitigation Measures

- (F) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan or Recovery Plan?

Each issue is assessed according to thresholds of significance established under CEQA Guidelines §15065(a), as modified. These are:

- Would the project result in substantial degradation of the environment?
- Would the project result in substantial habitat reduction for a fish or wildlife species?
- Would the project result in reduction of a fish or wildlife population below self-sustaining levels?
- Would the project result in elimination of a plant or animal community?
- Would the project result in substantial reduction of the number of, or restriction of the range of, a rare or threatened species, or result in direct or indirect “take” of an endangered species as defined in State or federal Endangered Species Acts?

6.1 - Project Impacts to Special-Status Species (CEQA Evaluation Factor A):

6.1.1 - PROJECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES

It was determined that no special-status plant species have the potential to occur on the Project site due to the lack of suitable habitat. The Project site is subject to frequent human activities and disturbance and no habitats which could support special-status plant species are present. As such, no impacts to special-status plant species would occur from the implementation of the Project. No mitigation measures are warranted.

6.1.2 - PROJECT IMPACTS TO SPECIAL-STATUS WILDLIFE SPECIES

Four special-status species were determined to have the potential to occur on-site: western burrowing owl, American badger, San Joaquin kit fox, and Swainson’s hawk. In addition, implementation of the Project may result in impacts to nesting birds protected by the Migratory Bird Treaty Act and the California Fish and Game Code.

The western burrowing owl, American badger, and San Joaquin kit fox each use burrows for breeding and shelter, but no burrows that would support these species were found on-site. The high level of historical disturbance, poor habitat quality, the presence of trash and debris, precludes the establishment of burrows suitable for these species. Therefore, it is unlikely that these species would reside on-site. However, if any portion of the site were to be cleared and remain fallow and for a period of time prior to construction of the Project, these species could establish burrows on-site. American badgers can dig new burrows each night, and San Joaquin kit fox have been documented using man-made structures such as culverts and pipes for shelter. Burrowing owls don’t dig their own burrows, but may use burrows constructed by other animals, and they have been known to use pipes and culverts for shelter.

Biological Analysis Report Impact Analysis and Recommended Avoidance, Minimization, and Mitigation Measures

The site does provide some foraging habitat, although no small mammal burrows were observed during the reconnaissance survey. Based on a review of aerial imagery and the reconnaissance survey, there appears to be potentially suitable habitat near the site, and these three species may occur on site from time to time as transient foragers.

No Swainson's hawk(s) were observed on-site due to the timing of the survey. It is possible that Swainson's hawks have nested in the area. Swainson's hawks prefer to nest in isolated trees or small groups of trees close to grasslands and dry-land grain fields for foraging. While there are no isolated or small groups of trees on the Project site, it is possible for Swainson's hawks to nest nearby and forage on the Project site.

The Project site has the potential to support several ground and tree nesting bird species, including the white-crowned sparrow (*Zonotrichia leucophrys*) and the mourning dove (*Zenaida macroura*). These species were observed during the site survey; however, no nesting sites or activities were noted.

RECOMMENDED MEASURES TO PROTECT SPECIAL-STATUS ANIMAL SPECIES

The following measures are design to avoid and minimize impacts to special-status animal species:

BIO-1: Pre-activity Clearance Survey for San Joaquin Kit Fox, American Badger, and Burrowing Owl. Within 14 days of the start of any Project activity (including staging and construction activities), a qualified biologist with specific species knowledge and experience should conduct a pedestrian survey of the entire Project site to look for evidence of special-status mammal species and the western burrowing owl. The survey will ensure 100% coverage of the disturbance footprint plus a 250-foot buffer where access is feasible. If the survey buffer is not accessible, the area should be scanned visually. This survey effort should be timed to occur prior to each phase of construction. Upon completion of each phased survey effort, a report of the survey findings should be submitted to the City to confirm compliance with this measure.

BIO-2: Standard Avoidance and Minimization Measures. *The U.S. Fish and Wildlife Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011), a copy of which is included in Appendix D, should be implemented during construction of the Project to avoid and minimize impacts both San Joaquin kit fox and American badger. These measures include:

- Construction-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all Project areas, except on County and City roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated Project areas should be prohibited.
- To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a Project, all excavated, steep-walled holes or trenches more

Biological Analysis Report Impact Analysis and Recommended Avoidance, Minimization, and Mitigation Measures

than 2 feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks should be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the USFWS and the CDFW should be contacted as noted below.

- Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- No pets, such as dogs or cats, should be permitted on the Project site to prevent harassment, mortality of kit foxes, or destruction of dens.
- Use of rodenticides and herbicides in Project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional Project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
- A representative should be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number should be provided to the USFWS.
- An employee education program should be conducted for any Project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the Project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the Project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during Project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the Project site.

Biological Analysis Report Impact Analysis and Recommended Avoidance, Minimization, and Mitigation Measures

- An acknowledgement form signed by each worker indicating that environmental training has been completed will be kept on record.
- A sticker should be placed on worker hard hats upon the worker's successful environmental training completion. Construction workers should not be permitted to operate vehicles or equipment within the construction areas unless they have attended the training and are wearing hard hats with the required sticker.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
- Any person who is responsible for inadvertently killing or injuring a San Joaquin kit fox should immediately report the incident to their representative. This representative should contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or wildlife biologist. The USFWS should be contacted at the number below.
- The Sacramento Fish and Wildlife Office and CDFW should be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during Project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below.
 - U.S. Fish and Wildlife Service
Region 8 – California and Nevada
2800 Cottage Way, Suite W2606
Sacramento, CA 95825
Contact: Mike Fris
Assistant Regional Director for Ecological Services
Phone: (916) 414-6464
- New sightings of kit fox should be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS.

BIO-3: Den Avoidance. In the event that a potential den that may be suitable for American badger, San Joaquin kit fox, or burrowing owl is detected during pre-activity clearance surveys, the biologist should monitor the den using cameras and tracking medium for up to five (days) to determine if the den is occupied by a special-status species. If after five (5) days no activity is detected, the den should be collapsed by fully excavating the den to the end of each tunnel to ensure that no animals are in it, and then the den can be backfilled. Construction personnel may collapse the den only under the direct supervision of the biologist. If a special-status species is detected using the den, the den must be avoided until the animal leaves on its own. A minimum 100-foot buffer should be constructed using orange construction fencing around the den during the non-breeding season (April to November). During the breeding season (December to March), the buffer should be extended to 250 feet. Consultation with the USFWS and/or CDFW will be required prior to collapsing dens known

Biological Analysis Report Impact Analysis and Recommended Avoidance, Minimization, and Mitigation Measures

to be occupied by San Joaquin kit foxes. If active western burrowing owl burrows are detected during pre-construction surveys, avoidance mitigation measures would be followed according to the CDFW Staff Report on Burrowing Owl Mitigation (Appendix E).

BIO-4: Swainson's Hawk Avoidance and Minimization. If Project activities are planned to start during the Swainson's hawk nesting season, March 20 to July 30, a pre-activity nesting bird survey should be conducted within seven (7) days of the start of these activities. These surveys should be phased with construction of the Project site. A report of survey findings should be provided to the City to confirm compliance with this measure. If an active Swainson's hawk nest is present on-site, no work may occur within 0.5 mile of the nest without consultation with the CDFW.

BIO-5: Nest Avoidance. If Project activities are planned to start during the migratory bird nesting season, February 1 to September 15, a pre-activity nesting bird survey should be conducted within seven (7) days of the start of these activities. These surveys should be phased with construction of the Project site. A report of survey findings should be provided to the City to confirm compliance with this measure. If active nests are detected during the survey, or at any time during construction of the Project, an avoidance buffer will be established by a qualified biologist based on the species and the activities that are underway. For raptor species (except Swainson's hawk), the avoidance will typical be not less than 250 feet. For non-raptor species, the buffer may range from 50 to 100 feet. Note that some bird species are known to nest on human structures, including construction equipment. Construction personnel should be educated about this possibility as part of the employee education program included under measure BIO-2.

6.2 - Project Impacts to Riparian Habitat and Other Sensitive Natural Communities (CEQA Evaluation Factor B)

There are no sensitive natural communities present on the Project and there would be *no impacts* to sensitive natural communities.

RECOMMENDED MEASURES TO PROTECT SENSITIVE NATURAL COMMUNITIES

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.3 - Project Impacts to Federal and State Wetlands and Waters (CEQA Evaluation Factor C)

6.3.1 - PROJECT IMPACTS TO FEDERAL WETLANDS AND OTHER WATERS

There are no federal waters or wetlands located on or near the Project. The Project will result in *no impacts* to any waters or wetlands.

RECOMMENDED MEASURES TO PROTECT FEDERAL WETLANDS AND OTHER WATERS

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.3.2 - PROJECT IMPACTS TO STATE REGULATED WATERS

There are no identified water features within the Project site. The Farmers Canal and unnamed fresh water ponds are in the vicinity of the Project site. Therefore, the Project would result in *less than significant impacts* to any State regulated waters.

RECOMMENDED MEASURES TO PROTECT STATE REGULATED WATERS

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.4 - Project Impacts to Fish or Wildlife Movement Corridors, Linkages, Nursery Sites, and Critical Habitat (CEQA Evaluation Factor D)

6.4.1 - PROJECT IMPACTS TO FISH AND WILDLIFE MOVEMENT CORRIDORS, LINKAGES, AND NURSERY SITES

There are no identified movement corridors on or near the Project site. The Project site may be used by transient foragers such as American badger and San Joaquin kit fox. The open landscape creates a foraging habitat, which may be used from time to time by these species. The Project will result in **no impacts** to fish or wildlife movement corridors, linkages or nursery sites.

RECOMMENDED MEASURES TO PROTECT DESIGNATED CRITICAL HABITAT

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.4.2 - PROJECT IMPACTS TO DESIGNATED CRITICAL HABITAT

There are no designated critical habitat(s) on the Project site or in the nearby vicinity. There will be no impacts to any critical habitat.

RECOMMENDED MEASURES TO PROTECT DESIGNATED CRITICAL HABITAT

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.5 - Project Conflicts with Local Policies and Ordinances (CEQA Evaluation Factor E)

6.5.1 - PROJECT CONFLICT WITH LOCAL POLICIES AND ORDINANCES

The Project does not conflict with any local policies or ordinance. The Project will have no conflict (impacts) with local policies and ordinances protecting biological resources.

RECOMMENDED MEASURES TO ENSURE CONFORMANCE WITH LOCAL POLICIES AND ORDINANCES

No recommendations.

EFFECTIVENESS OF MEASURES

Not applicable.

6.6 - Project Conflicts with Habitat Conservation Plans, Natural Community Conservation Plans, or Recover Plans (CEQA Evaluation Factor F)

6.6.1 - PROJECT CONFLICTS WITH HABITAT CONSERVATION PLANS, NATURAL COMMUNITY CONSERVATION PLANS, OR RECOVERY PLANS

The Project is within the boundary of the MBHCP and therefore subject to following Conditions of Approval for the four covered species listed, subject to take authorization provided the associated Metropolitan Urban Development ITP No. 2081-2013-058-04. Of the four listed species only one species, the San Joaquin kit fox, has the potential to occur on the Project site. With the implementation of the MBHCP ITP mitigation measures there will be a **less than significant** impact to any listed species.

The Project will not conflict (impact) with any Natural Community Conservation Plans or Recovery Plans.

RECOMMENDED MEASURES TO ENSURE CONFORMANCE WITH LOCAL POLICIES AND ORDINANCES

Bio-6. The Project will follow the MBHCP ITP Conditions of Approval for all special-status species listed.

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There are protection measures that are required to be implemented prior to and during work activities. These include:

- The Developer shall inform CDFW when the required minimization measures are met (COA 7.3 – Developer notification);
- The Developer and CDFW shall be notified within 24 hours if a San Joaquin kit fox is observed within the work area (COA 7.7);
- The Developer shall implement daily entrapment inspections (COA 7.15);
- The Developer shall implement daily material inspections (COA 7.16);
- The Developer shall implement daily equipment inspections (COA 7.17);
- The Developer shall provide Worker Environmental Awareness Training (WEAT) to construction personnel working at the Project site; and
- It is recommended that all work be restricted to the area within the designated Project boundary.

Additional measures or alternative measures may be required depending upon conditions at the time work is conducted. Excerpted ITP Minimization Measures are included in Attachment F.

EFFECTIVENESS OF MEASURES

Impacts would be *less than significant* with mitigation incorporated.

SECTION 7 - LIMITATIONS, ASSUMPTIONS, AND USE RELIANCE

This Biological Analysis Report has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, and specified historical and literature sources. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

7.1 - CONCLUSION

Fourteen days prior to construction, a pre-construction survey should be conducted for the presence or sign of potentially-occurring special-status species. This task should be conducted by qualified wildlife biologists experienced with Swainson's hawk, burrowing owl, American badger, Tipton kangaroo rat, and San Joaquin kit fox. The pre-construction survey will be conducted to collect any recent activity or sign for those special status animals that have any potential to occur at the Project site. The results of the pre-construction clearance survey will determine what specific avoidance and mitigation measures will be conducted. If no additional activity or sign is observed during the pre-construction survey, then no additional surveys would be required. The results of the pre-construction survey will be submitted to the City of Bakersfield and other required agencies.

There is no current evidence that shows that the Project site is currently inhabited by any special-status plants or animals. However, SJKF, American badger, and burrowing owl are transient foragers and may be present from time to time in the vicinity. Direct impacts to those species are not anticipated to occur with the implementation of the avoidance and minimization measures described above. If during the pre-construction survey any special status species are observed avoidance and minimization measures could be implemented that would result in the Project having *less than significant* impacts to biological resources.

SECTION 8 - REFERENCES

- Baldwin, B.G. (Ed.), D.H. Goldman (Ed.), D. J. Keil (Ed.), R. Patterson (Ed.), T. J. Rosatti (Ed.), D. H. Wilken (Ed.). 2012. *The Jepson Manual: Vascular Plants of California, Second Edition, Thoroughly Revised and Expanded*. University of California Press. Berkeley, California.
- Bowers, N., R. Bowers, & K. Kaufman. 2004. *Mammals of North America*.
- Burt, W.H., and R.P. Grossenheider. 1980. *A Field Guide to the Mammals of North American North of Mexico*. The Peterson Field Guide Series.
- Calflora. 2009. *Information on wild California plants for conservation, education, and appreciation*. Berkeley, CA. Updated online and accessed via: www.calflora.org.
- California Department of Fish and Wildlife. 2018a. California Natural Diversity Database (CNDDB) – Commercial version dated November 1, 2018. Accessed November 13, 2018, from <https://map.dfg.ca.gov/rarefind/view/RareFind.aspx>.
- CDFW. 2009. *Special Animals List*. Biogeographic Data Branch, California Natural Diversity Database. July 2009.
- CDFW. 2010a. Biogeographic Information and Observation System (BIOS). Accessed December 21, 2010 from www.wildlife.ca.gov/data/BIOS
- CDFW. 2010b. *Special Vascular Plants, Bryophytes, and Lichens List*. Biogeographic Data Branch, California Natural Diversity Database. October 2010.
- California Native Plant Society. 2010. Inventory of Rare and Endangered Plants. V.7-08c-Interim 8-22-02. Updated online and accessed via: www.rareplants.cnps.org.
- Federal Emergency Management Agency. 2018. FEMA flood map service center. Tulare County Unincorporated Areas. <https://msc.fema.gov/portal/search#searchresultsanchor>
- Google LLC. 2018. Google Earth Pro.
- Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Wildlife, Nongame Heritage Program. 156 pgs.
- Mayer, K. E., and W. F. Laudenslayer, Jr. 1988. *A guide to wildlife habitat of California*. State of California, Resources Agency, Department of Fish and Wildlife. Sacramento, CA 166 pp.
- Nafis, G. 2018. California Herps - A Guide to the Amphibians and Reptiles of California. Accessed August 2018. Available at: <http://www.californiaherps.com/>
- Sawyer, J. O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society. Sacramento, California.
- Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians. 2nd ed*. Houghton-Mifflin Company. Boston, Massachusetts.

