



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

**PORTERVILLE IRRIGATION DISTRICT IN-LIEU SERVICE AREA PROJECT
BIOLOGICAL EVALUATION
TULARE COUNTY, CALIFORNIA**

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PN 1939-02

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted an investigation of the biological resources of the two project sites associated with the Porterville Irrigation District (PID) In-Lieu Service Area Project in Tulare County, California and evaluated likely impacts to such resources resulting from proposed development of water conveyance facilities within the two sites. The proposed facilities will enable landowners currently not served by PID to link their irrigation systems to the PID system. The two project sites are referred to as the Service Area 1 and Service Area 2 project sites, and are located 2 to 3 miles west of the City of Porterville. LOA surveyed the project sites for biotic habitats, the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law. The Service Area 1 survey took place on April 28, 2015 and the Service Area 2 survey on January 21, 2016.

Habitats/land uses identified within the project sites included orchard/vineyard, agricultural fields, ruderal, fallow fields, non-native grassland, residential, irrigation ditch, and tailwater basin. A mosaic of agricultural, industrial, and residential land uses surround the two sites, within a region dominated by similar land uses. The Wood-Central Ditch passes through the Service Area 1 project site; this ditch has upstream and downstream connectivity to known Waters of the U.S. and may, itself, fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). The Tule River Intertie and an unnamed V-ditch pass through Service Area 2; these ditches lack downstream connectivity to Waters of the U.S. and are not likely to be claimed by the USACE.

The project has the potential to affect the San Joaquin kit fox, burrowing owl, American badger, roosting bats, and nesting raptors and migratory birds protected under the federal Migratory Bird Treaty Act and related state laws. The project also has the potential to impact native wildlife nursery sites including cliff swallow nest colonies and bat maternity roosts. Injury, mortality, or disturbance of these special status animals and protected groups would be considered a significant impact of the project under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). Project avoidance of active nests, dens, and roost sites identified during preconstruction surveys and implementation of minimization measures consistent with the USFWS *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* will reduce the magnitude of these potential impacts, ensuring that these special status animals and protected groups are not adversely affected by the project.

No other biological resources would be significantly impacted by the project as defined by NEPA and CEQA. Impacts associated with project development would be less than significant for all locally occurring special status plant species; nine special status animals absent from or unlikely to use the project site; wildlife movement corridors; Waters of the U.S.; downstream water quality; and sensitive habitats. Loss of habitat for special status animal species would not be considered a significant impact of the project under NEPA and CEQA. The project is not in conflict with local policies or habitat conservation plans.

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1.0 INTRODUCTION

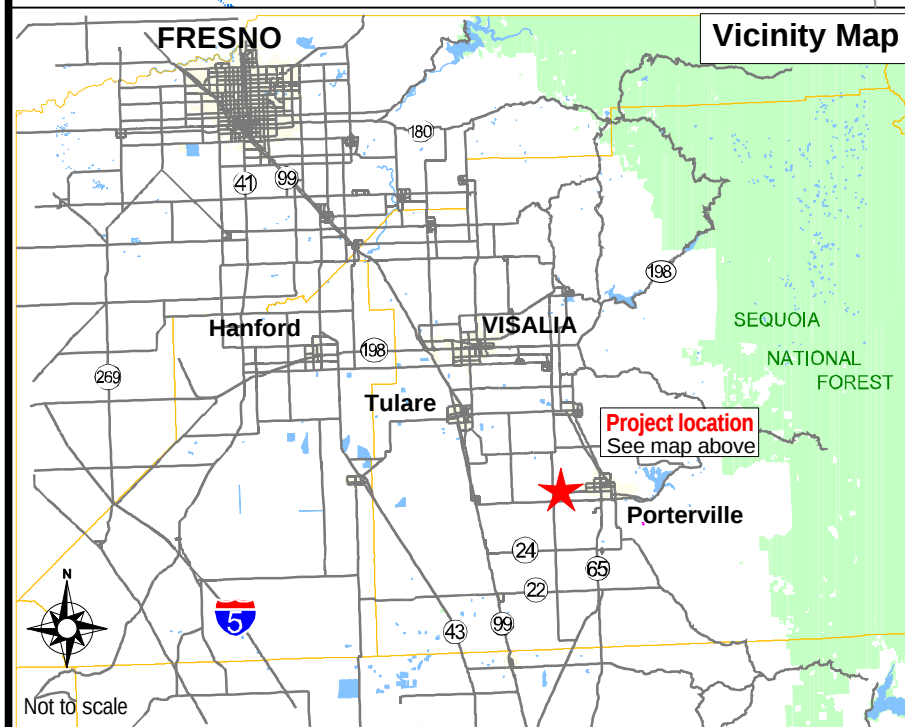
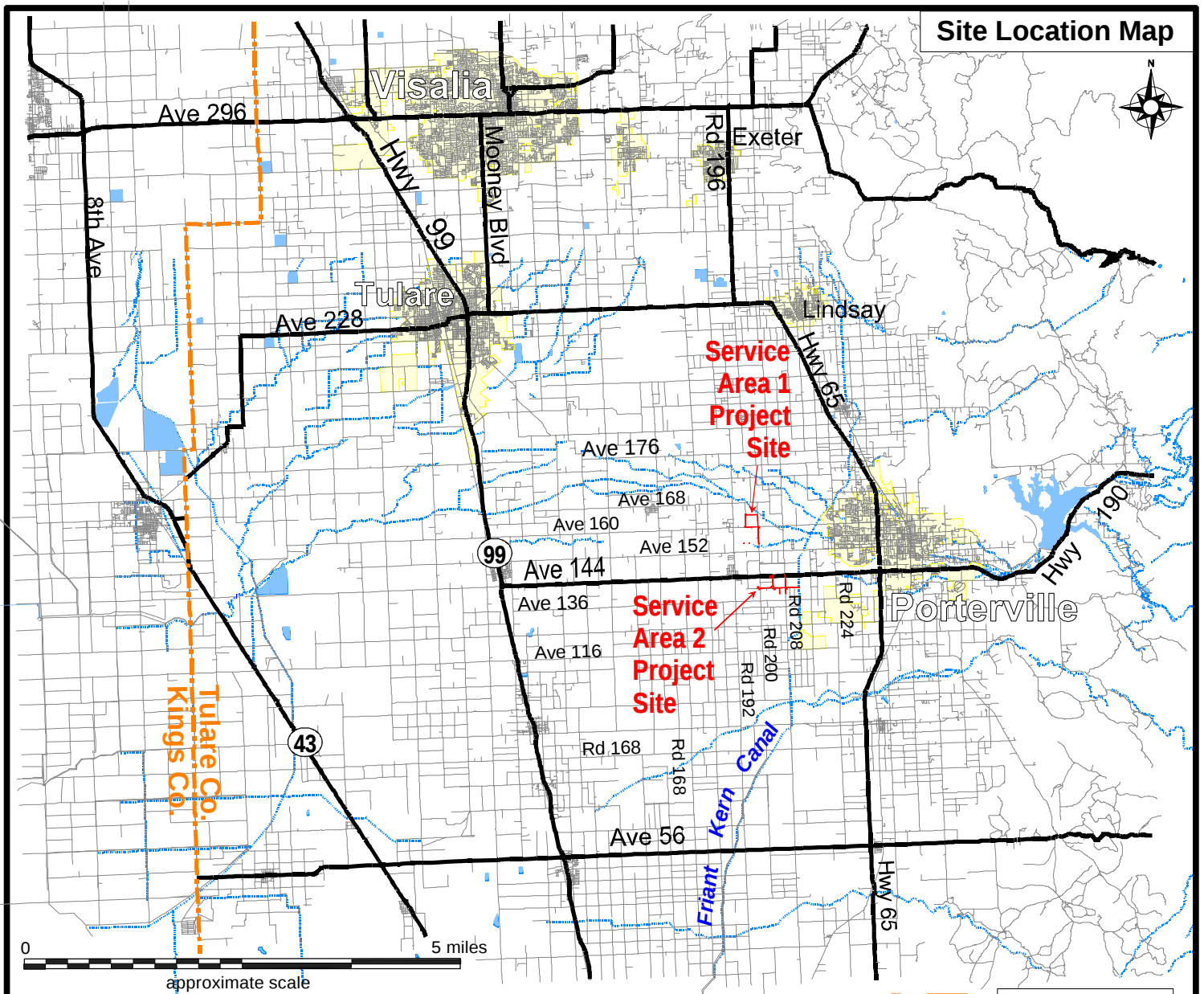
The technical report that follows describes the biotic resources of lands proposed for development of the Porterville Irrigation District's In-Lieu Service Area Project ("project"). Development is proposed in two disjunct areas ("project sites") located 2 to 3 miles west of the City of Porterville in Tulare County, California (Figure 1). Both sites may be found on the *Woodville* and *Porterville* U.S. Geological Survey (USGS) 7.5-minute quadrangles. The more northerly of the project sites ("Service Area 1 project site") is located in Sections 23, 24, 25, and 26 of Township 21 South, Range 26 East, Mount Diablo Base and Meridian. The more southerly of the sites ("Service Area 2 project site") is located in Section 1 of Township 22 South, Range 26 East and Section 6 of Township 22 South, Range 27 East, Mt. Diablo Base and Meridian (Figure 2).

1.1 PROJECT DESCRIPTION

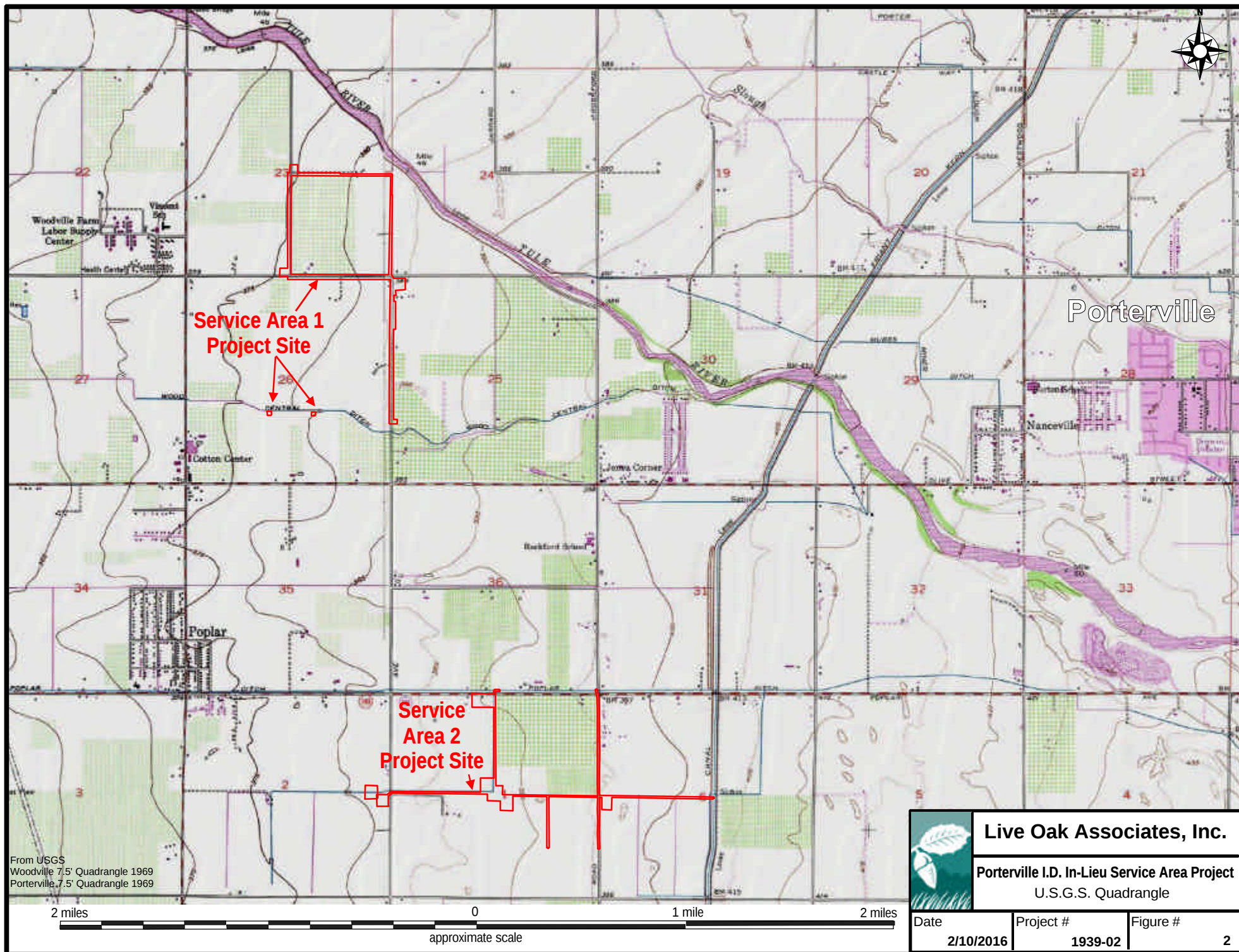
The Porterville Irrigation District (PID) proposes to construct two new distribution facilities as part of an in-lieu groundwater recharge program ("project"). The proposed facilities will serve two areas of the District, identified as Service Area 1 and Service Area 2, that do not currently have infrastructure to receive surface water deliveries. Increasing the District area that can take surface water deliveries will allow PID to utilize more of its Friant Division Central Valley Project (CVP) contract water supply instead of transferring water out of the District. It will also allow PID, and potentially other Friant districts, to capture additional wet year water supplies available under various programs and will help to offset water supply impacts caused by the San Joaquin River Restoration Settlement.

Service Area 1

Service Area 1 is an area of approximately 1,450 acres within the PID boundary that does not currently have access to surface water. Proposed facilities for Service Area 1 include one new turnout on the Wood-Central Ditch, approximately 1.75 miles of new service lateral, and a number of service connection points enabling landowners to link their irrigation systems to the PID system. Two additional turnouts on the Wood-Central Ditch are included as optional project components to be installed at some point in the future.



 Live Oak Associates, Inc.		
Porterville I.D. In-Lieu Service Area Project Site / Vicinity Map		
Date	Project #	Figure #
2/10/2016	1939-02	1



The new service lateral would consist of pipelines constructed of either reinforced concrete or plastic, with diameters ranging from 18 to 48 inches, installed a minimum of 3 feet below grade. The design capacity for the new lateral would be approximately 22 CFS. The lateral would start approximately 400 feet north of Road 200's crossing of the Wood-Central Ditch, and would travel north along Road 200 for $\frac{3}{4}$ mile to the southeastern corner of Road 200 and Avenue 160. Here, the preferred route would continue north along Road 200 for $\frac{1}{2}$ mile, then west along Avenue 164 for $\frac{1}{2}$ mile, before terminating at the southeastern corner of Road 196 and Avenue 164. An alternate route would head west along Avenue 160 for $\frac{1}{2}$ mile, then north along Road 196 for $\frac{1}{2}$ mile, before reaching the same terminus (Figure 3a). Service connection points along the facility would be provided to growers at approximately every quarter of a mile.

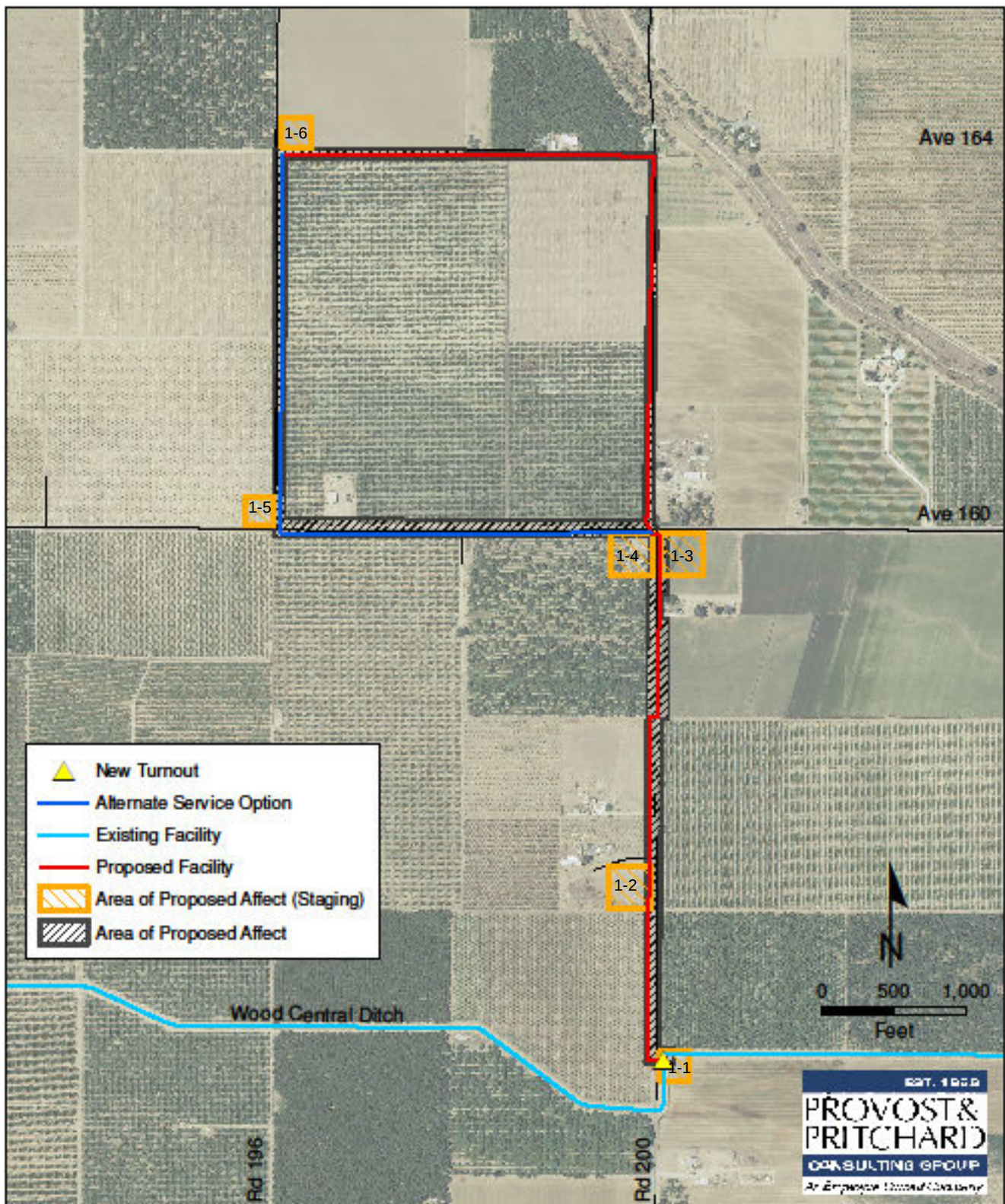
The proposed turnout would be installed at the origin of the new service lateral, approximately 400 feet north of Road 200's crossing of the Wood-Central Ditch as described above (see Figure 3a). It would include a metal trash rack, slide gate, flow measurement structure, canal rip rap, and potentially other improvements to the canal prism. Two additional turnouts may be installed at some point in the future. One would be located approximately 700 feet east, and a third approximately 400 feet west, of Road 196's crossing of the Wood-Central Ditch.

Up to six staging areas 1 to 2 acres in size may be used during construction. The size, location, and unique identification number of each staging area are presented below in Table 1. The proposed staging areas are referred to by number on Figure 3a and throughout this report.

For the purposes of this analysis, the Service Area 1 project site consists of the disturbance corridor associated with service lateral construction, work zones surrounding the proposed and potential turnouts, and the six staging areas, and encompasses approximately 37 acres.

Service Area 2

Service Area 2 is an area of approximately 720 acres within the PID boundary that does not currently have access to surface water. Proposed facilities for Service Area 2 include approximately 2.5 miles of new service lateral, and a number of service connection points enabling landowners to link their irrigation systems to the PID system. A 2-acre detention basin is included as an optional project component.



Map Courtesy of Provost & Pritchard Consulting Group

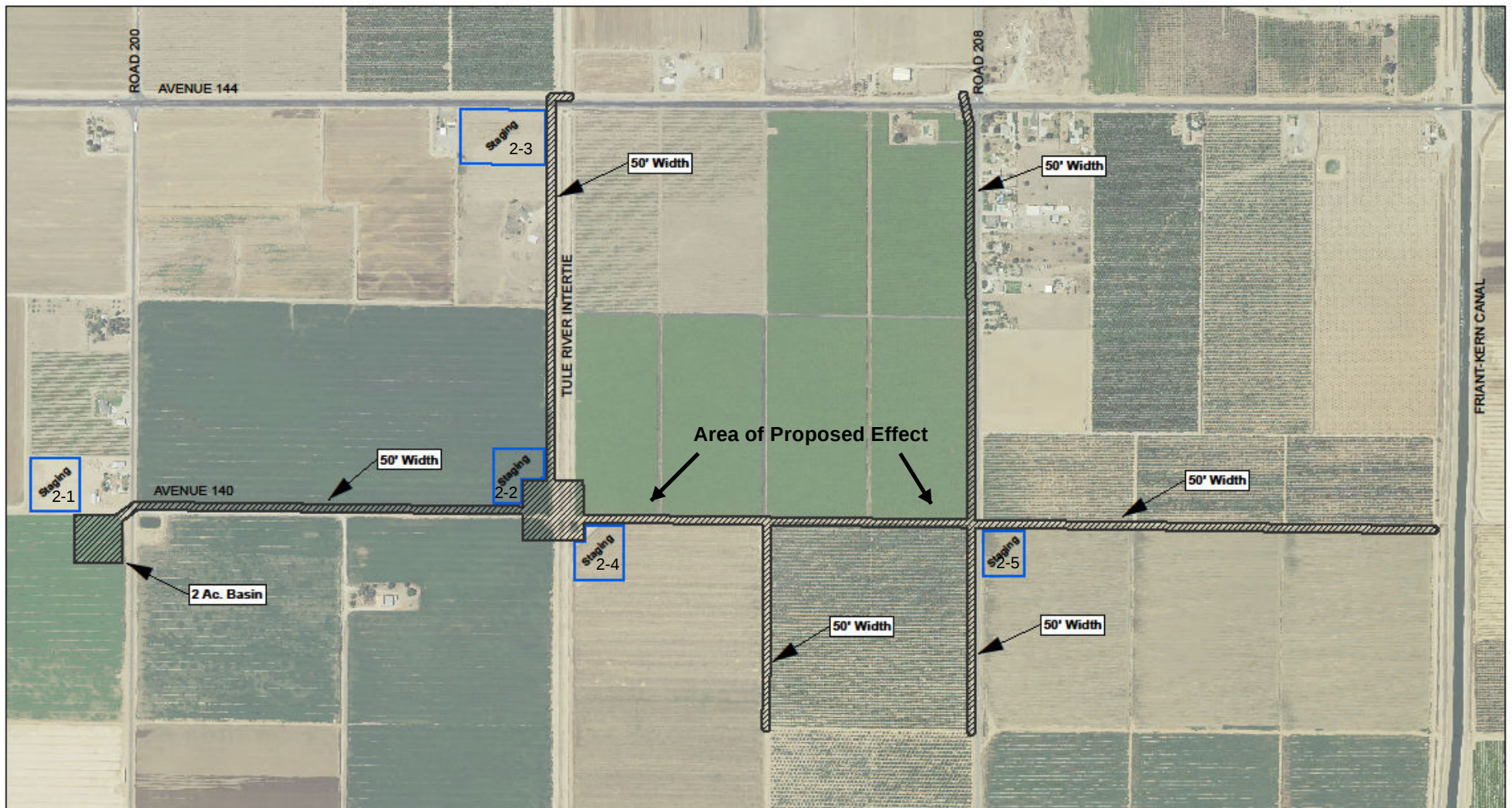
 Live Oak Associates, Inc.		
Porterville Irrigation District In-Lieu Service Area Project Site Map - SA1		
Date	Project #	Figure #
02/12/2016	1939-02	3a