- U.S. Geological Survey. 2018. National Hydrography Dataset. <https://www.usgs.gov/core-science-systems/ngp/national-hydrography>
- United States Department of Agricultural, Natural Resources Conservation Service. 2010a. Web Soil Survey. Accessed December 21, 2010. Soil Survey Area: Kings County, California. Soil Survey Data: Version 8, August 27, 2009. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
- United States Department of Agriculture, Natural Resources Conservation Service. 2010b. Lists of Hydric Soils. National Cooperative Soil Survey, U.S. Department of Agriculture. Accessed via: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>.
- United States Fish and Wildlife Service (USFWS). 1973. The Endangered Species Act of 1973, as amended (16 U.S.C 1531 et seq.).
- USFWS. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants. January 2000.
- USFWS. 2010a. Critical Habitat Portal. Available at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>
- USFWS. 2010b. Information for Planning and Consultation online project planning tool. Available at: <https://ecos.fws.gov/ipac/>
- USFWS. 2018c. National Wetlands Inventory Wetlands Mapper. <https://www.fws.gov/wetlands/data/mapper.html>
- Western Regional Climate Center. 2018. Cooperative Climatological Data Summaries, NOAA Cooperative Station Visalia, California (049367). <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9367>
- Zeiner, D., W.F. Laudenslayer, Jr., and K.E. Mayer (May 1988). *California's Wildlife. California Statewide Wildlife Habitat Relationship System, Volumes I, II, & III*. California Department of Fish and Wildlife.

SECTION 9 - LIST OF PREPARERS

QK Inc.

Field Reconnaissance Survey

- Katheryn Eldredge, Senior Associate Environmental Scientist
- Karissa Denney, Associate Environmental Scientist

Primary Author

- Katheryn Eldredge, Senior Associate Environmental Scientist

Technical Review

- David Dayton, Senior Environmental Scientist

Graphics

- Karissa Denney, Associate Environmental Scientist

APPENDIX A

REPRESENTATIVE PHOTOGRAPHS
KFT HOLDINGS, LLC. ZONE CHANGE PROJECT



Photograph 1: Taken from the southwest corner of Project site looking north
GPS Coordinates: 35.26731502, -119.07407559
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 2: Taken from the southwest corner of Project site looking east.
GPS Coordinates: 35.26731502, -119.07407559
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 3: Taken from the northwest corner of Project site looking south
GPS Coordinates: 35.26749030, -119.07428163
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 4: Taken from the northwest corner of Project site looking east
GPS Coordinates: 35.26749030, -119.07428163
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 5: Taken from the north middle of Project site looking east
GPS Coordinates: 35.26749734, -119.07255253
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 6: Taken from the north middle of Project site looking west
GPS Coordinates: 35.26749734, -119.07255253
Photograph taken by K. Eldredge on January 9, 2019.



Photograph 7: Taken from the south middle of Project site looking northeast.
GPS Coordinates: 35.267250, -119.072525
Photograph taken by K. Denney on January 29, 2019.



Photograph 8: Taken from the northwest corner of Project site looking southeast.
GPS Coordinates: 35.268337, -119.07248
Photograph taken by K. Denney on January 29, 2019.



Photograph 9: Taken from the northeast corner of Project site looking southwest.
GPS Coordinates: 35.268301, -119.07131
Photograph taken by K. Denney on January 29, 2019.



Photograph 10: Taken from the southeast corner of Project site looking northwest.
GPS Coordinates: 35.267307, -119.071317
Photograph taken by K. Denney on January 29, 2019.

APPENDIX B

PLANT AND ANIMAL SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA
KFT HOLDINGS, LLC. ZONE CHANGE PROJECT

Appendix B – Plant and Animal Species Observed within the BSA

**Table B-1
Plant Species Observed within the Biological Study Area on January 9, 2019.
KTF Holdings, LLC. Zone Change Project, Kern County, California**

Scientific Name	Common Name	Status	Native or Introduced
Trees			
<i>Platanus racemosa</i>	Western sycamore	none	Native
<i>Racemosa dipetala</i>	California ash	none	Native
<i>Morus alba</i>	mulberry	none	Non-native
<i>Citrus sp.</i>	citrus	none	Non-native
<i>Pineus sp.</i>	pine	none	Non-native
Shrubs			
<i>Nerium oleander</i>	oleander	none	Non-native
Herbs			
<i>Brassica nigra</i>	black mustard	none	Non-native
<i>Malva parviflora</i>	mallow	none	Non-native
<i>Sisymbrium irio L.</i>	London rocket	none	Non-native
<i>Amsinkia intermedia</i>	common fiddleneck	none	Non-native
<i>Salsola australis</i>	Russian thistle	none	Non-native
<i>Erodium cicutarium</i>	common stork's bill	none	Non-native
Grasses			
<i>Avena sp.</i>	wild oat	none	Non-native
<i>Bromus sp.</i>	brome	none	Non-native
<i>Schismus sp.</i>	Mediterranean grass	none	Non-native

**Table B-2
Animal Species Observed within the Biological Study Area on January 9, 2019.
KFT Holdings, LLC. Zone Change Project, Kern County, California**

Scientific Name	Common Name	Status	Native or Introduced
Birds			
<i>Corvus brachyrynchos</i>	American crow	none	native
<i>Zonotrichia leucophrys</i>	white crowned sparrow	none	native
<i>Zenaida macura</i>	mourning dove	none	native
<i>Dendraica coronata</i>	Audubon warbler	none	native
Mammals			
<i>Canis lupus familiaris</i>	domestic dog	none	Non-native
<i>Felis catus</i>	domestic cat	none	Non-native
<i>Gallus gallus domesticus</i>	domestic chicken	none	Non-native

APPENDIX C

**SPECIAL-STATUS SPECIES DATABASE SEARCH RESULTS FOR THE
*KFT HOLDINGS, LLC. ZONE CHANGE PROJECT***

Table C-1
Special-Status Plant and Animals Species in the Regional Vicinity of the Project Site
KFT Holdings, LLC. Zone Change Project, Kern County, California

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Sensitive Natural Communities				
Great Valley Cottonwood Riparian Forest	-/G2, S1.1	This community requires fine-grained alluvial soils adjacent to perennial or semi-perennial streams with frequent flooding and with permanent ground water in the tree root zone.	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.
Great Valley Mesquite Scrub	-/G1, S3.1	This community is composed of an open woodland or savanna dominated by <i>Prosopis glandulosa torreyana</i> and <i>Atriplex polycarpa</i> . Understories are grassy in good rainfall years, though usually dominated by introduced annuals. This community is found in sandy loams of alluvial origin, often with wind-modified microtopography. Mesquite requires a high-water table. Sierra snowmelt provided the necessary groundwater for the perennial phreatophytes.	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.
Valley Saltbush Scrub	-/G2, S2.1	This community consists of open, gray or blue-green chenopod scrubs, usually over a low herbaceous annual understory. Cover types dominated by <i>Atriplex polycarpa</i> or <i>Atriplex spinifera</i> are differentiable. Also consists of sandy to loamy soils without surface alkalinity. Usually found on rolling, dissected alluvial fans.	None	Suitable habitat absent. Historically has been observed approximately seven miles from Project site.
Valley Sink Scrub	-/1B.2	Low scattered grey or fleshy halophytes where there is poor or no drainage. This community is generally	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.

Appendix C – Special-Status Database Search Results

			subdivided into two phases: xerophytic and halophytic. Cover types include allscale (<i>Atriplex polycarpa</i>), shadescale (<i>Atriplex confertifolia</i>), and cheesebush (<i>Ambrosia salsola</i>).		
Plants					
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> salt-marsh bird's beak	FE/SE 1B.2	Annual herb (hemiparasitic); blooms May – Oct; coastal dunes, marshes and swamps (coastal swamps).	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.	
<i>Puccinellia simplex</i> <i>California alkali grass</i>	-/1B.2	It grows in mineral springs and other moist habitat with saline soils in the Central Valley, Mojave Desert, and other areas.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.	
<i>Opuntia basilaris</i> var. <i>treleasei</i> <i>Bakersfield cactus</i>	FE/ CE, 1B.1	This perennial stem succulent plant occurs in chenopod scrub, valley and foothill grasslands and cismontane woodlands on sandy or gravelly soils. It flowers between April and May, and it ranges in elevation from 393 to 1,804 feet.	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.	
<i>Atriplex tularensis</i> <i>Bakersfield smallscale</i>	CE/1A	This annual herb occurs in chenopod scrub. This annual flowers between June and October and it ranges in elevation from 295 to 656 feet.	None	Suitable habitat absent. Historically has been observed approximately four miles from Project site.	
<i>Imperata brevifolia</i> <i>California satintail</i>	-/2.1	This perennial grass occurs in wet meadows and seeps within chaparral, Coastal Sage Scrub, or Creosote Bush Scrub communities. These communities are typically composed of mesic or alkali soils. This grass flowers between September and May, and it ranges in elevation from 0 to 3,986 feet.	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.	
<i>Eriastrum hooveri</i> <i>Hoover's eriastrum</i>	-/4.2	This annual can be found in gravelly soil, with Chenopod scrub an in valley and foothill grassland. The blooming period for this plant March to July.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.	

Appendix C – Special-Status Database Search Results

<i>Monolopia congdonii</i> <i>San Joaquin woollythreads</i>	CE/ 1B.2	This annual herb prefers chenopod scrub, and/or valley and foothill grassland. It flowers between February and May, and it ranges in elevation from 197 to 2,625 feet.	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.
<i>Delphinium recurvatum</i> <i>Recurved larkspur</i>	-/1B.2	This perennial plant is commonly found in chenopod scrub, valley and foothill grassland and cismontane woodland. It is most common on sandy or clay alkaline soils. It flowers from March to May, and it ranges in elevation from 10 to 2,592 feet.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.
<i>Atriplex cordulata</i> <i>heartscale</i>	-/1B.2	Found in alkali grasslands on saline and alkaline soils in and around scald areas. Found in chenopod scrub and valley and foothill grassland habitats.	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.
<i>Calochortus striatus</i> <i>Alkali mariposa-lily</i>	-/1B.2	Grows in the Mojave Desert, in alkaline soils, usually in wetland-riparian areas	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.
<i>Lasthenis glabrata var. coulteri</i> <i>Coulter's goldfields</i>	-/1B.1	Found in saltmarshes, playas, vernal-pools	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.
<i>Atriplex vallicola</i> <i>Lost Hills crownscale</i>	-/1B.2	Found in dried ponds and alkaline soils in vernal pools, chenopod scrub, and valley and foothill grassland habitats. Grows in association with Frankenia (<i>Frankenia</i> sp.), saltbush (<i>Atriplex</i> spp.), and saltgrass (<i>Distichlis</i> sp.).	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.
Invertebrates				
<i>Danaus plexippus</i> Monarch – California overwintering population	-/SS	This butterfly occurs in various open habitats including fields, meadows, weedy areas, marshes, and roadsides. Adults make massive migrations from August to October, flying thousands of miles south to hibernate along the California coast and in central Mexico. The caterpillars feed on plants in the Milkweed family primarily Milkweeds	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.

Appendix C – Special-Status Database Search Results

(*Asclepias*), but also other genera including *Calotropis*, *Cynanchum*, *Gonolobus*, *Sarcostemma*, etc.

Mollusks				
<i>Helminthoglypta callistoderma</i> Kern shoulderband	FE/SS	This land snail, a terrestrial pulmonate gastropod, is a species that occurs in freshwater waterbodies. It is found along the lower Kern River canyon in the Kern River.	None	Suitable habitat absent. Historically has been observed approximately seven miles from Project site.
Amphibians				
<i>Spea hammondi</i> western spadefoot	-/SSC	This species occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.
<i>Lithobates pipiens</i> northern leopard frog	-/SSC	This species occurs in grassland, wet meadows, potholes, forests, woodland, brushlands, springs, canals, bogs, marshes, and reservoirs. It generally prefers permanent water with abundant aquatic vegetation. It may also use grassy woodlands or hay fields in summer provided there is sufficient vegetative cover.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.
Reptiles				
<i>Gambelia sila</i> Blunt-nosed leopard lizard	FE/SE	Semi-arid areas including grasslands and alkali flats with sparse vegetation and areas with an abundance of rodent burrows in which to shelter.	None	Suitable habitat absent. Historically has been observed approximately eight miles from Project site.
<i>Anniella grinelli</i> Bakersfield legless lizard	-/SSC	Occurs in moist warm loose soil with plant cover, such as pine-oak woodland scrub, sandy washes, and	None	Suitable habitat absent. Historically has been observed approximately seven miles from Project site.

Appendix C – Special-Status Database Search Results

		stream terraces with sycamores, cottonwoods, or oaks.		
<i>Arizona elegans occidentalis</i> California glossy snake	-/SSC	Appears to prefer microhabitats of open areas with soil loose enough for easy burrowing. Inhabits arid scrub, rocky washes, grasslands and chaparral.	None	Low foraging, roads run along land on two sides and no small mammal burrows present. There is adjacent suitable habitat nearby. Historically has been observed approximately two miles from Project site.
<i>Masticophis flagellum</i> San Joaquin Coachwhip	-/SSC	Open areas with sandy soil, open pine forests, oil fields and prairies.	None	Low foraging, roads run along land on two sides and no small mammal burrows present. There is suitable habitat on adjacent lands nearby. Historically has been observed approximately five miles from Project site.
<i>Emys marmorata</i> western pond turtle	-/SSC	This species occurs in ponds and small lakes with abundant vegetation; also found in marshes, slow moving streams, reservoirs, and brackish water. Require basking sites.	None	Suitable habitat absent. Historically has been observed approximately nine miles from Project site.
Birds				
<i>Athene cunicularia</i> burrowing owl	-/SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low	Low foraging and nesting. Burrows in open fields present on-site but is known only to be winter migrant in the area. One occurrence within one mile. Absent during survey.
<i>Buteo swainsoni</i> Swainson’s hawk	-/ST	Open and semi-open country, such as deserts, grasslands and prairies.	Low	Low foraging and nesting. Known occurrence approximately eight miles away. There is suitable habitat on adjacent lands nearby.
<i>Elanus leucurus</i> White-tailed kite	-/SE	This species occurs in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields. It nests in the upper third of trees, which can be open-country trees growing in isolation, or at the edge of	None	Suitable habitat absent. Historically has been observed approximately seven miles from Project site.

Appendix C – Special-Status Database Search Results

		or within a forest. Nests have been reported in more than 20 tree species.		
<i>Agelaius tricolor</i> tricolored blackbird	FE/ST	This species occurs near fresh water, and prefer emergent wetland vegetation with tall, dense cattails or tules, but is also found in thickets of willow, blackberry, wild rose, and tall herbs. It has been found to nest and forage in grassland and agricultural fields (pastures, dairies, rice fields). A highly social nester, it occurs in large colonies.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.
<i>Egretta thula</i> Snowy egret	-/SS	Occupies a variety of habitats, feeds in many types of permanently and seasonally flooded wetlands, lakes, swamps, and man-made habitats.	None	Suitable habitat absent. Historically has been observed approximately six miles from Project site.
<i>Charadrius nivosus nivosus</i> Western snowy plover	FT/ST	Once more widely distributed in coastal California. Currently only ten known nesting locations.	None	Suitable habitat absent. Historically has been observed more than ten miles from Project site.
<i>Dendrocygna bicolor</i> Fulvous whistling-duck	-/SSC	Occupies marshes, freshwater wetlands, especially impoundments managed for rice.	None	Suitable habitat absent. Historically has been observed more than ten miles from Project site.
<i>Plegadis chihi</i> White-faced ibis	-/SSC	Wading bird in the ibis family. This species breeds colonially in marshes, usually nesting in bushes or low trees.	None	Suitable habitat absent. Historically has been observed more than ten miles from Project site.
Mammals				
<i>Eumops perotis</i> Western mastiff bat	-/SSC	Desert scrub to woodland. Forage in open areas. Roost in exfoliating rock slabs of vertical cliffs and rugged canyons.	None	Poor foraging and roosting habitat. Historically has been observed approximately seven miles from Project site.
<i>Lasiurus cinereus</i> Hoary bat	-/SSC	Over its extensive range, can be found in a variety of habitat types, from deserts to tropical forests. It generally hunts around tree tops, along streams and lakes, and in densely vegetated urban areas.	None	Poor foraging and roosting habitat. Historically has been observed approximately nine miles from Project site.

Appendix C – Special-Status Database Search Results

Dipodomys nitratoide nitratoide Tipton kangaroo rat	FE/SE	This species occurs in saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin valley. It needs soft friable soils which escape seasonal flooding to dig burrows in elevated soil mounds at the base of shrubs.	None	Poor foraging and burrowing habitat Historically has been observed approximately six miles from Project site.
<i>Sorex ornatus relictus</i> (Buena Vista Lake shrew)	FE/SE	This species occurs in areas with a dense mesophytic, cover and an abundant layer of litter. Historically, it occupied Valley Freshwater Marsh near Buena Vista Lake. It has been identified in areas with dense wetland vegetative cover and an abundant layer of detritus.	None	Suitable habitat absent. Historically has been observed approximately ten miles from Project site.
<i>Taxidea taxus</i> American badger	-/SSC	This species occurs in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. It needs sufficient food and open, uncultivated ground. It preys on burrowing rodents and digs burrows.	Low	Poor foraging and burrowing habitat. Historically has been observed approximately six miles from Project site.
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/ST	This species occurs in annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Low	Poor foraging and burrowing habitat. Historically has been observed approximately one mile from Project site.
<i>Dipodomys ingens</i> Giant kangaroo rat	FE/SE	Lives on dry, sandy grasslands and digs burrows in loose soil.	None	Poor foraging and burrowing habitat. Historically has been observed approximately nine miles from Project site.
<i>Dipodomys nitratoide brevinasus</i> Short-nosed kangaroo rat	-/SSC	Found mostly on flat and gently sloping terrain and on hilltops in desert-shrub associations, primarily saltbushes (<i>Atriplex sp.</i>) and California ephedra (<i>Ephedra californica</i>).	None	Poor foraging and burrowing habitat. Historically has been observed approximately ten miles from Project site.

CRPR (California Rare Plant Rank):

1A Presumed Extinct in California

1B Rare, Threatened, or Endangered in California and elsewhere

2A Plants presumed extirpated in California, but more common elsewhere

FE

Federally Endangered

FT

Federally Threatened

FC

Federal Candidate Species

FS

Federally Sensitive

Appendix C – Special-Status Database Search Results

2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere	SE	State Endangered
<u>CRPR Threat Code Extension:</u>		ST	State Threatened
.1	Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)	SC	State Candidate
		SS	State Sensitive
.2	Fairly endangered in California (20-80% occurrences threatened)	SSC	State Species of Special Concern
.3	Not very endangered in California (<20% of occurrences threatened)	SFP	State Fully Protected
		SR	State Rare
		WL	Watch List

APPENDIX D

SAN JOAQUIN KIT FOX STANDARD RECOMMENDATIONS
KFT HOLDINGS, LLC. ZONE CHANGE PROJECT

**U.S. FISH AND WILDLIFE SERVICE
STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE**

Prepared by the Sacramento Fish and Wildlife Office
January 2011

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. **However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). These protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process.

All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, the biologist(s) must be able to identify coyote, red fox,

gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount. Resumes of biologists should be submitted to the Service for review and approval prior to any survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features and utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol). Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities.

If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: Linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

Potential den**	50 feet
Atypical den**	50 feet
Known den*	100 feet
Natal/pupping den (occupied <u>and</u> unoccupied)	Service must be contacted

***Known den:** To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

****Potential and Atypical dens:** Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection.

Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use.

If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.
2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is

- discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.
 5. No firearms shall be allowed on the project site.
 6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
 7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
 8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
 9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
 10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be

re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for guidance.
12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916)445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.
13. The Sacramento Fish and Wildlife Office and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.
14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

EXHIBIT "A" - DEFINITIONS

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means ". . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct". Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Popping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

APPENDIX E

**BURROWING OWL AVOIDANCE AND MINIMIZATION MEASURES
*KFT HOLDINGS, LLC. ZONE CHANGE PROJECT***

Staff Report on Burrowing Owl Mitigation

State of California

Natural Resources Agency

Department of Fish and Game

March 7, 2012¹

¹ This document replaces the Department of Fish and Game 1995 Staff Report On Burrowing Owl Mitigation.

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INTRODUCTION AND PURPOSE

Maintaining California's rich biological diversity is dependent on the conservation of species and their habitats. The California Department of Fish and Game (Department) has designated certain species as "species of special concern" when their population viability and survival is adversely affected by risk factors such as precipitous declines or other vulnerability factors (Shuford and Gardali 2008). Preliminary analyses of regional patterns for breeding populations of burrowing owls (*Athene cunicularia*) have detected declines both locally in their central and southern coastal breeding areas, and statewide where the species has experienced modest breeding range retraction (Gervais et al. 2008). In California, threat factors affecting burrowing owl populations include habitat loss, degradation and modification, and eradication of ground squirrels resulting in a loss of suitable burrows required by burrowing owls for nesting, protection from predators, and shelter (See Appendix A).

The Department recognized the need for a comprehensive conservation and mitigation strategy for burrowing owls, and in 1995 directed staff to prepare a report describing mitigation and survey recommendations. This report, "1995 Staff Report on Burrowing Owl Mitigation," (Staff Report) (CDFG 1995), contained Department-recommended burrowing owl and burrow survey techniques and mitigation measures intended to offset the loss of habitat and slow or reverse further decline of this species. Notwithstanding these measures, over the past 15+ years, burrowing owls have continued to decline in portions of their range (DeSante et al. 2007, Wilkerson and Siegel, 2010). The Department has determined that reversing declining population and range trends for burrowing owls will require implementation of more effective conservation actions, and evaluating the efficacy of the Department's existing recommended avoidance, minimization and mitigation approaches for burrowing owls.

The Department has identified three main actions that together will facilitate a more viable, coordinated, and concerted approach to conservation and mitigation for burrowing owls in California. These include:

1. Incorporating burrowing owl comprehensive conservation strategies into landscape-based planning efforts such as Natural Community Conservation Plans (NCCPs) and multi-species Habitat Conservation Plans (HCPs) that specifically address burrowing owls.
2. Developing and implementing a statewide conservation strategy (Burkett and Johnson, 2007) and local or regional conservation strategies for burrowing owls, including the development and implementation of a statewide burrowing owl survey and monitoring plan.
3. Developing more rigorous burrowing owl survey methods, working to improve the adequacy of impacts assessments; developing clear and effective avoidance and minimization measures; and developing mitigation measures to ensure impacts to the species are effectively addressed at the project, local, and/or regional level (the focus of this document).

This Report sets forth the Department's recommendations for implementing the third approach identified above by revising the 1995 Staff Report, drawing from the most relevant and current knowledge and expertise, and incorporating the best scientific information

available pertaining to the species. It is designed to provide a compilation of the best available science for Department staff, biologists, planners, land managers, California Environmental Quality Act (CEQA) lead agencies, and the public to consider when assessing impacts of projects or other activities on burrowing owls.

This revised Staff Report takes into account the California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines (CBOC 1993, 1997) and supersedes the survey, avoidance, minimization and mitigation recommendations in the 1995 Staff Report. Based on experiences gained from implementing the 1995 Staff Report, the Department believes revising that report is warranted. This document also includes general conservation goals and principles for developing mitigation measures for burrowing owls.

DEPARTMENT ROLE AND LEGAL AUTHORITIES

The mission of the Department is to manage California's diverse fish, wildlife and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitats necessary to maintain biologically sustainable populations of those species (Fish and Game Code (FGC) §1802). The Department, as trustee agency pursuant to CEQA (See CEQA Guidelines, §15386), has jurisdiction by law over natural resources, including fish and wildlife, affected by a project, as that term is defined in Section 21065 of the Public Resources Code. The Department exercises this authority by reviewing and commenting on environmental documents and making recommendations to avoid, minimize, and mitigate potential negative impacts to those resources held in trust for the people of California.

Field surveys designed to detect the presence of a particular species, habitat element, or natural community are one of the tools that can assist biologists in determining whether a species or habitat may be significantly impacted by land use changes or disturbance. The Department reviews field survey data as well as site-specific and regional information to evaluate whether a project's impacts may be significant. This document compiles the best available science for conducting habitat assessments and surveys, and includes considerations for developing measures to avoid impacts or mitigate unavoidable impacts.

CEQA

CEQA requires public agencies in California to analyze and disclose potential environmental impacts associated with a project that the agency will carry out, fund, or approve. Any potentially significant impact must be mitigated to the extent feasible. Project-specific CEQA mitigation is important for burrowing owls because most populations exist on privately owned parcels that, when proposed for development or other types of modification, may be subject to the environmental review requirements of CEQA.

Take

Take of individual burrowing owls and their nests is defined by FGC section 86, and prohibited by sections 3503, 3503.5 and 3513. Take is defined in FGC Section 86 as "hunt, pursue, catch, capture or kill, or attempt to hunt, pursue, catch, capture or kill."

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the United States and Canada, Japan, Mexico, and Russia for the protection of migratory birds, including the burrowing owl (50 C.F.R. § 10). The MBTA protects migratory bird nests from possession, sale, purchase, barter, transport, import and export, and collection. The other prohibitions of the MBTA - capture, pursue, hunt, and kill - are inapplicable to nests. The regulatory definition of take, as defined in Title 50 C.F.R. part 10.12, means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect. Only the verb “collect” applies to nests. It is illegal to collect, possess, and by any means transfer possession of any migratory bird nest. The MBTA prohibits the destruction of a nest when it contains birds or eggs, and no possession shall occur during the destruction (see Fish and Wildlife Service, Migratory Bird Permit Memorandum, April 15, 2003). Certain exceptions to this prohibition are included in 50 C.F.R. section 21. Pursuant to Fish & Game Code section 3513, the Department enforces the Migratory Bird Treaty Act consistent with rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.

Regional Conservation Plans

Regional multiple species conservation plans offer long-term assurances for conservation of covered species at a landscape scale, in exchange for biologically appropriate levels of incidental take and/or habitat loss as defined in the approved plan. California’s NCCP Act (FGC §2800 et seq.) governs such plans at the state level, and was designed to conserve species, natural communities, ecosystems, and ecological processes across a jurisdiction or a collection of jurisdictions. Complementary federal HCPs are governed by the Endangered Species Act (7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.) (ESA). Regional conservation plans (and certain other landscape-level conservation and management plans), may provide conservation for unlisted as well as listed species. Because the geographic scope of NCCPs and HCPs may span many hundreds of thousands of acres, these planning tools have the potential to play a significant role in conservation of burrowing owls, and grasslands and other habitats.

Fish and Game Commission Policies

There are a number of Fish and Game Commission policies (see FGC §2008) that can be applied to burrowing owl conservation. These include policies on: Raptors, Cooperation, Endangered and Threatened Species, Land Use Planning, Management and Utilization of Fish and Wildlife on Federal Lands, Management and Utilization of Fish and Wildlife on Private Lands, and Research.

GUIDING PRINCIPLES FOR CONSERVATION

Unless otherwise provided in a statewide, local, or regional conservation strategy, surveying and evaluating impacts to burrowing owls, as well as developing and implementing avoidance, minimization, and mitigation and conservation measures incorporate the following principles. These principles are a summary of Department staff expert opinion and were used to guide the preparation of this document.

1. Use the Precautionary Principle (Noss et al.1997), by which the alternative of increased conservation is deliberately chosen in order to buffer against incomplete knowledge of burrowing owl ecology and uncertainty about the consequences to burrowing owls of potential impacts, including those that are cumulative.
2. Employ basic conservation biology tenets and population-level approaches when determining what constitutes appropriate avoidance, minimization, and mitigation for impacts. Include mitigation effectiveness monitoring and reporting, and use an adaptive management loop to modify measures based on results.
3. Protect and conserve owls in wild, semi-natural, and agricultural habitats (conserve is defined at FGC §1802).
4. Protect and conserve natural nest burrows (or burrow surrogates) previously used by burrowing owls and sufficient foraging habitat and protect auxiliary “satellite” burrows that contribute to burrowing owl survivorship and natural behavior of owls.

CONSERVATION GOALS FOR THE BURROWING OWL IN CALIFORNIA

It is Department staff expert opinion that the following goals guide and contribute to the short and long-term conservation of burrowing owls in California:

1. Maintain size and distribution of extant burrowing owl populations (allowing for natural population fluctuations).
2. Increase geographic distribution of burrowing owls into formerly occupied historical range where burrowing owl habitat still exists, or where it can be created or enhanced, and where the reason for its local disappearance is no longer of concern.
3. Increase size of existing populations where possible and appropriate (for example, considering basic ecological principles such as carrying capacity, predator-prey relationships, and inter-specific relationships with other species at risk).
4. Protect and restore self-sustaining ecosystems or natural communities which can support burrowing owls at a landscape scale, and which will require minimal long-term management.
5. Minimize or prevent unnatural causes of burrowing owl population declines (e.g., nest burrow destruction, chemical control of rodent hosts and prey).
6. Augment/restore natural dynamics of burrowing owl populations including movement and genetic exchange among populations, such that the species does not require future listing and protection under the California Endangered Species Act (CESA) and/or the federal Endangered Species Act (ESA).
7. Engage stakeholders, including ranchers; farmers; military; tribes; local, state, and federal agencies; non-governmental organizations; and scientific research and education communities involved in burrowing owl protection and habitat management.

ACTIVITIES WITH THE POTENTIAL TO TAKE OR IMPACT BURROWING OWLS

The following activities are examples of activities that have the potential to take burrowing owls, their nests or eggs, or destroy or degrade burrowing owl habitat: grading, diking, cultivation, earthmoving, burrow blockage, heavy equipment compacting and crushing burrow tunnels, levee maintenance, flooding, burning and mowing (if burrows are impacted), and operating wind turbine collisions (collectively hereafter referred to as “projects” or “activities”

whether carried out pursuant to CEQA or not). In addition, the following activities may have impacts to burrowing owl populations: eradication of host burrowers; changes in vegetation management (i.e. grazing); use of pesticides and rodenticides; destruction, conversion or degradation of nesting, foraging, over-wintering or other habitats; destruction of natural burrows and burrow surrogates; and disturbance which may result in harassment of owls at occupied burrows.