The new service lateral may vary between open channel and piped sections depending on hydraulics, land acquisition, topography of the land, and pipe costs. Piped sections would utilize reinforced concrete or PVC pipe with diameters ranging from 12 to 24 inches, and would have a minimum cover depth of 3 feet. Open channel would be approximately 4 feet deep with no flatter than 2:1 side slopes for a total width around 16 feet. The design capacity for the new lateral would be approximately 8 CFS. The preferred route would originate from the Poplar Ditch pipeline at an existing turnout structure at Road 204, and would travel ½ mile south along the west side of the Tule River Intertie to Avenue 140. From this location, it would head east and west. To the west, the lateral would run approximately ½ mile to serve growers west of the Tule River Intertie. To the east, the lateral would siphon under the Tule River Intertie and serve growers located between the Tule River Intertie and Road 208. Two ¼ mile spurs would extend from the Avenue 140 segment of the lateral south along Road 206 and Road 208. Under an alternate design, the lateral would originate from the Poplar Ditch pipeline at an existing turnout structure at Road 208, and would travel ½ mile south along Road 208, at which point the lateral would intersect the preferred route along Avenue 140 and would be configured as described above (Figure 3b). Five service connection points are currently proposed along the facility.

Under current project design, the new service lateral would consist mostly of piped sections, with open channel limited to an existing V-ditch running south along the west side of the Tule River Intertie on the preferred route. However, if final design calls for a predominantly open channel system, a detention basin would be required at the downstream end of the system to catch excess water. If necessary, this basin would be constructed at the southwest corner of Road 200 and Avenue 140, and would be approximately 2 acres in size (see Figure 3b).

Up to five staging areas 2-3 acres in size may be used during construction. The size, location, and unique identification number of each staging area are presented below in Table 1. The proposed staging areas are referred to by number on Figure 3b and throughout this report.

For the purposes of this analysis, the Service Area 2 project site consists of the disturbance corridor associated with service lateral construction, work zones associated with turnout and basin construction, and the five staging areas, and encompasses approximately 36 acres.



Map Courtesy of Provost & Pritchard Consulting Group

 Live Oak Associates, Inc.		
Porterville Irrigation District In-Lieu Service Area Project Site Map - SA2		
Date	Project #	Figure #
02/12/2016	1939-02	3b



TABLE 1. LOCATION OF PROPOSED STAGING AREAS, PID IN-LIEU SERVICE AREA PROJECT.

	Staging Area No.	Size (acres)	Location
Service Area 1	1-1	1	Southeast of Wood-Central Ditch at origin of new service lateral
	1-2	2	Northwest corner of Road 200 and the Avenue 156 alignment
	1-3	2	Southeast corner of Road 200 and Avenue 160
	1-4	2	Southwest corner of Road 200 and Avenue 160
	1-5	1	Northwest corner of Road 196 and Avenue 160
	1-6	1	Northeast corner of Road 196 and Avenue 164
Service Area 2	2-1	3	Northwest of Road 200 and Avenue 140
	2-2	3	Northwest corner of Road 204 and Avenue 140
	2-3	4	Southwest corner of Road 204 and Avenue 144
	2-4	2	Southeast corner of Road 204 and Avenue 140
	2-5	2	Southeast corner of Road 208 and Avenue 140

1.2 REPORT OBJECTIVES

Construction of water conveyance facilities may damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to review under the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), and/or subject to local policies and ordinances. This report addresses issues related to: 1) sensitive biotic resources occurring on the two project sites; 2) the federal, state, and local laws regulating such resources; and 3) mitigation

measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur on the two project sites based on habitat suitability and the proximity of the sites to species' known ranges.
- Summarize all state and federal natural resource protection laws that may be relevant to site development.
- Identify and discuss project impacts to biological resources likely to occur one or both of the sites within the context of CEQA and NEPA guidelines and relevant state and federal laws.
- Identify avoidance and mitigation measures that would reduce the magnitude of project impacts in a manner consistent with the requirements of CEQA and NEPA and that are generally consistent with recommendations of the resource agencies regulating affected biological resources.

1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the Service Area 1 and Service Area 2 project sites was conducted on April 28, 2015 and January 21, 2016, respectively, by Live Oak Associates, Inc. (LOA) biologist Rebekah Jensen. The survey consisted of walking through each project site while identifying the principal land uses and biotic habitats of the site, identifying plant and animal species encountered, and assessing the suitability of the site's habitats for special-status species.

LOA conducted an analysis of potential project impacts based on the known and potential biotic resources of the project sites. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2016), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2016), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

Focused surveys for sensitive biological resources were not conducted for this study. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with development of the project sites and to assess the need for more detailed surveys.

2.0 EXISTING CONDITIONS

2.1 REGIONAL SETTING

The Service Area 1 and Service Area 2 project sites are located in the southern San Joaquin Valley west of the City of Porterville. The valley is bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coastal ranges to the west, and the Sacramento-San Joaquin Delta to the north.

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

The principal drainage of the project vicinity is the Tule River, which passes within 300 feet of the Service Area 1 preferred route. The Tule River historically contained large areas of riparian, wetland, and aquatic ecosystems that supported large populations of diverse native plants and animals. Presently, the drainage supports only a fraction of the riparian habitat it once supported and the aquatic habitat has been greatly degraded from agricultural runoff and irregular flows. In essence, the channel has been reduced to a series of distributary channels supplying water to farmland in the region.

Both project sites are situated within a matrix of agricultural lands, rural residences, and industrial development.

2.2 PROJECT SITE

Service Area 1

The Service Area 1 project site consists of roads, agricultural lands, several segments of the Wood-Central Ditch, two tailwater basins, non-native grassland, one residence, and disturbed areas bordering these uses. The site slopes gradually from the southeast to the northwest, with

elevations ranging from 388 feet National Geodetic Vertical Datum (NGVD) at Road 200's crossing of Wood-Central Ditch to 378 feet NGVD at the intersection of Road 196 and Avenue 164.

Five soil mapping units representing five soil series were identified on the Service Area 1 project site: Tagus loam, 0 to 2 percent slopes; Exeter loam, 0 to 2 percent slopes; Nord fine sandy loam, 0 to 2 percent slopes; Flamen loam, 0 to 2 percent slopes; and Tujunga loamy sand, 0 to 2 percent slopes. Of these, all but the Tagus loam mapping unit are considered hydric. Hydric soils are defined as saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions hydrophytic vegetation is supported. However, due to long-term management, soils of the site exhibited no characteristics of hydric soils.

Service Area 2

The Service Area 2 project site consists of roads, agricultural lands, a segment of the Tule River Intertie and an adjacent irrigation ditch, one tailwater basin, and disturbed areas bordering these uses. The site slopes gradually from east to west, with elevations ranging from 407 feet NGVD at the eastern terminus of the proposed lateral to 383 feet NGVD at staging area 2-1, beyond the lateral's western terminus.

Two soil mapping units representing two soil series were identified on the Service Area 2 project site: Exeter loam, 0 to 2 percent slopes and Flamen loam, 0 to 2 percent slopes. Both mapping units are considered hydric; however, due to long-term management, soils of the site exhibited no characteristics of hydric soils.

2.3 BIOTIC HABITATS/LAND USES

Eight biotic habitats / land use types were observed on the two project sites during the April 2015 and January 2016 biological field surveys: orchard/vineyard, agricultural field, ruderal, fallow field, non-native grassland, residential, irrigation ditch, and tailwater basin (Figures 4a-4d). These habitats / land uses and their constituent plant and animal species are described in more detail in the following sections. A list of the vascular plant species observed within the



Avenue 164

Road 196

Avenue 160

Road 200

LEGEND

 SA1 Project Boundaries

Biotic Habitats & Land Uses

-  Orchard
-  Agricultural Field
-  Ruderal
-  Fallow Field
-  Non-native Grassland
-  Residential
-  Irrigation Ditch
-  Tailwater Basin

0 0.075 0.15 0.3 Miles



Live Oak Associates, Inc.

Porterville Irrigation District
In-Lieu Service Area Project
Biotic Habitats & Land Uses - SA1

Date
02/12/2016

Project #
1939-01

Figure #
4a

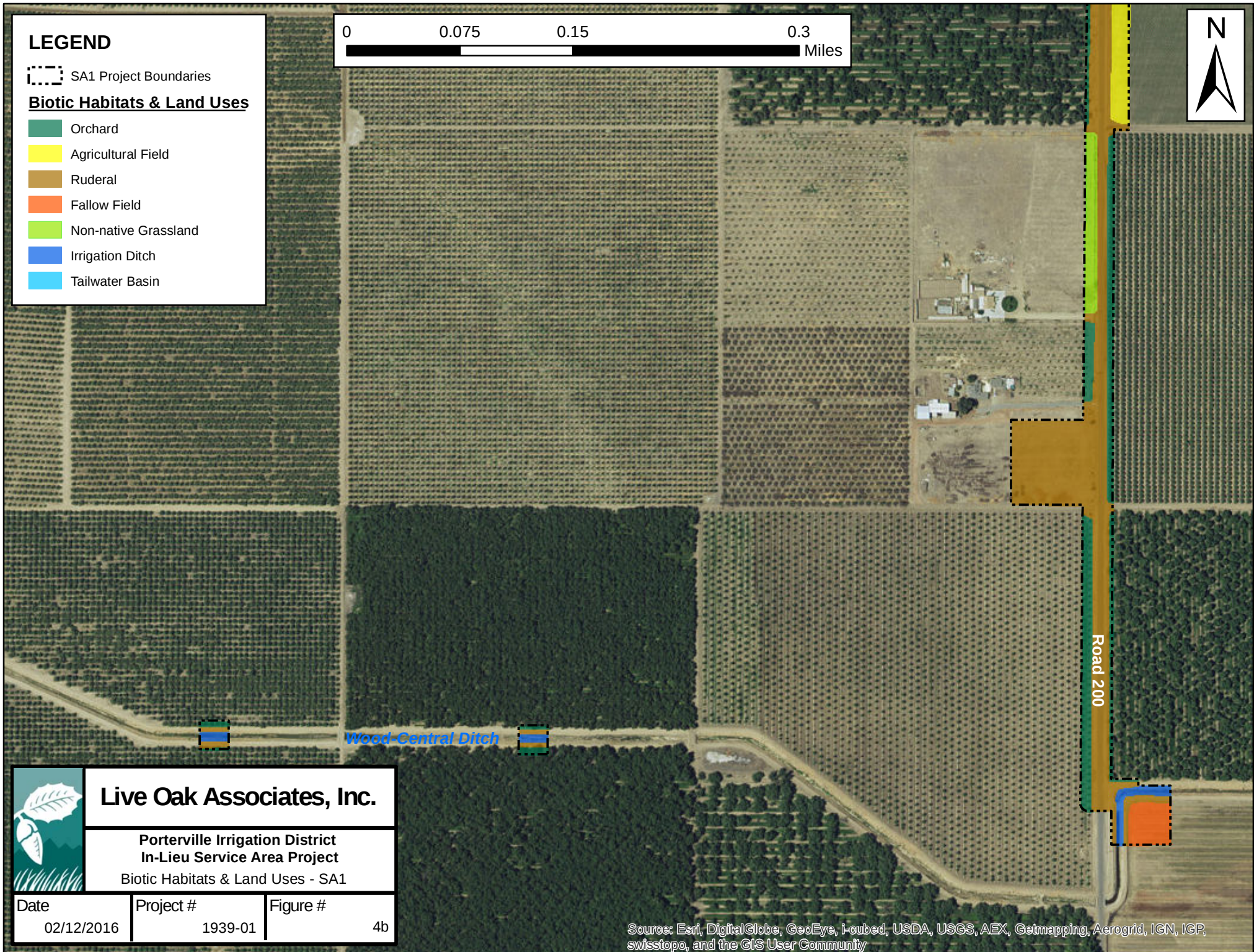
LEGEND

 SA1 Project Boundaries

Biotic Habitats & Land Uses

-  Orchard
-  Agricultural Field
-  Ruderal
-  Fallow Field
-  Non-native Grassland
-  Irrigation Ditch
-  Tailwater Basin