PROJECT IMPACT EVALUATIONS

The following three progressive steps are effective in evaluating whether projects will result in impacts to burrowing owls. The information gained from these steps will inform any subsequent avoidance, minimization and mitigation measures. The steps for project impact evaluations are: 1) habitat assessment, 2) surveys, and 3) impact assessment. Habitat assessments are conducted to evaluate the likelihood that a site supports burrowing owl. Burrowing owl surveys provide information needed to determine the potential effects of proposed projects and activities on burrowing owls, and to avoid take in accordance with FGC sections 86, 3503, and 3503.5. Impact assessments evaluate the extent to which burrowing owls and their habitat may be impacted, directly or indirectly, on and within a reasonable distance of a proposed CEQA project activity or non-CEQA project. These three site evaluation steps are discussed in detail below.

Biologist Qualifications

The current scientific literature indicates that only individuals meeting the following minimum qualifications should perform burrowing owl habitat assessments, surveys, and impact assessments:

1. Familiarity with the species and its local ecology;
2. Experience conducting habitat assessments and non-breeding and breeding season surveys, or experience with these surveys conducted under the direction of an experienced surveyor;
3. Familiarity with the appropriate state and federal statutes related to burrowing owls, scientific research, and conservation;
4. Experience with analyzing impacts of development on burrowing owls and their habitat.

Habitat Assessment Data Collection and Reporting

A habitat assessment is the first step in the evaluation process and will assist investigators in determining whether or not occupancy surveys are needed. Refer to Appendix B for a definition of burrowing owl habitat. Compile the detailed information described in Appendix C when conducting project scoping, conducting a habitat assessment site visit and preparing a habitat assessment report.

Surveys

Burrowing owl surveys are the second step of the evaluation process and the best available scientific literature recommends that they be conducted whenever burrowing owl habitat or sign (see Appendix B) is encountered on or adjacent to (within 150 meters) a project site

(Thomsen 1971, Martin 1973). Occupancy of burrowing owl habitat is confirmed at a site when at least one burrowing owl, or its sign at or near a burrow entrance, is observed within the last three years (Rich 1984). Burrowing owls are more detectable during the breeding season with detection probabilities being highest during the nestling stage (Conway et al. 2008). In California, the burrowing owl breeding season extends from 1 February to 31 August (Haug et al. 1993, Thomsen 1971) with some variances by geographic location and climatic conditions. Several researchers suggest three or more survey visits during daylight hours (Haug and Diduik 1993, CBOC 1997, Conway and Simon 2003) and recommend each visit occur at least three weeks apart during the peak of the breeding season, commonly accepted in California as between 15 April and 15 July (CBOC 1997). Conway and Simon (2003) and Conway et al. (2008) recommended conducting surveys during the day when most burrowing owls in a local area are in the laying and incubation period (so as not to miss early breeding attempts), during the nesting period, and in the late nestling period when most owls are spending time above ground.

Non-breeding season (1 September to 31 January) surveys may provide information on burrowing owl occupancy, but do not substitute for breeding season surveys because results are typically inconclusive. Burrowing owls are more difficult to detect during the non-breeding season and their seasonal residency status is difficult to ascertain. Burrowing owls detected during non-breeding season surveys may be year-round residents, young from the previous breeding season, pre-breeding territorial adults, winter residents, dispersing juveniles, migrants, transients or new colonizers. In addition, the numbers of owls and their pattern of distribution may differ during winter and breeding seasons. However, on rare occasions, non-breeding season surveys may be warranted (i.e., if the site is believed to be a wintering site only based on negative breeding season results). Refer to Appendix D for information on breeding season and non-breeding season survey methodologies.

Survey Reports

Adequate information about burrowing owls present in and adjacent to an area that will be disturbed by a project or activity will enable the Department, reviewing agencies and the public to effectively assess potential impacts and will guide the development of avoidance, minimization, and mitigation measures. The survey report includes but is not limited to a description of the proposed project or proposed activity, including the proposed project start and end dates, as well as a description of disturbances or other activities occurring on-site or nearby. Refer to Appendix D for details included in a survey report.

Impact Assessment

The third step in the evaluation process is the impact assessment. When surveys confirm occupied burrowing owl habitat in or adjoining the project area, there are a number of ways to assess a project's potential significant impacts to burrowing owls and their habitat. Richardson and Miller (1997) recommended monitoring raptor behavior prior to developing management recommendations and buffers to determine the extent to which individuals have been sensitized to human disturbance. Monitoring results will also provide detail necessary for developing site-specific measures. Postovit and Postovit (1987) recommended an analytical approach to mitigation planning: define the problem (impact), set goals (to guide mitigation development), evaluate and select mitigation methods, and monitor the results.

Define the problem. The impact assessment evaluates all factors that could affect burrowing owls. Postovit and Postovit (1987) recommend evaluating the following in assessing impacts to raptors and planning mitigation: type and extent of disturbance, duration and timing of disturbance, visibility of disturbance, sensitivity and ability to habituate, and influence of environmental factors. They suggest identifying and addressing all potential direct and indirect impacts to burrowing owls, regardless of whether or not the impacts will occur during the breeding season. Several examples are given for each impact category below; however, examples are not intended to be used exclusively.

Type and extent of the disturbance. The impact assessment describes the nature (source) and extent (scale) of potential project impacts on occupied, satellite and unoccupied burrows including acreage to be lost (temporary or permanent), fragmentation/edge being created, increased distance to other nesting and foraging habitat, and habitat degradation. Discuss any project activities that impact either breeding and/or non-breeding habitat which could affect owl home range size and spatial configuration, negatively affect onsite and offsite burrowing owl presence, increase energetic costs, lower reproductive success, increase vulnerability to predation, and/or decrease the chance of procuring a mate.

Duration and timing of the impact. The impact assessment describes the amount of time the burrowing owl habitat will be unavailable to burrowing owls (temporary or permanent) on the site and the effect of that loss on essential behaviors or life history requirements of burrowing owls, the overlap of project activities with breeding and/or non-breeding seasons (timing of nesting and/or non-breeding activities may vary with latitude and climatic conditions, which should be considered with the timeline of the project or activity), and any variance of the project activities in intensity, scale and proximity relative to burrowing owl occurrences.

Visibility and sensitivity. Some individual burrowing owls or pairs are more sensitive than others to specific stimuli and may habituate to ongoing visual or audible disturbance. Site-specific monitoring may provide clues to the burrowing owl's sensitivities. This type of assessment addresses the sensitivity of burrowing owls within their nesting area to humans on foot, and vehicular traffic. Other variables are whether the site is primarily in a rural versus urban setting, and whether any prior disturbance (e.g., human development or recreation) is known at the site.

Environmental factors. The impact assessment discusses any environmental factors that could be influenced or changed by the proposed activities including nest site availability, predators, prey availability, burrowing mammal presence and abundance, and threats from other extrinsic factors such as human disturbance, urban interface, feral animals, invasive species, disease or pesticides.

Significance of impacts. The impact assessment evaluates the potential loss of nesting burrows, satellite burrows, foraging habitat, dispersal and migration habitat, wintering habitat, and habitat linkages, including habitat supporting prey and host burrowers and other essential habitat attributes. This assessment determines if impacts to the species will result in significant impacts to the species locally, regionally and range-wide per CEQA Guidelines §15382 and Appendix G. The significance of the impact to habitat depends on the extent of habitat disturbed and length of time the habitat is unavailable (for example: minor – several days, medium – several weeks to months, high - breeding season affecting juvenile survival,

or over winter affecting adult survival).

Cumulative effects. The cumulative effects assessment evaluates two consequences: 1) the project's proportional share of reasonably foreseeable impacts on burrowing owls and habitat caused by the project or in combination with other projects and local influences having impacts on burrowing owls and habitat, and 2) the effects on the regional owl population resulting from the project's impacts to burrowing owls and habitat.

Mitigation goals. Establishing goals will assist in planning mitigation and selecting measures that function at a desired level. Goals also provide a standard by which to measure mitigation success. Unless specifically provided for through other FGC Sections or through specific regulations, take, possession or destruction of individual burrowing owls, their nests and eggs is prohibited under FGC sections 3503, 3503.5 and 3513. Therefore, a required goal for all project activities is to avoid take of burrowing owls. Under CEQA, goals would consist of measures that would avoid, minimize and mitigate impacts to a less than significant level. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. As set forth in more detail in Appendix A, the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow.

MITIGATION METHODS

The current scientific literature indicates that any site-specific avoidance or mitigation measures developed should incorporate the best practices presented below or other practices confirmed by experts and the Department. The Department is available to assist in the development of site-specific avoidance and mitigation measures.

Avoiding. A primary goal is to design and implement projects to seasonally and spatially avoid negative impacts and disturbances that could result in take of burrowing owls, nests, or eggs. Other avoidance measures may include but not be limited to:

- Avoid disturbing occupied burrows during the nesting period, from 1 February through 31 August.
- Avoid impacting burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls.
- Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.
- Develop and implement a worker awareness program to increase the on-site worker's recognition of and commitment to burrowing owl protection.
- Place visible markers near burrows to ensure that farm equipment and other machinery does not collapse burrows.
- Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting

owls, designated use areas).

- Restrict the use of treated grain to poison mammals to the months of January and February.

Take avoidance (pre-construction) surveys. Take avoidance surveys are intended to detect the presence of burrowing owls on a project site at a fixed period in time and inform necessary take avoidance actions. Take avoidance surveys may detect changes in owl presence such as colonizing owls that have recently moved onto the site, migrating owls, resident burrowing owls changing burrow use, or young of the year that are still present and have not dispersed. Refer to Appendix D for take avoidance survey methodology.

Site surveillance. Burrowing owls may attempt to colonize or re-colonize an area that will be impacted; thus, the current scientific literature indicates a need for ongoing surveillance at the project site during project activities is recommended. The surveillance frequency/effort should be sufficient to detect burrowing owls if they return. Subsequent to their new occupancy or return to the site, take avoidance measures should assure with a high degree of certainty that take of owls will not occur.

Minimizing. If burrowing owls and their habitat can be protected in place on or adjacent to a project site, the use of buffer zones, visual screens or other measures while project activities are occurring can minimize disturbance impacts. Conduct site-specific monitoring to inform development of buffers (see Visibility and sensitivity above). The following general guidelines for implementing buffers should be adjusted to address site-specific conditions using the impact assessment approach described above. The CEQA lead agency and/or project proponent is encouraged to consult with the Department and other burrowing owl experts for assistance in developing site-specific buffer zones and visual screens.

Buffers. Holroyd et al. (2001) identified a need to standardize management and disturbance mitigation guidelines. For instance, guidelines for mitigating impacts by petroleum industries on burrowing owls and other prairie species (Scobie and Faminow, 2000) may be used as a template for future mitigation guidelines (Holroyd et al. 2001). Scobie and Faminow (2000) developed guidelines for activities around occupied burrowing owl nests recommending buffers around low, medium, and high disturbance activities, respectively (see below).

Recommended restricted activity dates and setback distances by level of disturbance for burrowing owls (Scobie and Faminow 2000).

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Based on existing vegetation, human development, and land uses in an area, resource managers may decide to allow human development or resource extraction closer to these area/sites than recommended above. However, if it is decided to allow activities closer than

the setback distances recommended, a broad-scale, long-term, scientifically-rigorous monitoring program ensures that burrowing owls are not detrimentally affected by alternative approaches.

Other minimization measures include eliminating actions that reduce burrowing owl forage and burrowing surrogates (e.g. ground squirrel), or introduce/facilitate burrowing owl predators. Actions that could influence these factors include reducing livestock grazing rates and/or changing the timing or duration of grazing or vegetation management that could result in less suitable habitat.

Burrow exclusion and closure. Burrow exclusion is a technique of installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls, or permanently exclude burrowing owls and close burrows after verifying burrows are empty by site monitoring and scoping. Exclusion in and of itself is not a take avoidance, minimization or mitigation method. Eviction of burrowing owls is a potentially significant impact under CEQA.

The long-term demographic consequences of these techniques have not been thoroughly evaluated, and the fate of evicted or excluded burrowing owls has not been systematically studied. Because burrowing owls are dependent on burrows at all times of the year for survival and/or reproduction, evicting them from nesting, roosting, and satellite burrows may lead to indirect impacts or take. Temporary or permanent closure of burrows may result in significant loss of burrows and habitat for reproduction and other life history requirements. Depending on the proximity and availability of alternate habitat, loss of access to burrows will likely result in varying levels of increased stress on burrowing owls and could depress reproduction, increase predation, increase energetic costs, and introduce risks posed by having to find and compete for available burrows. Therefore, exclusion and burrow closure are not recommended where they can be avoided. The current scientific literature indicates consideration of all possible avoidance and minimization measures before temporary or permanent exclusion and closure of burrows is implemented, in order to avoid take.

The results of a study by Trulio (1995) in California showed that burrowing owls passively displaced from their burrows were quickly attracted to adjacent artificial burrows at five of six passive relocation sites. The successful sites were all within 75 meters (m) of the destroyed burrow, a distance generally within a pair's territory. This researcher discouraged using passive relocation to artificial burrows as a mitigation measure for lost burrows without protection of adjacent foraging habitat. The study results indicated artificial burrows were used by evicted burrowing owls when they were approximately 50-100 m from the natural burrow (Thomsen 1971, Haug and Oliphant 1990). Locating artificial or natural burrows more than 100 m from the eviction burrow may greatly reduce the chances that new burrows will be used. Ideally, exclusion and burrow closure is employed only where there are adjacent natural burrows and non-impacted, sufficient habitat for burrowing owls to occupy with permanent protection mechanisms in place. Any new burrowing owl colonizing the project site after the CEQA document has been adopted may constitute changed circumstances that should be addressed in a re-circulated CEQA document.

The current scientific literature indicates that burrow exclusion should only be conducted by qualified biologists (meeting the Biologist's Qualifications above) during the non-breeding

season, before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and/or scoping. The literature also indicates that when temporary or permanent burrow exclusion and/or burrow closure is implemented, burrowing owls should not be excluded from burrows unless or until:

- A Burrowing Owl Exclusion Plan (see Appendix E) is developed and approved by the applicable local DFG office;
- Permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the Mitigating Impacts sections below. Temporary exclusion is mitigated in accordance with the item #1 under Mitigating Impacts below.
- Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Conduct daily monitoring for one week to confirm young of the year have fledged if the exclusion will occur immediately after the end of the breeding season.
- Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight).

Translocation (Active relocation offsite >100 meters). At this time, there is little published information regarding the efficacy of translocating burrowing owls, and additional research is needed to determine subsequent survival and breeding success (Klute et al. 2003, Holroyd et al. 2001). Study results for translocation in Florida implied that hatching success may be decreased for populations of burrowing owls that undergo translocation (Nixon 2006). At this time, the Department is unable to authorize the capture and relocation of burrowing owls except within the context of scientific research (FGC §1002) or a NCCP conservation strategy.

Mitigating impacts. Habitat loss and degradation from rapid urbanization of farmland in the core areas of the Central and Imperial valleys is the greatest of many threats to burrowing owls in California (Shuford and Gardali, 2008). At a minimum, if burrowing owls have been documented to occupy burrows (see Definitions, Appendix B) at the project site in recent years, the current scientific literature supports the conclusion that the site should be considered occupied and mitigation should be required by the CEQA lead agency to address project-specific significant and cumulative impacts. Other site-specific and regionally significant and cumulative impacts may warrant mitigation. The current scientific literature indicates the following to be best practices. If these best practices cannot be implemented, the lead agency or lead investigator may consult with the Department to develop effective mitigation alternatives. The Department is also available to assist in the identification of suitable mitigation lands.