0 0.075 0.15 0.3 Miles



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Porterville Irrigation District
In-Lieu Service Area Project
Biotic Habitats & Land Uses - SA1

Date	Project #	Figure #
02/12/2016	1939-01	4b

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Live Oak Associates, Inc.

Porterville Irrigation District
In-Lieu Service Area Project
Biotic Habitats & Land Uses - SA2

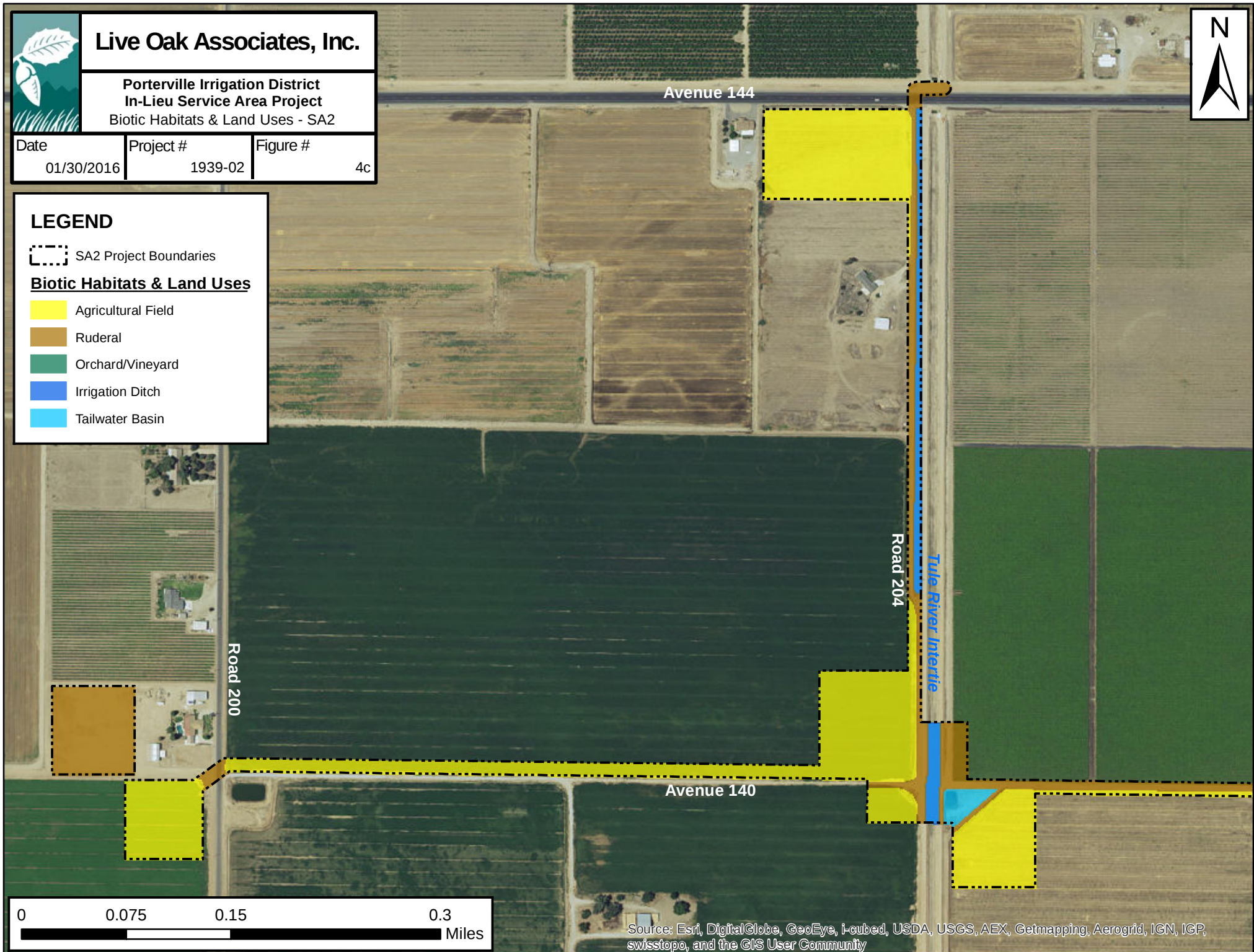
Date	Project #	Figure #
01/30/2016	1939-02	4c

LEGEND

 SA2 Project Boundaries

Biotic Habitats & Land Uses

-  Agricultural Field
-  Ruderal
-  Orchard/Vineyard
-  Irrigation Ditch
-  Tailwater Basin





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Porterville Irrigation District
In-Lieu Service Area Project
Biotic Habitats & Land Uses - SA2

Date	Project #	Figure #
01/30/2016	1939-02	4d

LEGEND

 SA2 Project Boundaries

Biotic Habitats & Land Uses

-  Agricultural Field
-  Ruderal
-  Orchard/Vineyard
-  Irrigation Ditch
-  Tailwater Basin



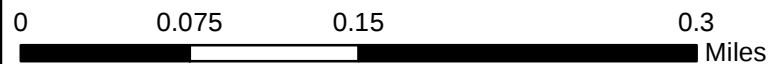
Avenue 144

Road 208

Road 212

Avenue 140

Friant-Kern Canal



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

project sites and the terrestrial vertebrates using, or potentially using, the sites' habitats are provided in Appendices A and B, respectively. Selected photographs of the two project sites are presented in Appendix C.

2.3.1 Orchard/Vineyard

At the time of the April 2015 field survey, orchards were the primary land use along the Service Area 1 preferred and alternate routes, bordered the Wood-Central Ditch at the one proposed and two potential turnout locations, comprised a portion of staging area 1-4, and comprised the entirety of staging area 1-5 (Figures 4a and 4b). At the time of the January 2016 field survey, one orchard occurred along the Service Area 2 preferred route, and one vineyard along its alternate route (Figures 4c and 4d). Most of the orchards appeared regularly maintained, with vegetation in the understory sparse or absent. Where present, vegetation in orchard understories consisted of common weeds such as Bermuda grass (*Cynodon dactylon*), prickly lettuce (*Lactuca serriola*), mallow (*Malva* sp.), and Canadian horseweed (*Erigeron canadensis*). At the time of the January 2016 field survey, the vineyard along the Service Area 2 alternate route had a weedy understory consisting of mallow, white stemmed filaree (*Erodium moschatum*), and non-native grasses such as foxtail barley (*Hordeum murinum* spp. *leporinum*) and ripgut brome (*Bromus diandrus*).

Due to intensive disturbance and the lack of aquatic habitat, orchards and vineyards provide marginal habitat for amphibians; however, Pacific tree frogs (*Pseudacris regilla*) and western toads (*Bufo boreas*) may disperse through these lands during the winter and spring. A limited number of reptile species would be expected to forage in orchards of the two project sites due to the lack of sun required by these species for thermal regulation; however, the western fence lizard (*Sceloporus occidentalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), and common kingsnake (*Lampropeltis getulus*) may occasionally occur in this habitat type.

Orchards and vineyards provide foraging and nesting habitat for a number of avian species. Mature orchards could be used for nesting by the American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), and western kingbird (*Tyrannus verticalis*); all were observed during the field survey. Winter migrants such as the white-crowned sparrow

(*Zonotrichia leucophrys*) may forage on dormant buds in the orchards and vineyard of the two project sites, while resident birds such as the European starling (*Sturnus vulgaris*) and house finch (*Haemorhous mexicanus*) would be expected to forage on ripening fruit; all were observed during the field survey.

A few small mammal species would be expected to occur within the orchards and vineyard of the project sites. These include deer mice (*Peromyscus maniculatus*), California voles (*Microtus californicus*), house mice (*Mus musculus*), Botta's pocket gophers (*Thomomys bottae*), and Audubon cottontail rabbits (*Sylvilagus audubonii*). Gopher burrows were occasionally observed in orchards of the Service Area 1 project site during the April 2015 field survey. Various species of bat may forage over orchard habitat for flying insects, or glean insects from the leaves of trees and vines.

Foraging raptors and mammalian predators may occur in the orchards and vineyard of the project sites from time to time. Raptors adapted to hunt within the tree canopy such as Cooper's hawks (*Accipiter cooperii*) and sharp-shinned hawks (*Accipiter striatus*) may forage for small birds in orchards, and red-tailed hawks (*Buteo jamaicensis*) and American kestrels (*Falco sparverius*) may forage over vineyards; the latter two raptors were observed during the field survey. Mammalian predators occurring in orchards of the site may include raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), coyotes (*Canis latrans*) and red foxes (*Vulpes vulpes*), all of which are relatively tolerant of human disturbance.

2.3.2 Agricultural Field

At the time of the April 2015 field survey, agricultural field occurred along the Service Area 1 preferred route on the north side of Avenue 164 and the east side of Road 200, and comprised the majority of staging area 1-3 and the entirety of staging area 1-6 (Figures 4a and 4b). At the time of the January 2016 field survey, agricultural field was the predominant land use along the Service Area 2 preferred and alternate routes, comprised part of staging area 2-4 and all of staging areas 2-2, 2-3, and 2-5, and encompassed the proposed 2-acre basin (Figures 4c and 4d). During the April 2015 survey, agricultural fields of the Service Area 1 project site had recently been prepped for planting and were barren of vegetation, save occasional patches of common

weeds such as prickly lettuce, Canadian horseweed, and flax-leaved horseweed (*Erigeron bonariensis*). During the January 2016 survey, agricultural fields of the Service Area 2 project site were planted to alfalfa, onions, cabbage, and grain crops, or had recently been tilled. The margins of the Service Area 2 agricultural fields contained common weeds such as mallow, white stemmed filaree, and shepherd's purse (*Capsella bursa-pastoris*).

Intensive agricultural practices on the agricultural fields of the project sites likely limit their value to wildlife; however, some wildlife species undoubtedly occur in the fields. Amphibians with the potential to use agricultural fields of the sites include the Pacific tree frog and western toad, both of which may breed in nearby irrigation ditches and subsequently disperse through the fields. Reptiles that could occur in the fields include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris*), Pacific gopher snake, and common kingsnake.

Agricultural fields also provide foraging habitat for a number of avian species. Common resident species likely to forage in the agricultural fields of the project site include mourning doves and American crows (*Corvus brachyrhynchos*), as well as mixed flocks of Brewer's blackbirds (*Euphagus cyanocephalus*), brown-headed cowbirds (*Molothrus ater*), and European starlings; mourning doves, American crows, and European starlings were observed during the field survey. Winter migrants that would be common on agricultural lands of the project site include the savannah sparrow (*Passerella sandwichensis*) and American pipit (*Anthus rubescens*), both of which were observed during the January 2016 survey of Service Area 2. Common summer migrants would include the western kingbird, observed during the April 2015 survey of Service Area 1.

A few mammal species may also occur within the agricultural fields of the project site. Small mammals such as deer mice and California voles would occur in fluctuating numbers depending on the season and yearly agricultural practices. Botta's pocket gophers and California ground squirrels could burrow around the perimeter of active fields, or within fields during fallow periods. During the April 2015 field survey of the Service Area 1 project site, gopher burrows were sporadically observed in the field east of Road 200. Gopher burrows were commonly observed, and California ground squirrel burrows sporadically observed, along the margins of agricultural fields during the January 2016 field survey of the Service Area 2 project site.

California ground squirrel activity was plentiful in a dry-farmed grain field along the Service Area 2 preferred route bordering Road 204 and the Tule River Intertie. Other small mammals that may occur from time to time within the agricultural fields of the project sites include black-tailed hares (*Lepus californicus*) and Audubon cottontail rabbits. Various species of bat may also forage over the fields of the site for flying insects.

The presence of amphibians, reptiles, birds and small mammals is likely to attract foraging raptors and mammalian predators. Raptors such as red-tailed hawks, American kestrels, and northern harriers (*Circus cyaneus*) would likely forage over agricultural fields of the project site; all three species were observed during the January 2016 survey of Service Area 2. Mammalian predators expected to occur in agricultural fields of the project site would be those described for the site's orchards.

2.3.3 Ruderal

Ruderal (disturbed) areas consisted of the roads and road margins of the two project sites, barren or sparsely vegetated strips of land bordering other land uses, and open areas associated with residences. At the time of the field surveys, ruderal land comprised the entirety of staging area 1-2 on the Service Area 1 project site and the entirety of staging area 2-1 on the Service Area 2 project site (see Figures 4b and 4c). Where vegetated, ruderal areas contained common weed species such as Bermuda grass, mallow, barnyard barley, Russian thistle (*Salsola tragus*), and London rocket (*Sisymbrium irio*). On the Service Area 1 project site, two Washington fan palms (*Washingtonia filifera*) and a dead valley oak (*Quercus lobata*) were observed in ruderal habitat along the north side of Avenue 160. Also on that site, several ornamental shrubs were located along the west side of Road 200, and several ornamental trees and shrubs were located at the northeast corner of Road 200 and Avenue 160.

Although the wildlife habitat value of the project site's ruderal lands is relatively low, these lands certainly support some wildlife species. The reptile and amphibian species listed for agricultural fields could potentially use ruderal habitats of the project sites, as well. Mourning doves and northern mockingbirds (*Mimus polyglottos*) could be expected to occur on these ruderal lands, as

could the disturbance-tolerant killdeer (*Charadrius vociferous*), which often nests on gravel or bare ground; all were observed during the field survey.

Small mammals that would be expected to occur on ruderal lands of the project sites include California ground squirrels, Botta's pocket gophers, deer mice, California voles, and house mice. On the Service Area 1 project site, California ground squirrel and gopher activity was abundant in one of the open areas associated with a residence west of Road 200. Gopher burrows were occasionally observed along road margins of both project sites, and California ground squirrel burrows were occasionally observed along road margins of the Service Area 2 project site. Mammalian predators with the potential to occur on ruderal lands of the project site include disturbance-tolerant species such as the raccoon, red fox, and coyote.

2.3.4 Fallow Field

At the time of the April 2015 survey, two overgrown fields occurred on the Service Area 1 project site along the preferred route, both east of Road 200. The northernmost fallow field was located north of Avenue 160, while the southernmost was located at the proposed origin of the service lateral, and comprised the majority of staging area 1-1. Analysis of aerial imagery indicates these fields were in agricultural production as recently as February 2014. However, at the time of the field survey, the fields were unmaintained, and contained dense growth of weeds such as Bermuda grass, barnyard barley, and black mustard (*Brassica nigra*). At the time of the January 2016 field survey, fallow fields did not occur on the Service Area 2 project site.

Wildlife use of the fallow fields of the Service Area 1 project site is expected to be similar to that described for agricultural fields. Because the fallow fields do not appear to have experienced recent maintenance, burrowing mammal activity is expected to be considerable, making these fields an attractive foraging option for raptors such as the red-tailed hawk and northern harrier and mammalian predators such as the coyote and red fox. At the time of the April 2015 field survey, gopher burrows were plentiful in the fallow field north of Avenue 160.

2.3.5 Non-native Grassland

At the time of the April 2015 field survey, the Service Area 1 project site contained a short stretch of ruderal non-native grassland along the preferred route west of Road 200 and south of Avenue 160. Analysis of aerial imagery indicates that this approximately 10-acre property was formerly the site of an orchard, but the trees were removed sometime between 2006 and 2009. Since then, the property appears to be subjected to occasional disking and mowing, but has not been in cultivation. At the time of the field survey, the grassland was densely vegetated with barnyard barley, fiddleneck (*Amsinckia* sp.) and other common weeds. Dirt mounds and patches of bare ground occurred sporadically as a result of California ground squirrel activity. At the time of the January 2016 field survey, non-native grassland was absent from the Service Area 2 project site.

Wildlife species with the potential to use the ruderal grassland of the Service Area 1 project site would be similar to that described for other land uses. However, the abundance of California ground squirrels observed within the grassland introduces the possibility of the burrowing owl (*Athene cunicularia*) occurring on the property. As with the fallow fields, the non-native grassland is expected to be used regularly by foraging raptors, but may not be accessible to mammalian predators as it is surrounded by a chain-link fence.

2.3.6 Residential

At the time of the April 2015 field survey, the Service Area 1 project site included one residence, located west of Road 200 and south of Avenue 160 within staging area 1-4. The residence included a home, compacted dirt and paved surfaces, and a landscaped yard including several ornamental trees and shrubs. At the time of the January 2016 field survey, the Service Area 2 project site did not include any residential infrastructure.

A number of wildlife species adapted to human disturbance could be expected to occur in the residential area within the Service Area 1 project site from time to time. Amphibians such as Pacific tree frogs and western toads could disperse through the residential area during the winter and spring, and reptiles such as the western fence lizard and common garter snake (*Thamnophis sirtalis*) could forage in this land use type. Buildings and other human-made structures provide

potential nesting habitat for a number of avian species such as the house finch, house sparrow (*Passer domesticus*), and Eurasian collared dove (*Streptopelia decaocto*). The ornamental shrubs and trees associated with the residence could be used by the mourning dove, American robin, and other disturbance-tolerant species. Trees of the residential area are relatively short-statured and would not be expected to be used by nesting raptors. However, birds of prey such as the red-tailed hawk and American kestrel may occasionally forage over the property. Mammal species attracted to residential areas include the house mouse, Norway rat (*Rattus norvegicus*), and Virginia opossum (*Didelphis virginiana*).

2.3.7 Irrigation Ditch

Three short segments of the Wood-Central Ditch pass through the Service Area 1 project site at the one proposed and two potential turnout locations. This ditch is an earthen channel approximately 20 feet in width. At the time of the April 2015 field survey, it was dry. Its bed was densely vegetated with common weeds such as black mustard, Canadian horseweed, curly dock (*Rumex crispus*), ripgut (*Bromus diandrus*), and rabbit's foot grass (*Polypogon monspeliensis*). Its banks were primarily barren of vegetation. A 500-foot segment of the Tule River Intertie and an 1,800-foot segment of an unnamed V-ditch pass through the Service Area 2 project site along the preferred alignment. Both ditches are earthen channels; the Tule River Intertie is approximately 45 feet in width and the unnamed V ditch approximately 20 feet in width. At the time of the January 2016 field survey, the Tule River Intertie was inundated several feet and was primarily barren of vegetation. The V-ditch was dry, and its banks contained weedy growth of fiddleneck and Russian thistle.

Due to intensive maintenance practices, the irrigation ditches of the two project sites would be of limited value to native wildlife. However, the Pacific chorus frog and western toad may breed in these ditches during periods of inundation, and consequently serve as prey for wading birds such as the great blue heron (*Ardea herodias*) and great egret (*Ardea alba*). At the time of the April 2015 survey of the Service Area 1 project site, cliff swallows (*Petrochelidon pyrrhonota*) were nesting in the box culvert at Road 200's crossing of the Wood-Central Ditch. California ground squirrel burrows were sporadically observed on the banks of this ditch, as well as on the banks of the unnamed V-ditch during the January 2015 survey of the Service Area 2 project site.

2.3.8 Tailwater Basin

At the time of the April 2015 field survey, two tailwater basins were identified on the Service Area 1 project site. One occurred along the alternate route immediately south of Avenue 160, and was only partially contained within the project site. The second basin was entirely contained within staging area 1-3, at the southeastern corner of Avenue 160 and Road 200. Both basins were dry at the time of the field survey, and densely vegetated with common weeds such as Canadian horseweed, ripgut, common lambsquarters (*Chenopodium album*), silversheath knotweed (*Polygonum argyrocoleon*), and yellow sweetclover (*Melilotus officinalis*). At the time of the January 2016 field survey, one tailwater basin was identified on the Service Area 2 project site. Located immediately southeast of Avenue 140's crossing of the Tule River Intertie, the basin was situated partially within staging area 2-4 and partially within the proposed disturbance zone for the siphon under the Tule River Intertie. The basin floor was saturated at its deepest point, but otherwise dry. Sparse vegetative growth of mallow and an unidentified mustard (*Sisymbrium* sp.) were observed.

Wildlife use of irrigation basins would vary depending on the timing and degree to which the basins are inundated or saturated. During periods of inundation, amphibians such as the Pacific chorus frog and western toad could opportunistically breed in the basins and subsequently disperse through surrounding lands. During dry periods, reptile and amphibian use of the basins would be similar to that described for other land uses.

Birds expected to use the basins during periods of inundation may include the great blue heron and great egret, assuming amphibian and/or invertebrate prey is present. Black phoebes (*Sayornis nigricans*) may glean insects from the surface of the water, or extract mud from the banks for nest-building; a black phoebe was observed in basin habitat at the time of the January 2016 field survey. When the basins are saturated but not inundated, avian use may include those species that feed on mudflats, such as the killdeer; this bird was commonly observed during the January 2016 field survey. When the basins are dry, avian use would be similar to that described for other land uses.

Periodic inundation likely precludes occupation of the basin floors by burrowing rodents; however, at the time of the field survey, gopher burrows were sporadically observed on the banks. Deer mice and western harvest mice could also inhabit the margins of the basins and could forage for insects, seeds, and plant parts in the basins when the basins are dry. Mammalian predator and raptor use of the basins would be similar to that described for other land uses.