1. Where habitat will be temporarily disturbed, restore the disturbed area to pre-project condition including decompacting soil and revegetating. Permanent habitat protection may be warranted if there is the potential that the temporary impacts may render a nesting site (nesting burrow and satellite burrows) unsustainable or unavailable depending on the time frame, resulting in reduced survival or abandonment. For the latter potential impact, see the permanent impact measures below.
2. Mitigate for permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat such that the habitat acreage, number of burrows and burrowing owls impacted are replaced based on the information provided in Appendix A. Note: A

minimum habitat replacement recommendation is not provided here as it has been shown to serve as a default, replacing any site-specific analysis and discounting the wide variation in natal area, home range, foraging area, and other factors influencing burrowing owls and burrowing owl population persistence in a particular area.

3. Mitigate for permanent impacts to nesting, occupied and satellite burrows and burrowing owl habitat with (a) permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and (b) sufficiently large acreage, and presence of fossorial mammals. The mitigation lands may require habitat enhancements including enhancement or expansion of burrows for breeding, shelter and dispersal opportunity, and removal or control of population stressors. If the mitigation lands are located adjacent to the impacted burrow site, ensure the nearest neighbor artificial or natural burrow clusters are at least within 210 meters (Fisher et al. 2007).
4. Permanently protect mitigation land through a conservation easement deeded to a non-profit conservation organization or public agency with a conservation mission, for the purpose of conserving burrowing owl habitat and prohibiting activities incompatible with burrowing owl use. If the project is located within the service area of a Department-approved burrowing owl conservation bank, the project proponent may purchase available burrowing owl conservation bank credits.
5. Develop and implement a mitigation land management plan to address long-term ecological sustainability and maintenance of the site for burrowing owls (see Management Plan and Artificial Burrow sections below, if applicable).
6. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.
7. Habitat should not be altered or destroyed, and burrowing owls should not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to Department-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.
8. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.
9. Where there is insufficient habitat on, adjacent to, or near project sites where burrowing owls will be excluded, acquire mitigation lands with burrowing owl habitat away from the project site. The selection of mitigation lands should then focus on consolidating and enlarging conservation areas located outside of urban and planned growth areas, within foraging distance of other conserved lands. If mitigation lands are not available adjacent to other conserved lands, increase the mitigation land acreage requirement to ensure a selected site is of sufficient size. Offsite mitigation may not adequately offset the biological and habitat values impacted on a one to one basis. Consult with the Department when determining offsite mitigation acreages.
10. Evaluate and select suitable mitigation lands based on a comparison of the habitat attributes of the impacted and conserved lands, including but not limited to: type and structure of habitat being impacted or conserved; density of burrowing owls in impacted and conserved habitat; and significance of impacted or conserved habitat to the species range-wide. Mitigate for the highest quality burrowing owl habitat impacted first and foremost when identifying mitigation lands, even if a mitigation site is located outside of

a lead agency's jurisdictional boundary, particularly if the lead agency is a city or special district.

11. Select mitigation lands taking into account the potential human and wildlife conflicts or incompatibility, including but not limited to, human foot and vehicle traffic, and predation by cats, loose dogs and urban-adapted wildlife, and incompatible species management (i.e., snowy plover).
12. Where a burrowing owl population appears to be highly adapted to heavily altered habitats such as golf courses, airports, athletic fields, and business complexes, permanently protecting the land, augmenting the site with artificial burrows, and enhancing and maintaining those areas may enhance sustainability of the burrowing owl population onsite. Maintenance includes keeping lands grazed or mowed with weed-eaters or push mowers, free from trees and shrubs, and preventing excessive human and human-related disturbance (e.g., walking, jogging, off-road activity, dog-walking) and loose and feral pets (chasing and, presumably, preying upon owls) that make the environment uninhabitable for burrowing owls (Wesemann and Rowe 1985, Millsap and Bear 2000, Lincer and Bloom 2007). Items 4, 5 and 6 also still apply to this mitigation approach.
13. If there are no other feasible mitigation options available and a lead agency is willing to establish and oversee a Burrowing Owl Mitigation and Conservation Fund that funds on a competitive basis acquisition and permanent habitat conservation, the project proponent may participate in the lead agency's program.

Artificial burrows. Artificial burrows have been used to replace natural burrows either temporarily or long-term and their long-term success is unclear. Artificial burrows may be an effective addition to in-perpetuity habitat mitigation if they are augmenting natural burrows, the burrows are regularly maintained (i.e., no less than annual, with biennial maintenance recommended), and surrounding habitat patches are carefully maintained. There may be some circumstances, for example at airports, where squirrels will not be allowed to persist and create a dynamic burrow system, where artificial burrows may provide some support to an owl population.

Many variables may contribute to the successful use of artificial burrows by burrowing owls, including pre-existence of burrowing owls in the area, availability of food, predators, surrounding vegetation and proximity, number of natural burrows in proximity, type of materials used to build the burrow, size of the burrow and entrance, direction in which the burrow entrance is facing, slope of the entrance, number of burrow entrances per burrow, depth of the burrow, type and height of perches, and annual maintenance needs (Belthoff and King 2002, Smith et al. 2005, Barclay et al. 2011). Refer to Barclay (2008) and (2011) and to Johnson et al. 2010 (unpublished report) for guidance on installing artificial burrows including recommendations for placement, installation and maintenance.

Any long-term reliance on artificial burrows as natural burrow replacements must include semi-annual to annual cleaning and maintenance and/or replacement (Barclay et al. 2011, Smith and Conway 2005, Alexander et al. 2005) as an ongoing management practice. Alexander et al. (2005), in a study of the use of artificial burrows found that all of 20 artificial burrows needed some annual cleaning and maintenance. Burrows were either excavated by predators, blocked by soil or vegetation, or experienced substrate erosion forming a space beneath the tubing that prevented nestlings from re-entering the burrow.

Mitigation lands management plan. Develop a Mitigation Lands Management Plan for projects that require off-site or on-site mitigation habitat protection to ensure compliance with and effectiveness of identified management actions for the mitigation lands. A suggested outline and related vegetation management goals and monitoring success criteria can be found in Appendix E.

Mitigation Monitoring and Reporting

Verify the compliance with required mitigation measures, the accuracy of predictions, and ensure the effectiveness of all mitigation measures for burrowing owls by conducting follow-up monitoring, and implementing midcourse corrections, if necessary, to protect burrowing owls. Refer to CEQA Guidelines Section 15097 and the CEQA Guidelines for additional guidance on mitigation, monitoring and reporting. Monitoring is qualitatively different from site surveillance; monitoring normally has a specific purpose and its outputs and outcomes will usually allow a comparison with some baseline condition of the site before the mitigation (including avoidance and minimization) was undertaken. Ideally, monitoring should be based on the Before-After Control-Impact (BACI) principle (McDonald et al. 2000) that requires knowledge of the pre-mitigation state to provide a reference point for the state and change in state after the project and mitigation have been implemented.

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REFERENCES

- Alexander, A. K., M. R. Sackschewsky, and C. A. Duberstein. 2005. Use of artificial burrows by burrowing owls (*athene cucularia*) at the HAMMER Facility on the U.S. Department of Energy Hanford Site. Pacific Northwest National Lab-15414. U.S. Department of Energy, DE-AC05-76RL01830, Richland, Washington, USA.
- BIOS. California Department of Fish and Game. The Biogeographic Information Observation System (<http://bios.dfg.ca.gov/>)
- Barclay, J. H. 2008. A simple artificial burrow design for burrowing owls. *Journal of Raptor Research*. 42: 53-57.
- Barclay, J. H. 2012. Albion Environmental, Inc, personal communication.
- Barclay, J. H., K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, editors. 2007. *Proceedings of the California Burrowing Owl Symposium, 11-12 November 2003, Sacramento, California, USA. Bird Populations Monographs No. 1. The Institute for Bird Populations and Albion Environmental, Inc., Point Reyes Station, CA.*
- Barclay, J. H., N. Korfanta, and M. Kauffman. 2011. Long-term population dynamics of a managed burrowing owl colony. *Journal of Wildlife Management* 75: 1295–1306.
- Belthoff, J R., R. A. King. 2002. Nest-site characteristics of burrowing owls (*athene cucularia*) in the Snake River Birds of Prey National Conservation Area, Idaho, and applications to artificial burrow installation. *Western North American Naturalist* 62: 112-119.
- Botelho, E. S. 1996. Behavioral ecology and parental care of breeding western burrowing owls (*Speotyto cucularia hupugaea*) in southern New Mexico, USA. Dissertation, New Mexico State University, Las Cruces, New Mexico, USA.
- Burkett, E. E., and B. S. Johnson. 2007. Development of a conservation strategy for burrowing owls in California. Pages 165-168 *in* J. H. Barclay, K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, editors. *Proceedings of the California Burrowing Owl Symposium, 11-12 November 2003, Sacramento, California, USA. Bird Populations Monographs No. 1. The Institute for Bird Populations and Albion Environmental, Inc., Point Reyes Station, CA.*
- CBOC (California Burrowing Owl Consortium). 1997. Burrowing owl survey protocol and mitigation guidelines. Pages 171-177 *in* Lincer, J. L. and K. Steenhof (editors). 1997. *The burrowing owl, its biology and management. Raptor Research Report Number 9.*
- CDFG (California Department of Fish and Game). 1995. Staff report on burrowing owl mitigation. Unpublished report. Sacramento, California, USA.
- CNDDDB. California Department of Fish and Game. The California Natural Diversity Database (CNDDDB) (<http://www.dfg.ca.gov/biogeodata/cnddb/>), Sacramento, California, USA.
- Catlin, D. H. 2004. Factors affecting within-season and between-season breeding dispersal of Burrowing Owls in California. Thesis, Oregon State University, Corvallis, Oregon, USA

- Catlin, D. H., and D. K. Rosenberg. 2006. Nest destruction increases mortality and dispersal of Burrowing Owls in the Imperial Valley, California. *Southwest Naturalist* 51: 406–409.
- Catlin, D. H., D. K. Rosenberg, and K. L. Haley. 2005. The effects of nesting success and mate fidelity on breeding dispersal in burrowing owls. *Canadian Journal of Zoology* 83:1574–1580.
- Conway, C. J., and J. Simon. 2003. Comparison of detection probability associated with burrowing owl survey methods. *Journal of Wildlife Management* 67: 501-511.
- Conway, C. J., V. Garcia, M. D., and K. Hughes. 2008. Factors affecting detection of burrowing owl nests during standardized surveys. *Journal of Wildlife Management* 72: 688-696.
- Coulombe, H. N. 1971. Behavior and population ecology of the burrowing owl, *Speotyto cunicularia*, in the Imperial Valley of California. *Condor* 73: 162–176.
- Dechant, J. A., M. L. Sondreal, D. H. Johnson, L. D. Igl, C. M. Goldade, P. A. Rabie, and B. R. Euliss. 2003. Effects of management practices on grassland birds: burrowing owl. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. Northern Prairie Wildlife Research Center Online. <<http://www.npwrc.usgs.gov/resource/literatr/grasbird/buow/buow.htm>>.
- DeSante, D. F., E. D Ruhlen, and R. Scaif. 2007. The distribution and relative abundance of burrowing owls in California during 1991–1993: Evidence for a declining population and thoughts on its conservation. Pages 1-41 in J. H. Barclay, K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, editors. Proceedings of the California Burrowing Owl Symposium, 11-12 November 2003 Sacramento, California, USA. Bird Populations Monographs No. 1. The Institute for Bird Populations and Albion Environmental, Inc., Point Reyes Station, CA.
- Desmond, M. J., and J. A. Savidge. 1998. Burrowing Owl conservation in the Great Plains. Proceedings of the Second International Burrowing Owl Symposium, 29-30 September 1999, Ogden, Utah, USA.
- Desmond, M. J., and J. A. Savidge. 1999. Satellite burrow use by burrowing owl chicks and its influence on nest fate. Pages 128-130 in P. D. Vickery and J. R. Herkert, editors. Ecology and conservation of grassland birds of the western hemisphere. *Studies in Avian Biology* 19.
- Emlen, J. T. 1977. Estimating breeding season bird densities from transects counts. *Auk* 94: 455-468.
- Fisher, J. B., L. A. Trulio, G. S. Biging, and D. Chromczack. 2007. An analysis of spatial clustering and implications for wildlife management: a burrowing owl example. *Environmental Management* 39: 403-11.
- Gervais, J. A., D. K. Rosenberg, and L. A. Comrack. Burrowing Owl (*Athene cunicularia*) in Shuford, W.D. and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds* 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California, USA.
- Gervais, J. A., D. K. Rosenberg, R. G. Anthony. 2003. Space use and pesticide exposure risk of male burrowing owls in an agricultural landscape. *Journal of Wildlife Management* 67: 155-164.
- Green, G.A.; Anthony, R.G. 1989. Nesting success and habitat relationships of burrowing owls in the Columbia Basin, Oregon. *The Condor* 91: 347-354.
- Haug, E. A. 1985. Observations on the breeding ecology of burrowing owls in Saskatchewan.