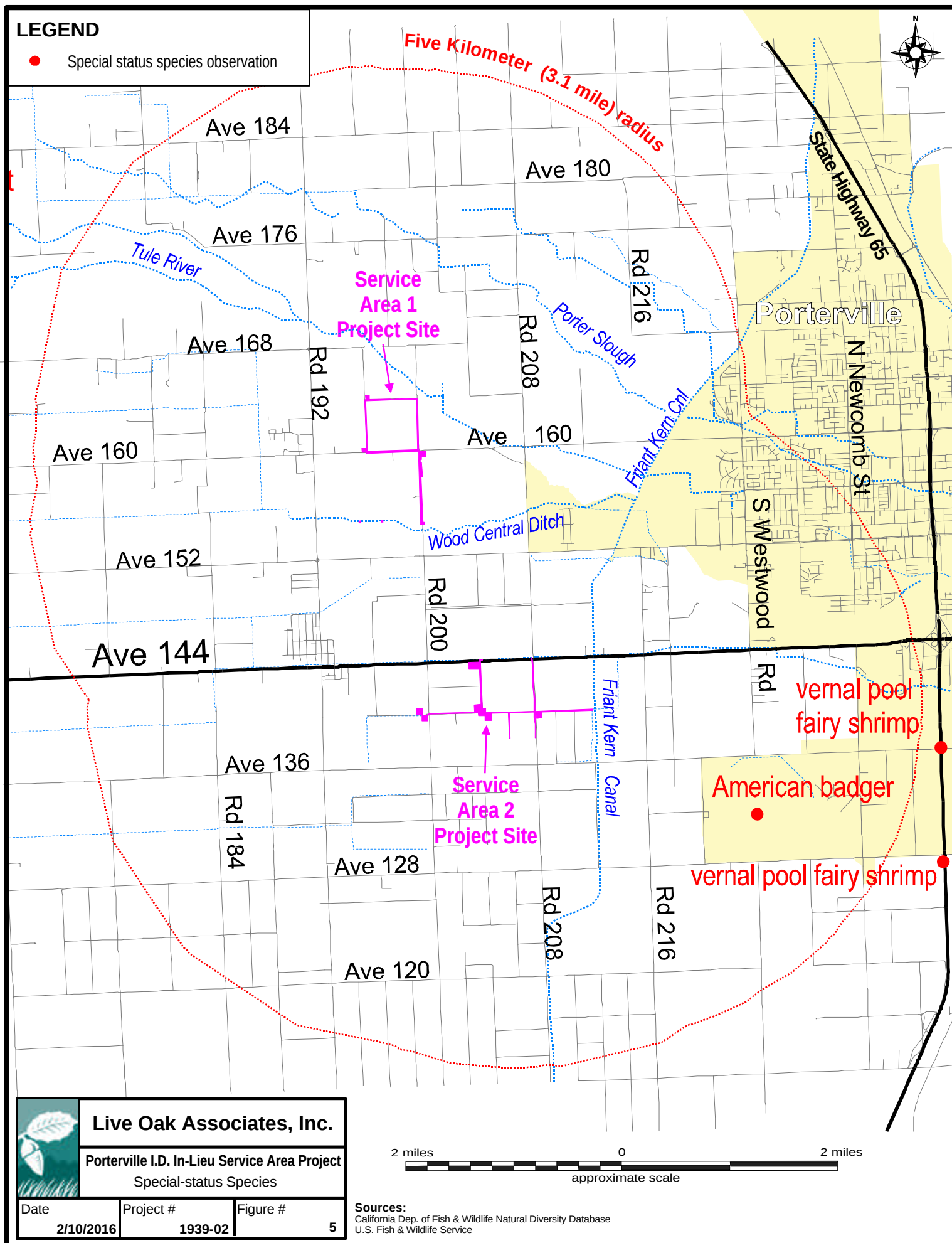
2.4 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as “threatened” or “endangered” under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as “species of special concern” by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as “special status species.”

A number of special status plants and animals occur in the project vicinity (Figures 5 and 6). These species, and their potential to occur on the two project sites, are listed in Table 2 in the following pages. Sources of information for this table included *California’s Wildlife, Volumes I, II, and III* (Zeiner et. al 1988), *California Natural Diversity Data Base* (CDFW 2016), *Special Animals List* (CDFW 2014a), *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2014b), *Endangered and Threatened Wildlife and Plants* (USFWS 2007), *The Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998), *Amphibian and Reptile Species of Special Concern in California* (CDFG 1994), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), and *the on-line version of California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2016).

LEGEND

- Special status species observation



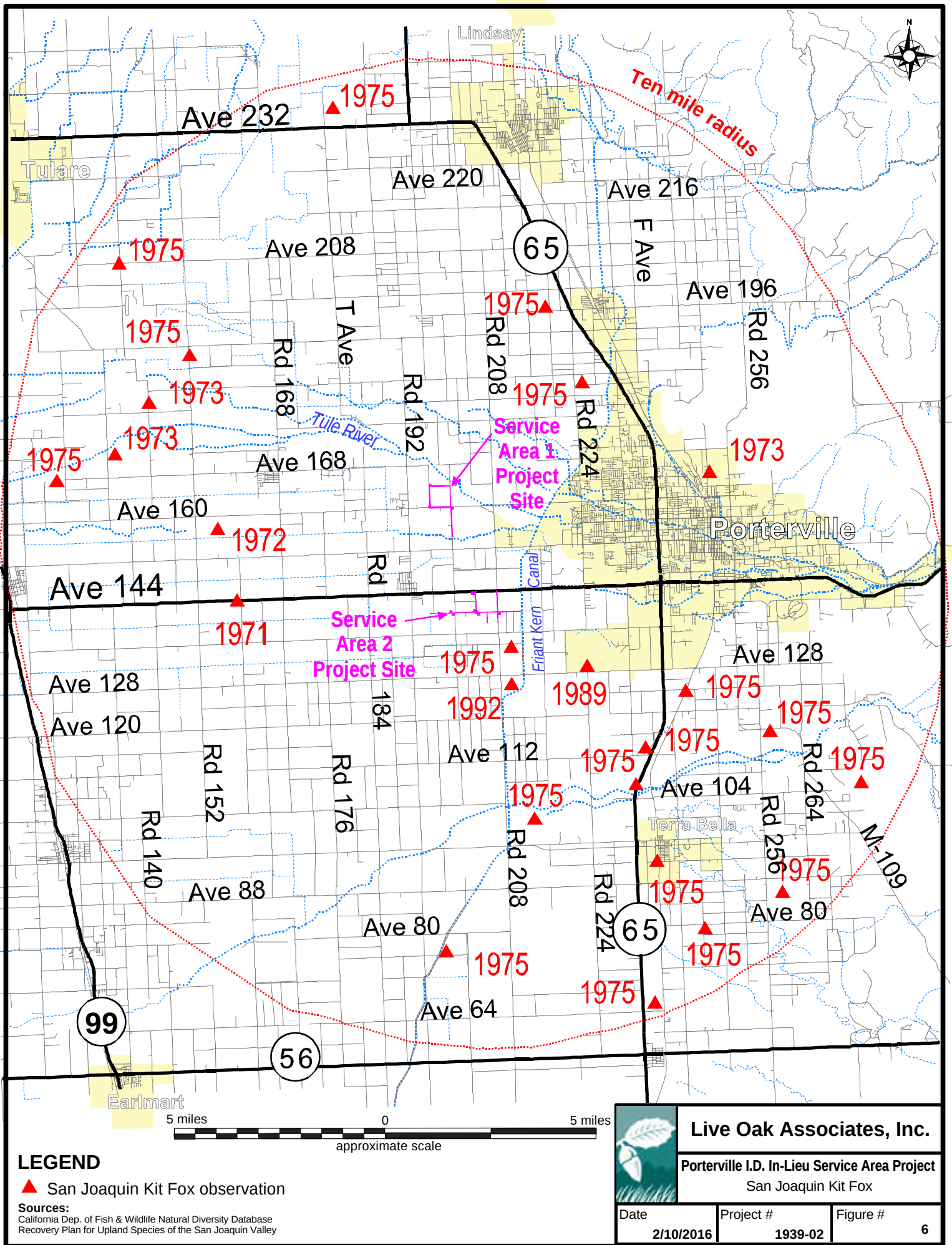
Live Oak Associates, Inc.

Porterville I.D. In-Lieu Service Area Project
Special-status Species

Date	Project #	Figure #
2/10/2016	1939-02	5

2 miles 0 2 miles
approximate scale

Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service



A search of published accounts for all of the relevant special status plant and animal species was conducted for the *Woodville* and *Porterville* USGS 7.5-minute quadrangles, where the two project sites are located, and for the ten surrounding quadrangles (*Tulare, Cairns Corner, Lindsay, Frazier Valley, Success Dam, Fountain Springs, Ducor, Sausalito School, Pixley, and Tipton*) using the California Natural Diversity Data Base (CNDDB) Rarefind 5 (2016) program. It is important to note that the CNDDB is a volunteer database; therefore, it may not contain all known literature records.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE PID IN-LIEU SERVICE AREA PROJECT

PLANTS (adapted from CDFW 2016 and CNPS 2016)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
California Jewelflower (<i>Caulanthus californicus</i>)	FE, CE	Occurs in chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland. Blooms February–May; elevation 250-3,300 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Springville Clarkia (<i>Clarkia springvillensis</i>)	FE, CE CNPS 1B	Occurs in chaparral, cismontane woodland, and valley and foothill grassland habitats with granitic soil. Blooms May-July; elevation 800-4,000 ft.	Absent. Suitable habitat for Springville clarkia is absent from the project sites, and both sites are situated below the lower limits of this species' elevational range.
Striped Adobe-lily (<i>Fritillaria striata</i>)	CT CNPS 1B	Occurs in cismontane woodland and valley and foothill grassland habitats with clay soils. Blooms February-April; elevation 450-4,775 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
San Joaquin Adobe Sunburst (<i>Pseudobahia peirsonii</i>)	FT, CE CNPS 1B	Occurs in grasslands of the Sierra Nevada foothills in heavy clay soils of the Porterville and Centerville series. Blooms March-April; elevation 300-2,625 ft.	Absent. Suitable heavy clay soils of the Porterville and Centerville series are absent from the two project sites.
Keck's Checkerbloom (<i>Sidalcea keckii</i>)	FE CNPS 1B	Occurs in valley grassland and foothill woodland, often in serpentine soils. Blooms April-May; elevations below 2,100 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.

CNPS-Listed Plants

Earlimart Orache (<i>Atriplex cordulata</i> var. <i>erecticaulis</i>)	CNPS 1B	Occurs in valley and foothill grassland. Blooms August-September; elevation 130-330 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Lost Hills Crownscale (<i>Atriplex coronata</i> var. <i>vallicola</i>)	CNPS 1B	Found in chenopod scrub and valley and foothill grasslands; alkaline soils. Blooms April-August; elevations below 2,080 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Brittlescale (<i>Atriplex depressa</i>)	CNPS 1B	Occurs in relatively barren areas with alkaline clay soils in chenopod scrub, playas, grasslands, and vernal pools of the Central Valley. Blooms April-October; elevations below 1,050 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Lesser Saltscale (<i>Atriplex minuscula</i>)	CNPS 1B	Occurs widely scattered locations of California's Central Valley with sandy alkaline soils in chenopod scrub, valley grasslands, and vernal pools. Blooms May-October; elevations below 660 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Vernal Pool Smallscale (<i>Atriplex persistens</i>)	CNPS 1B	Occurs in alkaline vernal pools. Blooms July-Oct.; elevations below 400 ft.	Absent. Vernal pool habitat is absent from both project sites.
Subtle Orache (<i>Atriplex subtilis</i>)	CNPS 1B	Occurs in valley and foothill grassland. Blooms August-October; elevation 130-330 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE PID IN-LIEU SERVICE AREA PROJECT

PLANTS – cont’d

CNPS-Listed Plants

Species	Status	Habitat	Occurrence on the Project Site
Recurved Larkspur (<i>Delphinium recurvatum</i>)	CNPS 1B	Occurs on alkaline soils in chenopod scrub, cismontane woodland, and grasslands. Blooms March-June; elevations below 2,500 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Spiny-sealed Button Celery (<i>Eryngium spinoseplum</i>)	CNPS 1B	This annual/perennial occurs in vernal pools and valley and foothill grasslands of the San Joaquin Valley and the Tulare Basin. Blooms April-May; elevation 330-840 ft.	Absent. Historic and ongoing human disturbance of the project sites has rendered habitats unsuitable for this species.
Madera Leptosiphon (<i>Leptosiphon serrulatus</i>)	CNPS 1B	Occurs in oak woodland, cismontane woodland, and coniferous forest. Blooms April-May; elevation 1,000-4,260 ft.	Absent. Suitable habitats for this species are absent from the project sites, and both sites are situated outside of the species’ elevational range.
Calico Monkeyflower (<i>Mimulus pictus</i>)	CNPS 1B	Occurs in foothill woodland habitats. Blooms March-May; elevation 1,400 to 4,000 ft.	Absent. Suitable habitat for calico monkeyflower is absent from the project sites, and both sites are situated below the lower limits of this species’ elevational range.