- Thesis, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.
- Haug, E. A., B. A. Millsap, and M. S. Martell. 1993. Burrowing owl (*Speotyto cunicularia*), *in* A. Poole and F. Gill, editors, *The Birds of North America*, The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C., USA.
- Haug, E. A., and L. W. Oliphant. 1990. Movements, activity patterns, and habitat use of burrowing owls in Saskatchewan. *Journal of Wildlife Management* 54: 27-35.
- Holroyd, G. L., R. Rodriguez-Estrella, and S. R. Sheffield. 2001. Conservation of the burrowing owl in western North America: issues, challenges, and recommendations. *Journal of Raptor Research* 35: 399-407.
- James, P. C., T. J. Ethier, and M. K. Toutloff. 1997. Parameters of a declining burrowing owl population in Saskatchewan. Pages 34-37. *in* J. L. Lincer, and K. Steenhof, editors. *The burrowing owl, its biology and management: including the proceedings of the first international symposium*. 13-14 November 1992, Bellevue, WA, USA. Raptor Research Report Number 9.
- Johnson, D. H., D. C. Gillis, M. A. Gregg, J. L. Rebolz, J. L. Lincer, and J. R. Belthoff. 2010. Users guide to installation of artificial burrows for burrowing owls. Unpublished report. Tree Top Inc., Selah, Washington, USA.
- Klute, D. S., A. W. Ayers, M. T. Green, W. H. Howe, S. L. Jones, J. A. Shaffer, S. R. Sheffield, and T. S. Zimmerman. 2003. Status assessment and conservation plan for the western burrowing owl in the United States. U.S. Department of the Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R6001-2003, Washington, D.C, USA.
- Koenig, W. D., D. D. Van Vuren, and P. N. Hooge. 1996. Detectability, philopatry, and the distribution of dispersal distances in vertebrates. *Trends in Ecology and Evolution* 11: 514–517.
- LaFever, D. H., K. E. LaFever, D. H. Catlin, and D. K. Rosenberg. 2008. Diurnal time budget of burrowing owls in a resident population during the non-breeding season. *Southwestern Naturalist* 53: 29-33.
- Lincer, J. L., and P. W. Bloom. 2007. The status of the burrowing owl (*Athene cunicularia*) in San Diego County, CA. Pages 90-102 *in* *Proceedings of the California Burrowing Owl Symposium*, 11-12 November 2003, Sacramento, California, USA. Bird Populations Monographs No. 1. The Institute for Bird Populations and Albion Environmental, Inc., Point Reyes Station, CA.
- Lutz, R. S. and D. L. Plumpton. 1999. Philopatry and nest site reuse by burrowing owls: implications for management. *Journal of Raptor Research* 33: 149-153.
- MacCracken, J. G., D. W. Uresk, and R. M. Hansen. 1985a. Vegetation and soils of burrowing owl nest sites in Conata Basin, South Dakota. *Condor* 87: 152-154.
- Manning, J. A., and R. S. A. Kaler. 2011. Effects of survey methods on burrowing owl behaviors. *Journal of Wildlife Management* 75: 525-30.
- McDonald, T. L., W. P. Erickson, and L. L. McDonald. 2000. Analysis of count data from before-after control-impact studies. *Journal of Agricultural, Biological and Environmental Statistics* 5: 262-279.
- Millsap, B. A., and C. Bear. 2000. Density and reproduction of burrowing owls along an urban development gradient. *Journal of Wildlife Management* 64:33-41.
- Nixon, P. A. 2006. Effects of translocation on the Florida burrowing owl (*Athene cunicularia floridana*). Thesis. University of South Florida, Tampa, Florida, USA.
- Noss, R. F., M. A. O'Connell, and D. D. Murphy. 1997. *The science of conservation planning*:

- habitat conservation under the Endangered Species Act. Island Press, Washington D.C., USA.
- Postovit, H. R., and B. C. Postovit. 1987. Impacts and mitigation techniques. Pages 183-213 in Raptor management techniques manual scientific technical series number 10, National Wildlife Federation, Washington, D. C., USA
- Remsen, J. V., Jr. 1978. Bird species of special concern in California: An annotated list of declining or vulnerable bird species. California Department of Fish and Game, Nongame Wildlife. Investigations, Wildlife Management Branch Administrative Report 78-1, Sacramento, California, USA.
- Rich, T. 1984. Monitoring burrowing owl populations: implications of burrow re-use. Wildlife Society Bulletin 12: 178-189.
- Richardson, C. T. and C. K. Miller. 1997. Recommendations for protecting raptors from human disturbance: a review. Wildlife Society Bulletin 25: 634-38.
- Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. Thesis, Oregon State University, Corvallis, Oregon, USA.
- Rosenberg, D., 2009 Oregon State University, Corvallis, personal communication.
- Rosenberg, D. K., J. A. Gervais, D. F. DeSante, and H. Ober. 2009. An updated adaptive management plan for the burrowing owl population at NAS Lemoore. The Oregon Wildlife Institute, Corvallis, OR and The Institute for Bird Populations, Point Reyes Station, CA. OWI Contribution No. 201 and IBP Contribution No. 375.
- Rosenberg, D. K., J. A. Gervais, H. Ober, and D. F. DeSante. 1998. An adaptive management plan for the burrowing owl population at Naval Air Station Lemoore, California, USA. Publication 95, Institute for Bird Populations, P.O. Box 1346, Pt. Reyes Station, CA 94956.
- Rosenberg, D. K., and K. L. Haley. 2004. The ecology of burrowing owls in the agroecosystem of the Imperial Valley, California. Studies in Avian Biology 27:120-135.
- Rosenberg, D. K., L. A. Trulio, D. H. Catlin, D. Chromczack, J. A. Gervais, N. Ronan, and K. A. Haley. 2007. The ecology of the burrowing owl in California, unpublished report to Bureau of Land Management.
- Rosier, J. R., N. A., Ronan, and D. K. Rosenberg. 2006. Post-breeding dispersal of burrowing owls in an extensive California grassland. American Midland Naturalist 155: 162–167.
- Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation, Second edition. California Native Plant Society, Sacramento, California, USA.
- Scobie, D., and C. Faminow. 2000. Development of standardized guidelines for petroleum industry activities that affect COSEWIC Prairie and Northern Region vertebrate species at risk. Environment Canada, Prairie and Northern Region, Edmonton, Alberta, Canada.
- Shuford, W. D. and T. Gardali, editors. 2008. California Bird Species of Special Concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. Gervais, J. A., D. K. Rosenberg, and L. Comrack. 2008. Burrowing Owl (*Athene cucularia*).
- Smith, M. D., C. J. Conway, and L. A. Ellis. 2005. Burrowing owl nesting productivity: a comparison between artificial and natural burrows on and off golf courses. Wildlife Society Bulletin 33: 454-462.
- Thelander, C. G., K. S. Smallwood, and L. Rugge. 2003. Bird risk behaviors and fatalities at the Altamont Pass Wind Resource Area, period of performance: March 1998–

- December 2000. U.S. Department of Energy, National Renewable Energy Laboratory, Golden, Colorado, USA.
- Thomsen, L. 1971. Behavior and ecology of burrowing owls on the Oakland Municipal Airport. *Condor* 73: 177-192.
- Thompson, C. D. 1984. Selected aspects of burrowing owl ecology in central Wyoming. Thesis, University of Wyoming, Laramie, Wyoming, USA.
- Trulio, L. 1995. Passive relocation: A method to preserve burrowing owls on disturbed sites. *Journal of Field Ornithology* 66: 99–106.
- U.S. Fish and Wildlife Service (USFWS). 2002. Birds of conservation concern 2002. U.S. Department of Interior, Division of Migratory Bird Management, Arlington, Virginia, USA.
- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. U.S. Department of Interior, Division of Migratory Bird Management, Arlington, Virginia, USA.
- Wesemann, T. and M. Rowe. 1985. Factors influencing the distribution and abundance of burrowing owls in Cape Coral, Florida. Pages 129-137 *in* L. W. Adams and D. L. Leedy, editors. *Integrating Man and Nature in the Metropolitan Environment. Proceedings National Symposium. on Urban Wildlife, 4-7 November 1986, Chevy Chase, Maryland, USA.*
- Wilkerson, R. L. and R. B. Siegel. 2010. Assessing changes in the distribution and abundance of burrowing owls in California, 1993-2007. *Bird Populations* 10: 1-36.
- Zarn, M. 1974. Burrowing owl. U.S. Department of the Interior, Bureau of Land Management. Technical Note T-N-250, Denver, Colorado, USA.

Appendix A. Burrowing Owl Natural History and Threats

Diet

Burrowing owl diet includes arthropods, small rodents, birds, amphibians, reptiles, and carrion (Haug et al. 1993).

Breeding

In California, the breeding season for the burrowing owl typically occurs between 1 February and 31 August although breeding in December has been documented (Thompson 1971, Gervais et al. 2008); breeding behavior includes nest site selection by the male, pair formation, copulation, egg laying, hatching, fledging, and post-fledging care of young by the parents. The peak of the breeding season occurs between 15 April and 15 July and is the period when most burrowing owls have active nests (eggs or young). The incubation period lasts 29 days (Coulombe 1971) and young fledge after 44 days (Haug et al. 1993). Note that the timing of nesting activities may vary with latitude and climatic conditions. Burrowing owls may change burrows several times during the breeding season, starting when nestlings are about three weeks old (Haug et al. 1993).

Dispersal

The following discussion is an excerpt from Gervais et al (2008):

“The burrowing owl is often considered a sedentary species (e.g., Thomsen 1971). A large proportion of adults show strong fidelity to their nest site from year to year, especially where resident, as in Florida (74% for females, 83% for males; Millsap and Bear 1997). In California, nest-site fidelity rates were 32%–50% in a large grassland and 57% in an agricultural environment (Ronan 2002, Catlin 2004, Catlin et al. 2005). Differences in these rates among sites may reflect differences in nest predation rates (Catlin 2004, Catlin et al. 2005). Despite the high nest fidelity rates, dispersal distances may be considerable for both juveniles (natal dispersal) and adults (postbreeding dispersal), but this also varied with location (Catlin 2004, Rosier et al. 2006). Distances of 53 km to roughly 150 km have been observed in California for adult and natal dispersal, respectively (D. K. Rosenberg and J. A. Gervais, unpublished data), despite the difficulty in detecting movements beyond the immediate study area (Koenig et al. 1996).”

Habitat

The burrowing owl is a small, long-legged, ground-dwelling bird species, well-adapted to open, relatively flat expanses. In California, preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (Haug et al. 1993). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, burrowing owls may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity (Gervais et al 2008). Unique amongst North

American raptors, the burrowing owl requires underground burrows or other cavities for nesting during the breeding season and for roosting and cover, year round. Burrows used by the owls are usually dug by other species termed host burrowers. In California, California ground squirrel (*Spermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by burrowing owls but they may use dens or holes dug by other fossorial species including badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin kit fox, *Vulpes macrotis mutica*; Ronan 2002). In some instances, owls have been known to excavate their own burrows (Thompson 1971, Barclay 2007). Natural rock cavities, debris piles, culverts, and pipes also are used for nesting and roosting (Rosenberg et al. 1998). Burrowing owls have been documented using artificial burrows for nesting and cover (Smith and Belthoff, 2003).

Foraging habitat. Foraging habitat is essential to burrowing owls. The following discussion is an excerpt from Gervais et al. (2008):

“Useful as a rough guide to evaluating project impacts and appropriate mitigation for burrowing owls, adult male burrowing owls home ranges have been documented (calculated by minimum convex polygon) to comprise anywhere from 280 acres in intensively irrigated agroecosystems in Imperial Valley (Rosenberg and Haley 2004) to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, CA (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). But owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as at Carrizo Plain, California (Gervais et al. 2008), based on telemetry studies and distribution of nests. Foraging occurs primarily within 600 m of their nests (within approximately 300 acres, based on a circle with a 600 m radius) during the breeding season.”

Importance of burrows and adjacent habitat. Burrows and the associated surrounding habitat are essential ecological requisites for burrowing owls throughout the year and especially during the breeding season. During the non-breeding season, burrowing owls remain closely associated with burrows, as they continue to use them as refuge from predators, shelter from weather and roost sites. Resident populations will remain near the previous season’s nest burrow at least some of the time (Coulombe 1971, Thomsen 1971, Botelho 1996, LaFever et al. 2008).

In a study by Lutz and Plumpton (1999) adult males and females nested in formerly used sites at similar rates (75% and 63%, respectively) (Lutz and Plumpton 1999). Burrow fidelity has been reported in some areas; however, more frequently, burrowing owls reuse traditional nesting areas without necessarily using the same burrow (Haug et al. 1993, Dechant et al. 1999). Burrow and nest sites are re-used at a higher rate if the burrowing owl has reproduced successfully during the previous year (Haug et al. 1993) and if the number of burrows isn’t limiting nesting opportunity.

Burrowing owls may use “satellite” or non-nesting burrows, moving young at 10-14 days, presumably to reduce risk of predation (Desmond and Savidge 1998) and possibly to avoid nest parasites (Dechant et al. 1999). Successful nests in Nebraska had more active satellite burrows within 75 m of the nest burrow than unsuccessful nests (Desmond and Savidge

1999). Several studies have documented the number of satellite burrows used by young and adult burrowing owls during the breeding season as between one and 11 burrows with an average use of approximately five burrows (Thompson 1984, Haug 1985, Haug and Oliphant 1990). Supporting the notion of selecting for nest sites near potential satellite burrows, Ronan (2002) found burrowing owl families would move away from a nest site if their satellite burrows were experimentally removed through blocking their entrance.

Habitat adjacent to burrows has been documented to be important to burrowing owls. Gervais et al. (2003) found that home range sizes of male burrowing owls during the nesting season were highly variable within but not between years. Their results also suggested that owls concentrate foraging efforts within 600 meters of the nest burrow, as was observed in Canada (Haug and Oliphant 1990) and southern California (Rosenberg and Haley 2004). James et al. (1997), reported habitat modification factors causing local burrowing owl declines included habitat fragmentation and loss of connectivity.

In conclusion, the best available science indicates that essential habitat for the burrowing owl in California must include suitable year-round habitat, primarily for breeding, foraging, wintering and dispersal habitat consisting of short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow.

Threats to Burrowing Owls in California

Habitat loss. Habitat loss, degradation, and fragmentation are the greatest threats to burrowing owls in California. According to DeSante et al. (2007), “the vast majority of burrowing owls [now] occur in the wide, flat lowland valleys and basins of the Imperial Valley and Great Central Valley [where] for the most part,...the highest rates of residential and commercial development in California are occurring.” Habitat loss from the State’s long history of urbanization in coastal counties has already resulted in either extirpation or drastic reduction of burrowing owl populations there (Gervais et al. 2008). Further, loss of agricultural and other open lands (such as grazed landscapes) also negatively affect owl populations. Because of their need for open habitat with low vegetation, burrowing owls are unlikely to persist in agricultural lands dominated by vineyards and orchards (Gervais et al. 2008).

Control of burrowing rodents. According to Klute et al. (2003), the elimination of burrowing rodents through control programs is a primary factor in the recent and historical decline of burrowing owl populations nationwide. In California, ground squirrel burrows are most often used by burrowing owls for nesting and cover; thus, ground squirrel control programs may affect owl numbers in local areas by eliminating a necessary resource.

Direct mortality. Burrowing owls suffer direct losses from a number of sources. Vehicle collisions are a significant source of mortality especially in the urban interface and where owls nest alongside roads (Haug et al. 1993, Gervais et al. 2008). Road and ditch maintenance, modification of water conveyance structures (Imperial Valley) and discing to control weeds in fallow fields may destroy burrows (Rosenberg and Haley 2004, Catlin and Rosenberg 2006) which may trap or crush owls. Wind turbines at Altamont Pass Wind Resource Area are known to cause direct burrowing owl mortality (Thelander et al. 2003). Exposure to

pesticides may pose a threat to the species but is poorly understood (Klute et al. 2003, Gervais et al. 2008).

Appendix B. Definitions

Some key terms that appear in this document are defined below.

Adjacent habitat means burrowing owl habitat that abuts the area where habitat and burrows will be impacted and rendered non-suitable for occupancy.

Breeding (nesting) season begins as early as 1 February and continues through 31 August (Thomsen 1971, Zarn 1974). The timing of breeding activities may vary with latitude and climatic conditions. The breeding season includes pairing, egg-laying and incubation, and nestling and fledging stages.

Burrow exclusion is a technique of installing one-way doors in burrow openings during the non-breeding season to temporarily exclude burrowing owls or permanently exclude burrowing owls and excavate and close burrows after confirming burrows are empty.

Burrowing owl habitat generally includes, but is not limited to, short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey.

Burrow surrogates include culverts, piles of concrete rubble, piles of soil, burrows created along soft banks of ditches and canals, pipes, and similar structures.

Civil twilight - Morning civil twilight begins when the geometric center of the sun is 6 degrees below the horizon (civil dawn) and ends at sunrise. Evening civil twilight begins at sunset and ends when the geometric center of the sun reaches 6 degrees below the horizon (civil dusk). During this period there is enough light from the sun that artificial sources of light may not be needed to carry on outdoor activities. This concept is sometimes enshrined in laws, for example, when drivers of automobiles must turn on their headlights (called lighting-up time in the UK); when pilots may exercise the rights to fly aircraft. Civil twilight can also be described as the limit at which twilight illumination is sufficient, under clear weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under clear atmospheric conditions.

Conservation for burrowing owls may include but may not be limited to protecting remaining breeding pairs or providing for population expansion, protecting and enhancing breeding and essential habitat, and amending or augmenting land use plans to stabilize populations and other specific actions to avoid the need to list the species pursuant to California or federal Endangered Species Acts.