ANIMALS (adapted from CDFW 2016)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, or as California Fully Protected

Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Mature elderberry shrubs of California’s Central Valley and Sierra Foothills.	Absent. The newly revised range of this species by the USFWS does not include Tulare County.
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	Absent. Habitat suitable for this species is absent from the project sites. The closest known vernal pool fairy shrimp population was recorded approximately 3 miles east of the Service Area 2 site in 2002.
Blunt-Nosed Leopard Lizard (BNLL) (<i>Gambelia sila</i>)	FE, CE, CFP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to southern Merced County.	Absent. Any potential blunt-nosed leopard lizard habitat that may have once been present has been eliminated through intensive agricultural uses. The closest known occurrence of BNLL was recorded approximately 12 miles southwest of the sites in 1959.
California Condor (<i>Gymnogyps californianus</i>)	FE, CE, CFP	Requires vast expanses of open savannah, grasslands, and foothill chaparral. Forages on large, dead animals. Nests on cliffs, often within deep canyons. Occurs in many habitats of the southern half of California.	Unlikely. The project sites do not offer suitable breeding habitat for this species, nor would they serve as a source of the large animal carcasses the condor feeds on. However, condors may occasionally fly over the sites. The closest known condor occurrence was documented in the Blue Ridge Condor Area, approximately 17 miles northeast of the sites, in 1976.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE PID IN-LIEU SERVICE AREA PROJECT

ANIMALS – cont’d.

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, or as California Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
Swainson’s Hawk (<i>Buteo swainsoni</i>)	CT	This breeding-season migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	Possible. Swainson’s hawks could potentially nest in the dead valley oak on the Service Area 1 site, or in mature trees adjacent to the two sites. Swainson’s hawks could forage over agricultural fields of both sites, and fallow fields and non-native grassland of Service Area 1. However, Swainson’s hawks are uncommon in the eastern portion of the San Joaquin Valley. The closest known nesting occurrences of this species were recorded approximately 10 miles northwest of the Service Area 1 site in 2000 and 2008.
White-Tailed Kite (<i>Elanus leucurus</i>)	CFP	Occurs in savanna, open woodlands, marshes, desert grassland, and cultivated fields. Prefer lightly grazed or ungrazed fields for foraging.	Possible. Kites could forage over the fields and grassland of the sites and theoretically also nest in the dead valley oak on the Service Area 1 site or mature trees adjacent to the sites; however, this species does not typically nest adjacent to roads. There are no known occurrences of this species within 10 miles.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CE	Nests colonially near fresh water in dense cattails or tules, or in thickets of willows or shrubs. Forages in grassland and cropland areas.	Possible. Tricolored blackbirds could potentially forage in the fields and grassland of the sites, but nesting habitat is absent. The closest known occurrence of this species was recorded approximately 10 miles east of the Service Area 2 site in 1971.
Tipton Kangaroo Rat (<i>Dipodomys nitratoide</i> <i>nitratoide</i>)	FE, CE	Occupies underground burrows in valley saltbush scrub and valley sink scrub habitats in the southern San Joaquin Valley.	Absent. Any potential Tipton kangaroo rat habitat that may have once been present has been eliminated through intensive agricultural uses. There are no modern occurrences of this species in the project vicinity. The two CNDDDB records within 10 miles were recorded in 1927 and 1943.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE PID IN-LIEU SERVICE AREA PROJECT

ANIMALS – cont’d.

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, or as California Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
San Joaquin Kit Fox (SJKF) (<i>Vulpes macrotis mutica</i>)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (6 to 10 inches in diameter) ground squirrel burrows as denning habitat.	Possible. Intensive agricultural practices, highly modified habitats, and ongoing disturbance make kit fox occupation of the project sites unlikely. However, individual SJKF may pass through or forage on the sites from time to time. The grassland and fallow fields of the Service Area 1 site and the dry-farmed grain field of the Service Area 2 site could potentially be used for denning. The CNDDB lists 25 occurrences of SJKF within 10 miles of the project sites, all from more than 20 years ago.
Townsend’s Big-eared Bat (<i>Corynorhinus townsendii</i>)	CCT, CSC	Found throughout California. Primarily a cave-dwelling species, but may also roost in tunnels, buildings, other human-made structures, and hollow trees.	Possible. Individuals of this species may forage over the sites from time to time, and could potentially roost on the Service Area 1 site in the dead valley oak on the north side of Avenue 160. The closest known occurrence was recorded approximately 9 miles east of the Service Area 1 site in 1988.

State Species of Special Concern

Western Spadefoot (<i>Spea hammondi</i>)	CSC	Mainly occurs in grasslands of San Joaquin Valley. Vernal pools or other temporary wetlands are required for breeding. Aestivates in underground refugia such as rodent burrows, typically within 1,200 ft. of aquatic habitat.	Absent. Wetland habitat suitable for breeding by the western spadefoot is absent from the project sites and surrounding lands. The closest known breeding occurrence was recorded approximately 6 miles southwest of the Service Area 2 site in 1978.
Foothill Yellow-Legged Frog (<i>Rana boylei</i>)	CSC	Occurs in rocky streams or pools in foothill woodlands or chaparral, with an isolated population on the floor of the Central Valley.	Absent. The project sites do not offer suitable habitat for this species, and no occurrences have been documented within 10 miles of the sites.
Coast Horned Lizard (<i>Phrynosoma blainvillii</i>)	CSC	Occurs in the lower Sierra foothills and throughout the central and southern California coast in relatively open areas.	Unlikely. The disturbed habitats of the sites are marginal to unsuitable for this species, and there are no known occurrences within 10 miles.
San Joaquin Coachwhip (<i>Coluber flagellum ruddocki</i>)	CSC	Occurs in open, dry areas including grassland and saltbush scrub. Takes refuge in rodent burrows and under shaded vegetation.	Unlikely. The disturbed habitats of the sites are marginal to unsuitable for this species, and there are no known occurrences within 10 miles.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE PID IN-LIEU SERVICE AREA PROJECT

ANIMALS – cont’d.

State Species of Special Concern

Species	Status	Habitat	Occurrence on the Project Site
Northern Harrier (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands. Nests on ground, generally in wet areas, although grassland, pasture, and cultivated fields may be used.	Present. A northern harrier was observed foraging over an alfalfa field and vineyard of the Service Area 2 site during the field survey, and may also forage on the agricultural fields, fallow fields, and grassland of the Service Area 1 site from time to time. Breeding habitat is absent from both sites. The CNDDDB lists no nesting occurrences in the project vicinity.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Possible. Burrowing owls could roost, nest, or forage in the grassland and possibly also the fallow fields of the Service Area 1 site, and the dry-farmed grain field of the Service Area 2 site. Agricultural fields of either site could be used for foraging. There are no CNDDDB occurrences in the vicinity, but LOA observed a burrowing owl roosting in a pasture approximately 8 miles southwest of the Service Area 2 site in February 2015.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, nests in riparian areas, desert scrub, and agricultural hedgerows.	Possible. Shrikes could nest in trees associated with the residence in staging area 1-4 on the Service Area 1 site. Agricultural fields of both sites and fallow fields and grassland habitat of the Service Area 1 site could be used for foraging. There are no known occurrences of this species within 10 miles of the sites, however.
Pallid Bat (<i>Antrozous pallidus</i>)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally take insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and buildings.	Possible. Individuals of this species could forage on the sites, and could potentially roost on the Service Area 1 site in the dead valley oak on the north side of Avenue 160. There are no known occurrences of the pallid bat within 10 miles of the sites.
Western Mastiff Bat (<i>Eumops perotis</i> ssp. <i>californicus</i>)	CSC	Found in open, arid to semi-arid habitats, where it feeds on insects in flight. Roosts most often in crevices in cliff faces, but may also use high buildings, bridges, and tunnels.	Possible. Individuals of this species could forage over the sites, but roosting habitat is absent. There are no known occurrences of the western mastiff bat within 10 miles of the sites.
American Badger (<i>Taxidea taxus</i>)	CSC	Uncommon resident statewide; most abundant in drier open stages of most shrub, forest, and herbaceous habitats.	Possible. Badgers may occasionally pass through or forage on the project sites, and could potentially den in the non-native grassland or fallow fields of the Service Area 1 site or the dry-farmed grain field of the Service Area 2 site. The CNDDDB lists one historical occurrence of this species in the project vicinity, approximately 2 miles southeast of the Service Area 2 site.

Occurrence Terminology:

Present:	Species observed on the site at time of field surveys or during recent past.
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CCT	California Threatened (Candidate)
FPT	Federally Threatened (Proposed)	CFP	California Fully Protected
FC	Federal Candidate	CSC	California Species of Special Concern
CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

2.5 ENDANGERED, THREATENED, OR SPECIAL STATUS PLANT AND ANIMAL SPECIES MERITING FURTHER DISCUSSION

2.5.1 Swainson's Hawk (*Buteo swainsoni*). Federal Listing Status: None; State Listing Status: Threatened

Ecology of the species. Swainson's hawks are large, long-winged, broad-tailed hawks with a high degree of mate and territorial fidelity. They are breeding season migrants to California, arriving at their nesting sites in March or April. The young hatch sometime between March and July and fledge 4 to 6 weeks later. By October, most birds have left for wintering grounds in South America. In the Central Valley, Swainson's hawks typically nest in large trees along riparian systems, but may also nest in oak groves, or lone, mature trees in agricultural fields or along roadsides. Nest sites are typically located adjacent to suitable foraging habitat. Swainson's hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row crops, primarily during or immediately after harvest (Estep 1989, Estep and Dinsdale 2012). Their designation as a California Threatened species is based on population decline due in part to loss of foraging habitat to urban development (CDFG 1994).

Potential to occur onsite. The dead valley oak along the north side of Avenue 160 on the Service Area 1 project site could theoretically be used for the nesting by the Swainson's hawk. However, this tree is marginal, at best, as nest habitat for this species because it affords little shade or cover from predators, and is located on the side of a busy road. Several mature trees suitable for nesting by the Swainson's hawk were observed on residential properties along Avenue 164 and Road 200, immediately adjacent to the Service Area 1 site, during the April 2015 field survey, and a mature valley oak with an inactive stick nest was observed in an agricultural field approximately 500 feet south of the Service Area 2 site during the January 2016 survey. Swainson's hawks could forage over the non-native grassland and fallow fields of the Service Area 1 site, and the agricultural fields of either site. The grassland and fallow fields would be of relatively high foraging value throughout the Swainson's hawk's seasonal tenure in California, as rodent and insect prey are expected to be abundant in these habitats, and vegetative cover characteristics allow for prey to be both seen and accessed by Swainson's hawks.