Contiguous means connected together so as to form an uninterrupted expanse in space.

Essential habitat includes nesting, foraging, wintering, and dispersal habitat.

Foraging habitat is habitat within the estimated home range of an occupied burrow, supports suitable prey base, and allows for effective hunting.

Host burrowers include ground squirrels, badgers, foxes, coyotes, gophers etc.

Locally significant species is a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or occurring in a unique habitat type.

Non-breeding season is the period of time when nesting activity is not occurring, generally September 1 through January 31, but may vary with latitude and climatic conditions.

Occupied site or occupancy means a site that is assumed occupied if at least one burrowing owl has been observed occupying a burrow within the last three years (Rich 1984). Occupancy of suitable burrowing owl habitat may also be indicated by owl sign including its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site.

Other impacting activities may include but may not be limited to agricultural practices, vegetation management and fire control, pest management, conversion of habitat from rangeland or natural lands to more intensive agricultural uses that could result in “take”. These impacting activities may not meet the definition of a project under CEQA.

Passive relocation is a technique of installing one-way doors in burrow openings to temporarily or permanently evict burrowing owls and prevent burrow re-occupation.

Peak of the breeding season is between 15 April and 15 July.

Sign includes its tracks, molted feathers, cast pellets (defined as 1-2” long brown to black regurgitated pellets consisting of non-digestible portions of the owls’ diet, such as fur, bones, claws, beetle elytra, or feathers), prey remains, egg shell fragments, owl white wash, nest burrow decoration materials (e.g., paper, foil, plastic items, livestock or other animal manure, etc.), possible owl perches, or other items.

Appendix C. Habitat Assessment and Reporting Details

Habitat Assessment Data Collection and Reporting

Current scientific literature indicates that it would be most effective to gather the data in the manner described below when conducting project scoping, conducting a habitat assessment site visit and preparing a habitat assessment report:

1. Conduct at least one visit covering the entire potential project/activity area including areas that will be directly or indirectly impacted by the project. Survey adjoining areas within 150 m (Thomsen 1971, Martin 1973), or more where direct or indirect effects could potentially extend offsite. If lawful access cannot be achieved to adjacent areas, surveys can be performed with a spotting scope or other methods.
2. Prior to the site visit, compile relevant biological information for the site and surrounding area to provide a local and regional context.
3. Check all available sources for burrowing owl occurrence information regionally prior to a field inspection. The CNDDDB and BIOS (see References cited) may be consulted for known occurrences of burrowing owls. Other sources of information include, but are not limited to, the Proceedings of the California Burrowing Owl Symposium (Barclay et al. 2007), county bird atlas projects, Breeding Bird Survey records, eBIRD (<http://ebird.org>), Gervais et al. (2008), local reports or experts, museum records, and other site-specific relevant information.
4. Identify vegetation and habitat types potentially supporting burrowing owls in the project area and vicinity.
5. Record and report on the following information:
 - a. A full description of the proposed project, including but not limited to, expected work periods, daily work schedules, equipment used, activities performed (such as drilling, construction, excavation, etc.) and whether the expected activities will vary in location or intensity over the project's timeline;
 - b. A regional setting map, showing the general project location relative to major roads and other recognizable features;
 - c. A detailed map (preferably a USGS topo 7.5' quad base map) of the site and proposed project, including the footprint of proposed land and/or vegetation-altering activities, base map source, identifying topography, landscape features, a north arrow, bar scale, and legend;
 - d. A written description of the biological setting, including location (Section, Township, Range, baseline and meridian), acreage, topography, soils, geographic and hydrologic characteristics, land use and management history on and adjoining the site (i.e., whether it is urban, semi-urban or rural; whether there is any evidence of past or current livestock grazing, mowing, disking, or other vegetation management activities);
 - e. An analysis of any relevant, historical information concerning burrowing owl use or occupancy (breeding, foraging, over-wintering) on site or in the assessment area;
 - f. Vegetation type and structure (using Sawyer et al. 2009), vegetation height, habitat types and features in the surrounding area plus a reasonably sized (as supported with logical justification) assessment area; (Note: use caution in discounting habitat based on grass height as it can be a temporary condition variable by season and conditions (such as current grazing regime) or may be distributed as a mosaic).

- g. The presence of burrowing owl individuals or pairs or sign (see Appendix B);
- h. The presence of suitable burrows and/or burrow surrogates (>11 cm in diameter (height and width) and >150 cm in depth) (Johnson et al. 2010), regardless of a lack of any burrowing owl sign and/or burrow surrogates; and burrowing owls and/or their sign that have recently or historically (within the last 3 years) been identified on or adjacent to the site.

Appendix D. Breeding and Non-breeding Season Surveys and Reports

Current scientific literature indicates that it is most effective to conduct breeding and non-breeding season surveys and report in the manner that follows:

Breeding Season Surveys

Number of visits and timing. Conduct 4 survey visits: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June. Note: many burrowing owl migrants are still present in southwestern California during mid-March, therefore, exercise caution in assuming breeding occupancy early in the breeding season.

Survey method. Rosenberg et al. (2007) confirmed walking line transects were most effective in smaller habitat patches. Conduct surveys in all portions of the project site that were identified in the Habitat Assessment and fit the description of habitat in Appendix A. Conduct surveys by walking straight-line transects spaced 7 m to 20 m apart, adjusting for vegetation height and density (Rosenberg et al. 2007). At the start of each transect and, at least, every 100 m, scan the entire visible project area for burrowing owls using binoculars. During walking surveys, record all potential burrows used by burrowing owls as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls, so observers should also listen for burrowing owls while conducting the survey.

Care should be taken to minimize disturbance near occupied burrows during all seasons and not to “flush” burrowing owls especially if predators are present to reduce any potential for needless energy expenditure or burrowing owl mortality. Burrowing owls may flush if approached by pedestrians within 50 m (Conway et al. 2003). If raptors or other predators are present that may suppress burrowing owl activity, return at another time or later date for a follow-up survey.

Check all burrowing owls detected for bands and/or color bands and report band combinations to the Bird Banding Laboratory (BBL). Some site-specific variations to survey methods discussed below may be developed in coordination with species experts and Department staff.

Weather conditions. Poor weather may affect the surveyor’s ability to detect burrowing owls, therefore, avoid conducting surveys when wind speed is >20 km/hr, and there is precipitation or dense fog. Surveys have greater detection probability if conducted when ambient temperatures are >20° C, <12 km/hr winds, and cloud cover is <75% (Conway et al. 2008).

Time of day. Daily timing of surveys varies according to the literature, latitude, and survey method. However, surveys between morning civil twilight and 10:00 AM and two hours before sunset until evening civil twilight provide the highest detection probabilities (Barclay pers. comm. 2012, Conway et al. 2008).

Alternate methods. If the project site is large enough to warrant an alternate method, consult current literature for generally accepted survey methods and consult with the Department on the proposed survey approach.

Additional breeding season site visits. Additional breeding season site visits may be necessary, especially if non-breeding season exclusion methods are contemplated. Detailed information, such as approximate home ranges of each individual or of family units, as well as foraging areas as related to the proposed project, will be important to document for evaluating impacts, planning avoidance measure implementation and for mitigation measure performance monitoring.

Adverse conditions may prevent investigators from determining presence or occupancy. Disease, predation, drought, high rainfall or site disturbance may preclude presence of burrowing owls in any given year. Any such conditions should be identified and discussed in the survey report. Visits to the site in more than one year may increase the likelihood of detection. Also, visits to adjacent known occupied habitat may help determine appropriate survey timing.

Given the high site fidelity shown by burrowing owls (see Appendix A, Importance of burrows), conducting surveys over several years may be necessary when project activities are ongoing, occur annually, or start and stop seasonally. (See Negative surveys).

Non-breeding Season Surveys

If conducting non-breeding season surveys, follow the methods described above for breeding season surveys, but conduct at least four (4) visits, spread evenly, throughout the non-breeding season. Burrowing owl experts and local Department staff are available to assist with interpreting results.

Negative Surveys

Adverse conditions may prevent investigators from documenting presence or occupancy. Disease, predation, drought, high rainfall or site disturbance may preclude presence of burrowing owl in any given year. Discuss such conditions in the Survey Report. Visits to the site in more than one year increase the likelihood of detection and failure to locate burrowing owls during one field season does not constitute evidence that the site is no longer occupied, particularly if adverse conditions influenced the survey results. Visits to other nearby known occupied sites can affirm whether the survey timing is appropriate.

Take Avoidance Surveys

Field experience from 1995 to present supports the conclusion that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the Detection Surveys section above. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls.

Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance.

Survey Reports

Report on the survey methods used and results including the information described in the Summary Report and include the reports within the CEQA documentation:

1. Date, start and end time of surveys including weather conditions (ambient temperature, wind speed, percent cloud cover, precipitation and visibility);
2. Name(s) of surveyor(s) and qualifications;
3. A discussion of how the timing of the survey affected the comprehensiveness and detection probability;
4. A description of survey methods used including transect spacing, point count dispersal and duration, and any calls used;
5. A description and justification of the area surveyed relative to the project area;
6. A description that includes: number of owls or nesting pairs at each location (by nestlings, juveniles, adults, and those of an unknown age), number of burrows being used by owls, and burrowing owl sign at burrows. Include a description of individual markers, such as bands (numbers and colors), transmitters, or unique natural identifying features. If any owls are banded, request documentation from the BBL and bander to report on the details regarding the known history of the banded burrowing owl(s) (age, sex, origins, whether it was previously relocated) and provide with the report if available;
7. A description of the behavior of burrowing owls during the surveys, including feeding, resting, courtship, alarm, territorial defense, and those indicative of parents or juveniles;
8. A list of possible burrowing owl predators present and documentation of any evidence of predation of owls;
9. A detailed map (1:24,000 or closer to show details) showing locations of all burrowing owls, potential burrows, occupied burrows, areas of concentrated burrows, and burrowing owl sign. Locations documented by use of global positioning system (GPS) coordinates must include the datum in which they were collected. The map should include a title, north arrow, bar scale and legend;
10. Signed field forms, photos, etc., as appendices to the field survey report;
11. Recent color photographs of the proposed project or activity site; and
12. Original CNDDDB Field Survey Forms should be sent directly to the Department's CNDDDB office, and copies should be included in the environmental document as an appendix. (<http://www.dfg.ca.gov/bdb/html/cnddb.html>).

Appendix E. Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans

Whereas the Department does not recommend exclusion and burrow closure, current scientific literature and experience from 1995 to present, indicate that the following example components for burrowing owl artificial burrow and exclusion plans, combined with consultation with the Department to further develop these plans, would be effective.

Artificial Burrow Location

If a burrow is confirmed occupied on-site, artificial burrow locations should be appropriately located and their use should be documented taking into consideration:

1. A brief description of the project and project site pre-construction;
2. The mitigation measures that will be implemented;
3. Potential conflicting site uses or encumbrances;
4. A comparison of the occupied burrow site(s) and the artificial burrow site(s) (e.g., vegetation, habitat types, fossorial species use in the area, and other features);
5. Artificial burrow(s) proximity to the project activities, roads and drainages;
6. Artificial burrow(s) proximity to other burrows and entrance exposure;
7. Photographs of the site of the occupied burrow(s) and the artificial burrows;
8. Map of the project area that identifies the burrow(s) to be excluded as well as the proposed sites for the artificial burrows;
9. A brief description of the artificial burrow design;
10. Description of the monitoring that will take place during and after project implementation including information that will be provided in a monitoring report.
11. A description of the frequency and type of burrow maintenance.

Exclusion Plan

An Exclusion Plan addresses the following including but not limited to:

1. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;
2. Type of scope and appropriate timing of scoping to avoid impacts;
3. Occupancy factors to look for and what will guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape i.e., look for sign immediately inside the door).
4. How the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow);
5. Removal of other potential owl burrow surrogates or refugia on site;
6. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;

7. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take;
8. How the impacted site will continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

Appendix F. Mitigation Management Plan and Vegetation Management Goals

Mitigation Management Plan

A mitigation site management plan will help ensure the appropriate implementation and maintenance for the mitigation site and persistence of the burrowing owls on the site. For an example to review, refer to Rosenberg et al. (2009). The current scientific literature and field experience from 1995 to present indicate that an effective management plan includes the following:

1. Mitigation objectives;
2. Site selection factors (including a comparison of the attributes of the impacted and conserved lands) and baseline assessment;
3. Enhancement of the conserved lands (enhancement of reproductive capacity, enhancement of breeding areas and dispersal opportunities, and removal or control of population stressors);
4. Site protection method and prohibited uses;
5. Site manager roles and responsibilities;
6. Habitat management goals and objectives:
 - a. Vegetation management goals,
 - i. Vegetation management tools:
 1. Grazing
 2. Mowing
 3. Burning
 4. Other
 - b. Management of ground squirrels and other fossorial mammals,
 - c. Semi-annual and annual artificial burrow cleaning and maintenance,
 - d. Non-natives control – weeds and wildlife,
 - e. Trash removal;
 - a. Property analysis record or other financial analysis to determine long-term management funding,
 - b. Funding schedule;
7. Financial assurances:
 - a. Property analysis record or other financial analysis to determine long-term management funding,
 - b. Funding schedule;
8. Performance standards and success criteria;
9. Monitoring, surveys and adaptive management;
10. Maps;
11. Annual reports.

Vegetation Management Goals

- Manage vegetation height and density (especially in immediate proximity to burrows). Suitable vegetation structure varies across sites and vegetation types, but should generally be at the average effective vegetation height of 4.7 cm (Green and Anthony 1989) and <13 cm average effective vegetation height (MacCracken et al. 1985a).
- Employ experimental prescribed fires (controlled, at a small scale) to manage vegetation structure;

- Vegetation reduction or ground disturbance timing, extent, and configuration should avoid take. While local ordinances may require fire prevention through vegetation management, activities like disking, mowing, and grading during the breeding season can result in take of burrowing owls and collapse of burrows, causing nest destruction. Consult the take avoidance surveys section above for pre-management avoidance survey recommendations;
- Promote natural prey distribution and abundance, especially in proximity to occupied burrows; and
- Promote self-sustaining populations of host burrowers by limiting or prohibiting lethal rodent control measures and by ensuring food availability for host burrowers through vegetation management.

Refer to Rosenberg et al. (2009) for a good discussion of managing grasslands for burrowing owls.

Mitigation Site Success Criteria

In order to evaluate the success of mitigation and management strategies for burrowing owls, monitoring is required that is specific to the burrowing owl management plan. Given limited resources, Barclay et al. (2011) suggests managers focus on accurately estimating annual adult owl populations rather than devoting time to estimating reproduction, which shows high annual variation and is difficult to accurately estimate. Therefore, the key objective will be to determine accurately the number of adult burrowing owls and pairs, and if the numbers are maintained. A frequency of 5-10 years for surveys to estimate population size may suffice if there are no changes in the management of the nesting and foraging habitat of the owls.

Effective monitoring and evaluation of off-site and on-site mitigation management success for burrowing owls includes (Barclay, pers. comm.):

- Site tenacity;
- Number of adult owls present and reproducing;
- Colonization by burrowing owls from elsewhere (by band re-sight);
- Evidence and causes of mortality;
- Changes in distribution; and
- Trends in stressors.

APPENDIX F

**MBHCP ITP CONDITIONS OF APPROVAL
*KFT HOLDINGS, LLC. ZONE CHANGE PROJECT***

**Summary of Take Minimization Measures as Excerpted from the
Metropolitan Bakersfield Urban Development Incidental Take Permit
#2081-2013-058-04, as Amended**

This attachment contains a summary of the take minimization measures excerpted from the Metropolitan Bakersfield Urban Development Incidental Take Permit (ITP). These measures (also known as Conditions of Approval) are generally applicable to all projects within the area of coverage of the ITP, but actual applicability to any specific project is dependent upon findings of site-specific surveys as defined in 7.1 and 7.4 below. These measures and additional measures can be found in the body of the ITP and ITP amendment.

7. Take Minimization Measures:

The following requirements are intended to ensure the minimization of incidental take of Covered Species in the Project Area during Covered Activities. Permittee shall implement and adhere to the following conditions to minimize take of Covered Species:

- 7.1. Biological Clearance Survey. Prior to either Permittee issuing a Permittee Authorization to a Developer, the Developer applying for such Permittee Authorization shall provide a written Biological Clearance Survey conducted by a CDFW-approved Qualified Wildlife Biologist (Condition of Approval 5.10), no more than 30 calendar days prior to a Developer beginning Covered Activities on a given Permittee-authorized project. The Biological Clearance Survey shall include full coverage transect surveys for SJKF dens (See Condition of Approval 7.4, below), kangaroo rat burrows (in areas identified in Condition of Approval 7.8, below), and Bakersfield cactus (for proposed projects north of State Route (SR) 58 and east of SR 99), in the proposed development footprint and a buffer zone of 50 feet in size beyond the proposed development footprint (except for any portions of the buffer zone that are already fully developed or are beyond the access rights of the developer). The Biological Clearance Survey shall be valid for no more than 30 calendar days. In the event that Covered Activities are not initiated, as authorized by either Permittee, within 30 calendar days of a Biological Clearance Survey, the Biological Clearance Survey shall be repeated. Each Developer pursuing a Permittee Authorization shall bear the costs of the Biological Clearance Survey being conducted and summarized in writing.

- 7.2. Covered Species Detection. If one or more of the "Conditions" described below in Table 1 is detected during the Biological Clearance Survey (Condition of Approval 7.1) for any proposed Developer project, Permittees shall either: (1) not grant a Permittee Authorization for said Developer project until implementation of the Table 1 referenced "Required Minimization Measures" is demonstrated by the Developer in writing to the Permittees; or (2) any issued Permittee Authorization shall require, via specific written conditions within the Permittee Authorization, that the start of grading/building activities may not occur until implementation

of the Table 1 referenced "Required Minimization Measures" are demonstrated in writing to the Permittees.

Table 1. Conditions within Proposed Development Footprint

Condition Within Proposed Development Footprint	Required Minimization Measures
Known, active, or natal SJKF den	Conditions of Approval 7.5 and 7.6
Kangaroo rat burrows (Conceptual Southwest Focus Area only)	Conditions of Approval 7.8, 7.9, and 7.10
One or more Bakersfield cactus clumps/plants	Conditions of Approval 7.11, 7.12, and 7.13

- 7.3. Developer Notification of Covered Species Detection. For Developer projects on which one or more of the Table 1 "Condition within Proposed Development Footprint" (Condition of Approval 7.2) are present, Permittees shall require the Developer to provide CDFW and Permittees with a written "Notice of Grading Start" at least 5 business days prior to ground disturbance. Such a "Notice of Grading Start" shall only be submitted after all "Required Minimization Measures" referenced in Table 1 are implemented for that specific Developer project. The "Notice of Grading Start" shall include, at a minimum, the following information: (1) project location, including a map and major cross streets; (2) project name; (3) Developer name and contact information (phone, email, and mailing address); (4) name of the Qualified Wildlife Biologist that conducted the Biological Clearance Survey; (5) a copy of the Biological Clearance Survey; and (6) written information submitted to demonstrate compliance with Condition of Approval 7.2, 7.5, 7.6 and 7.8-7.13, as applicable. Developer should keep as a record proof of their notification to CDFW.

In addition to the Biological Clearance Survey as required in Condition of Approval 7.1, SJKF den surveys shall be annually conducted each January if Covered Activities are not completed at a Project site, to identify any SJKF that may have occupied the site after completion of the Biological Clearance Survey and to maximize detection of potential natal dens. The Developer shall provide CDFW and Permittees with a written report by February 5th that includes at a minimum the following information: (1) project location, including a map and major cross streets; (2) project name; (3) Developer name and contact information (phone, email, and mailing address); (4) name of the Designated Biologist that conducted the SJKF den survey; (5) a copy of the Biological Clearance Survey as required in Condition of Approval 7.1; and (6) written information submitted to demonstrate compliance with Conditions of Approval 7.2, 7.5, 7.6 and 7.8 through 7.13, as applicable. Developer should keep as a record proof of their notification to CDFW. Each Developer shall bear the costs of implementing the SJKF Den Surveys.

- 7.4. SJKF Den Survey. SJKF Den Surveys shall evaluate the proposed development footprint and a 50 foot buffer zone (except for any portions of the buffer zone that are already fully developed) for potential, known, active, atypical, and natal SJKF dens, as defined in the Service 2011 "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance."

7.5. SJKF Den Avoidance. If a known, active, or natal SJKF den is discovered during the SJKF Den Survey/Biological Clearance Survey, the Permittees shall not issue a Permittee Authorization unless the Developer demonstrates that they established a permanent minimum buffer using fencing or flagging as follows: (1) at least 100 feet around den(s); (2) at least 200 feet around natal dens (dens in which SJKF young are reared); and (3) at least 500 feet around any natal dens with pups (except for any portions of the buffer zone that are already fully developed). Buffer zones shall be considered Environmentally Sensitive Areas, and no Covered Activities are allowed within a buffer except per Condition of Approval 7.6., and as follows: If the work within the buffer area will not result in the destruction of the den, the den should be conserved. If the den is unoccupied (based on the required four consecutive days of monitoring), then the den can be covered in a secure manner to prevent access by SJKF while the work is being conducted. After the work is done, the den can be uncovered to allow use by SJKF. If the den is occupied and the SJKF don't want to leave, then a smaller buffer could be established, including a barricade to prevent the SJKF from exiting the den and entering the work site. A qualified biologist shall monitor the den while the work is being conducted. Permittees shall notify the Service and CDFW's Regional Representative immediately via telephone or e-mail if any SJKF active dens, natal dens, or occupied atypical dens are discovered within or immediately adjacent to any proposed development footprint. Each Developer pursuing a Permittee Authorization shall bear the costs of implementing the SJKF den avoidance requirements.

A reduced SJKF den avoidance buffer may be authorized with written approval by CDFW. Buffer reduction requests shall be submitted by the Designated Biologist and describe why a reduced buffer will not impact SJKF. CDFW may add additional minimization measures as a condition of any buffer reduction approval; these additional CDFW specified minimization measures shall be followed by the Developer that proposed the buffer reduction.

7.6. SJKF Den Excavation. For active dens and potential dens that exhibit signs of SJKF use or characteristics suggestive of SJKF dens (including dens in natural substrate and in/under man-made structures) that cannot be avoided as per Condition of Approval 7.5, and if, after four consecutive days of monitoring with tracking medium or infrared camera, a Qualified Wildlife Biologist has determined that SJKF is not currently present, the den may be excavated. Natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the Service and CDFW. If the excavation process reveals evidence of current use by SJKF then den excavation shall cease immediately and tracking or camera monitoring as described above shall be conducted/resumed. Excavation of the den may be completed when, in the judgment of a Qualified Wildlife Biologist, the SJKF has escaped from the partially excavated den. SJKF dens shall be carefully excavated until it is certain no individuals of SJKF are inside. Dens shall be fully excavated, filled with dirt, and compacted to ensure that SJKF cannot reenter or use the den during Covered Activities. If an individual SJKF does not vacate a den within the proposed construction footprint within a reasonable timeframe, Permittees shall contact the Service and CDFW and get written guidance (email will suffice) from both agencies prior to proceeding with den excavation. Each Developer pursuing a Permittee Authorization shall bear the costs of

implementing the SJKF den excavation requirements.

- 7.7. SJKF Detection on Construction Site. Permittees shall condition all Permittee Authorizations to require notification to the appropriate Permittee and CDFW within 24 hours in the event that a SJKF is observed denning or utilizing structures or materials within an active construction footprint. In addition, a minimum 100 foot no disturbance buffer from the area being used by SJKF as a denning site shall be implemented until Conditions of Approval 7.5 or 7.6 can be implemented by a Qualified Wildlife Biologist funded by the Developer.
- 7.8. TKR Trapping and Salvage. If the Biological Clearance Survey prepared pursuant to Condition of Approval 7.1 identifies TKR burrows within the proposed construction footprint of proposed Developer projects within the "Conceptual Southwest Focus Area" as identified in Figure 4 of the MBHCP, Permittees shall not issue a Permittee Authorization until a TKR Qualified Biologist (see Condition of Approval 5.11) conducts a minimum of five (5) consecutive nights of live small mammal trapping, with high trap densities focused at and around TKR burrows, runways, seed caches, and dust baths. How and where captured animals will be held and the final release location and specifics shall be in accordance with a CDFW-approved TKR Relocation Plan prepared in accordance with Condition of Approval 6.8. The Developer for which the Biological Clearance Survey was conducted shall bear the costs of TKR trapping, salvage, and relocation.
- 7.9. TKR Burrow Excavation. Following live trapping activities conducted in accordance with Condition of Approval 7.8, any potential TKR burrows (e.g., any kangaroo rat burrows) present within the development footprint shall be fully excavated by hand by the TKR Qualified Biologist. The TKR Qualified Biologist shall relocate any TKR encountered in the excavated burrows to the release site(s) identified in the CDFW-approved TKR Relocation Plan prepared in accordance with Condition of Approval 6.8. The TKR Qualified Biologist shall also collect and move dormant or torpid TKR encountered to an artificial burrow installed at the release site(s) identified in the CDFW-approved TKR Relocation Plan prepared in accordance with Condition of Approval 6.8.
- 7.10. TKR Record of Handling. TKR Qualified Biologist(s) shall maintain a record of all TKR handled. This information shall include for each animal: (1) the locations (Global Positioning System (GPS) coordinates and maps) and time of capture and/or observation as well as release; (2) sex; (3) approximate age (adult/juvenile); (4) weight; (5) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and (6) ambient temperature when handled and released. A Relocation Summary shall be prepared by the TKR Qualified Biologist and submitted by the Developer to the Permittees and CDFW as part of the information accompanying the "Notice of Grading Start" described in Condition of Approval 7.3.
- 7.11. Bakersfield Cactus Avoidance. If the Biological Clearance Survey prepared pursuant to Condition of Approval 7.1 identifies Bakersfield cactus within the proposed construction footprint of a proposed Developer project, Permittees shall not issue a Permittee Authorization until the Developer demonstrates that all Bakersfield cacti shall be avoided by a minimum of 25 feet, unless

Condition of Approval 7.13 is implemented. This avoidance distance may be lessened on a specific case-by-case basis if CDFW concurs in writing that a modified distance proposed by a Bakersfield Cactus Qualified Botanist (Condition of Approval 5.12) is sufficient to avoid direct or indirect take of Bakersfield cactus.

- 7.12. Bakersfield Cactus Avoidance Fencing. Sturdy, highly visible, plastic construction avoidance fencing (or comparable fencing approved in writing by the CDFW Regional Representative) shall be installed around Bakersfield cactus avoidance areas (Condition of Approval 7.11) and located in accordance with direction from the Bakersfield Cactus Qualified Botanist. Fencing shall be securely staked and installed in a durable manner that would be reasonably expected to withstand wind and weather events and last at least through the construction period. Fencing shall be inspected at least twice weekly during the construction period. Fencing shall be removed upon completion of construction of the Developer project.
- 7.13. Bakersfield Cactus Translocation. The Bakersfield Cactus Qualified Botanist shall translocate Bakersfield cactus, which cannot be avoided by construction activities in accordance with Condition of Approval 7.11, to the nearest suitable habitat specifically identified in the Bakersfield Cactus Translocation Plan (Condition of Approval 6.9) prior to disturbance of any Bakersfield cacti. Translocated cacti shall be planted in habitat that Permittees have proven to be suitable for Bakersfield cactus by demonstrating that Bakersfield cactus occurs naturally at the same general location and the plantable area has suitable soils, vegetation, and other aspects to support a self-sustaining population of Bakersfield cactus. The density of plantings shall not exceed densities that occur naturally in the vicinity of the Project. Pads shall be taken from the translocated clumps of cacti and planted in the receiver sites to increase the number of plants.
- 7.14. Covered Species Injury. If a Covered Species is injured as a result of Project related activities, a Qualified Wildlife Biologist shall immediately take it to a CDFW approved wildlife rehabilitation or veterinary facility that routinely evaluates and treats the injured Covered Species. Permittees shall identify the potential facilities before starting Covered Activities. The Developer or appropriate Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. The Permittee with jurisdiction shall notify CDFW of the injury to the Covered Species immediately by telephone and e-mail followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.
- 7.15. Daily Entrapment Inspections. Permittee Authorizations shall require that workers on Developer projects shall inspect all open holes, sumps, and trenches within the development footprint covered by the Permittee Authorization at the beginning, middle, and end of each day for trapped Covered Species. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are between two- and eight feet deep shall be covered when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material with a less than 1:1 (45 degree) slope. All trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45

degree) slope and greater than eight feet deep shall be covered when workers or equipment are not actively working in the excavation and at the end of each work day. Trenches, holes, sumps, or other excavations that are covered long term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. If any worker discovers that Covered Species have become trapped, the Developer and their workers shall cease all Covered Activities in the vicinity and notify Permittees immediately, whom shall in turn notify CDFW immediately. Developer and its workers shall allow the Covered Species to escape unimpeded if possible before Covered Activities are allowed to continue, or, alternatively, a Qualified Wildlife Biologist shall capture and relocate the animal, in accordance with CDFW direction regarding the final disposition of the animal. The Developer for which the Biological Clearance Survey was conducted shall bear the costs of Covered Species salvage.

- 7.16. Materials Inspection. Permittee Authorizations shall require that workers on Developer projects thoroughly inspect for Covered Species in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (three inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify Permittees and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure. In the event that Permittees are notified of such an incident, Permittees shall notify CDFW in writing (via email will suffice) within 48 hours of the incident.
- 7.17. Equipment Inspection. Permittee Authorizations shall require that workers shall inspect for Covered Species under vehicles and equipment before the vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move unimpeded to a safe location. Alternatively, the Developer shall contact a Qualified Wildlife Biologist to determine if they can safely move the Covered Species out of harm's way in compliance with this ITP.
- 7.18. Sump Surveys. Permittees shall be allowed to train personnel/staff to inspect work areas and buffer zones prior to Operations and Maintenance (O&M) activities in sumps or other similar features to make determinations if there are any potential (as defined in the Service 2011 "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance") den sites. If potential den sites are observed, a Qualified Wildlife Biologist shall conduct a SJKF den survey in accordance with Condition of Approval 7.4 prior to any O&M activities being conducted in sumps or other similar features within the Project Area by either Permittee. If a known, active, or natal SJKF den is discovered during the SJKF Den Survey, the O&M work shall not proceed unless the Public Works Department (or other Permittee department conducting the O&M work) demonstrates to the appropriate Designated Representative that either: (1) den avoidance will occur as per Condition of Approval 7.5; or (2) den excavation has occurred in accordance with Condition of Approval 7.6.