Swainson's hawks are relatively uncommon in the eastern portion of the San Joaquin Valley. The closest known nesting occurrences of Swainson's hawks are located between 9 and 10 miles to the northwest of the Service Area 1 project site; the occurrences were recorded in 2000 and 2008.

2.5.2 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened

Ecology of the species. By the time the San Joaquin kit fox (SJKF) was listed as federally endangered in 1967 and California threatened in 1971, it had been extirpated from much of its historic range. The smallest North American member of the dog family (Canidae), the kit fox historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Local surveys, research projects, and incidental sightings indicate that kit fox currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998).

The SJKF prefers habitats of open or low vegetation with loose soils. In the southern and central portion of the Central Valley, kit fox are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit fox may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998). They require underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals such as California ground squirrels. The SJKF is primarily carnivorous, feeding on black-tailed hares, desert cottontails, rodents, insects, reptiles, and some birds.

Potential to occur onsite. Kit fox have not been documented in the project vicinity in recent years. The CNDDDB lists 25 SJKF occurrences within a 10-mile radius of the two sites, but all were recorded more than 20 years ago. The project sites consist largely of well-traveled roadways, orchards, vineyards, and residence-associated ruderal areas unsuitable for use by the San Joaquin kit fox due to ongoing human disturbance, limited prey base, and/or incompatible vegetative cover type. The non-native grassland and fallow fields of the Service Area 1 project site and the dry-farmed grain field bordering Road 204 and the Tule River Intertie represent potentially suitable foraging and denning habitat for kit fox, and the agricultural fields of both sites represent potentially suitable foraging habitat for this species. However, based on the lack of recent sightings in the project vicinity and the surrounding matrix of agricultural, rural residential, and industrial land uses generally incompatible with kit fox life history and habitat requirements, the kit fox would not be expected to use these habitats often, if at all.

2.5.3 Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern.

Ecology of the species. The burrowing owl is primarily a grassland species, but may also occur in open shrub lands, grazed pastures, and occasionally agricultural lands. The primary indicators of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation, with only sparse areas of shrubs or taller vegetation. Burrowing owls roost and nest in the burrows of California ground squirrels, and occasionally also badger, coyote, or fox. The burrowing owl diet includes a broad array of arthropods, small rodents, birds, reptiles, and

amphibians. In California, burrowing owl survival and reproductive success appears linked to rodent populations, particularly California vole (*Microtus californicus*) (Gervais et al. 2006). In agricultural areas of the San Joaquin Valley, burrowing owls primarily forage within 600 meters of their nest burrows (Gervais et al. 2003). The burrowing owl was designated a California Species of Special Concern in 1978 following long-term population decline, primarily due to loss of habitat to development and agricultural practices.

Potential to occur onsite. Burrowing owls are relatively uncommon in the project vicinity. The CNDDDB lists no occurrences within 10 miles of the project sites; however, LOA observed a burrowing owl approximately 8 miles southwest of the Service Area 2 site in February 2015.

If burrowing owls do occur in the project vicinity, they could potentially use portions of the project sites for nesting, roosting, and/or foraging. Suitable nesting and roosting habitat may be found in the Service Area 1 site's non-native grassland, where California ground squirrel burrow activity was abundant at the time of the April 2015 field survey. No California ground squirrel burrows were observed in the fallow fields of the Service Area 1 site at the time of the field survey; however, if these lands remain out of cultivation, they may be colonized by ground squirrels at some point in the future, creating potential nesting/roosting habitat for burrowing owls. On the Service Area 2 site, burrowing owls could nest or roost in the dry-farmed grain field west of Road 204 and the Tule River Intertie; at the time of the January 2016 field survey, California ground squirrel activity was abundant in old stockpiles in the southern part of the field. Burrowing owls could potentially forage in the non-native grassland or fallow fields of the Service Area 1 project site, and the agricultural fields of either site.

2.5.4 American Badger (*Taxidea taxus*). Federal Listing Status: None; State Listing Status: Species of Special Concern

Ecology of the species. The American badger is a burrowing member of the mink family that resides in grasslands, savannahs and prairies throughout much of the western United States. Badgers prey primarily on small mammals including ground squirrels, pocket gophers, and mice, which they capture by digging out the animals' burrows. Adult badgers are primarily nocturnal, foraging at night and remaining underground in sleeping dens during the day. Badgers may

reuse sleeping dens, or dig a new sleeping den each day. Badgers mate in late summer to early fall, and the young are born in natal dens in March and April. Both sleeping dens and natal dens are dug in dry, friable soils with sparse overstory cover. While badgers rarely remain in a sleeping den for more than a day, natal dens may be used for a period of 4-8 weeks as the female gives birth to and raises her young.

Potential to occur onsite. The project sites consist largely of well-traveled roadways, orchards, vineyards, and residence-associated ruderal areas unsuitable for use by the American badger due to ongoing human disturbance, limited prey base, and/or incompatible vegetative cover type. However, the non-native grassland and fallow fields of the Service Area 1 project site represent potentially suitable foraging and denning habitat for the badger, as does the dry-farmed grain field of the Service Area 2 site. Badgers could occasionally forage in the agricultural fields of either project site. At the time of the field surveys, no badger sign or burrows of the size and shape typical of badger excavations were observed on the project sites. The CNDDDB lists one historical badger occurrence within a 10-mile radius of the project sites, located approximately 2 miles to the southeast of the Service Area 2 site.

2.6 JURISDICTIONAL WATERS

As will be discussed in greater detail in Section 3.2.7, the U.S. Army Corps of Engineers (USACE) has regulatory authority over certain rivers, creeks, lakes, ponds, reservoirs, wetlands, and in some cases irrigation canals (“Waters of the U.S.” or “jurisdictional waters”). The extent of USACE jurisdiction is defined in the Code of Federal Regulations and has been further clarified in federal courts. Generally, Waters of the U.S. are navigable waters that cross state or national boundaries, are used in or somehow influence interstate or foreign commerce, or are impoundments or tributaries of such waters. The CDFW has jurisdiction over waters in California that have a defined bed and bank, including engineered channels that replace natural drainages. The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) assert jurisdiction over all surface water and groundwater in the State of California.

Three short segments of the Wood-Central Ditch totaling approximately ½ acre are contained within the Service Area 1 project site. The Wood-Central Ditch initiates approximately 2 miles upstream (east) of the Service Area 1 site at the Friant-Kern Canal. Approximately 2 miles downstream (west) of the site, it splits into a north branch and south branch. These branches parallel one another for approximately 10 miles before converging again. The Wood-Central Ditch then jogs south and west for approximately 5 miles before reaching the Lower Tule River Irrigation District's Toledo Basin, where excess water would presumably be stored. The Wood-Central Ditch then jogs west and north for approximately 4 miles before reaching the Tule River.

Approximately 500 linear feet of the Tule River Intertie and approximately 1,800 linear feet of an unnamed V-ditch are contained within the Service Area 2 project site. The Tule River Intertie initiates approximately 1.5 miles upstream (north) of the Service Area 2 site at the Wood-Central Ditch. It connects to the Casa Blanca Canal approximately 0.5 downstream (south) of the Service Area 2 site. The Casa Blanca Canal is an irrigation facility operated by the Lower Tule River Irrigation District that serves growers in the region before terminating near Highway 43 and Avenue 128. The unnamed V-ditch initiates on the Service Area 2 project site at a turnout from the Poplar Ditch. It travels south through the project site for 1,800 feet before terminating.

Because the Wood-Central Ditch has upstream connectivity to the Friant-Kern Canal and downstream connectivity to the Tule River, both known Waters of the U.S., it would potentially be claimed as jurisdictional by the USACE. Neither the Tule River Intertie nor the unnamed V-ditch appear to have downstream connectivity to Waters of the U.S., and are not expected to be claimed by the USACE. All three ditches would fall under the jurisdiction of the Central Valley RWQCB. The CDFW does not generally assert jurisdiction over manmade channels that do not replace a natural drainage, and is therefore not expected to assert jurisdiction over the Wood-Central Ditch, the Tule-River Intertie, or the unnamed V-ditch.

2.7 DESIGNATED CRITICAL HABITAT

As will be discussed further in Section 3.2.3, the USFWS often designates areas of “critical habitat” when it lists species as threatened or endangered. Critical habitat is a specific

geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project sites and adjacent lands. The closest unit of critical habitat is located approximately 7 miles northeast of the sites, and is designated for the protection of the California condor (*Gymnogyps californianus*).

2.8 NATURAL COMMUNITIES OF SPECIAL CONCERN

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, home to special status species, etc. CDFW is responsible for the classification and mapping of all natural communities in California. Natural communities are assigned state and global ranks according to their degree of imperilment. Any natural community with a state rank of 3 or lower (on a 1-5 scale) is considered of special concern. Examples of natural communities of special concern in the vicinity of the project sites include vernal pools and various types of riparian forest (Sawyer, Keeler-Wolf and Evens 2012).

Natural communities of special concern are absent from the project sites.

2.9 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. No portion of the project sites has the potential to function as a wildlife movement corridor. However, the Pacific flyway, one of four major bird migration routes in North America, passes over the project sites and much of the rest of California.

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are “significant” requires considerations of both context and intensity (see 40 CFR 1508.27).

Context means that significance must be analyzed in terms of the affected environment in which a proposed action would occur (“action area”). For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis requires a comparison of the action area’s biological resources to the biological resources of the local area within which the action area is located. The analysis may, however, require a comparison of the action area’s biological resources with the biological resources of an entire region.

Intensity refers to the severity of impact. In considering the intensity of impact to biological resources, it is necessary to address the unique qualities of wetlands and ecologically critical areas that may be affected by the action, the degree to which the action will be controversial, the degree to which the effects of the action will be uncertain, the degree to which the action will establish a precedent for future actions that may result in significant effects, and the potential for the action to result in cumulatively significant effects.

The effects of an action on some biological resources are generally considered to be “significant.” Actions that adversely affect federally listed threatened and endangered species and Waters of the U.S. are two examples. Other examples include actions that impede the migratory movements of fish and wildlife, and actions that substantially reduce the areal extent of fish and wildlife habitat, especially if habitat loss occurs in areas identified by state and federal governments as ecologically sensitive or of great scenic value.

NEPA requires that feasible mitigation measures be disclosed for the effects of an action on the environment. Suitable measures include the following:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

This report identifies likely project impacts, identifies those that may be considered “significant” per the provisions of NEPA, and recommends mitigation measures that would avoid significant impact to biological resources.

CEQA

Approval of general plans, area plans, and specific projects is subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project’s impacts. For example, a proposed development project may require the removal of some or all of a site’s existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the

project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest.”

Specific project impacts to biological resources may be considered “significant” if they would:

- 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 Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- 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.
- 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.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make “mandatory findings of significance” if the project has the potential to:

“Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.”

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 General Plan Policies of County of Tulare

In compliance with CEQA, the lead agency must consider conformance with applicable goals and policies of the General Plan of the County of Tulare. The primary biological resources goal of the Tulare County General Plan is “to preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.” This goal is to be accomplished through a set of policies outlined in the General Plan (Appendix D).

Relevant biological resources policies in the Tulare County General Plan include:

- protecting rare and endangered species;
- limiting development in environmentally sensitive areas;
- requiring open space buffers between development projects and significant watercourse, riparian vegetation, wetlands, and other sensitive habitats and natural communities;
- coordinating with other government land management agencies to preserve and protect biological resources;
- implementing pesticide controls to limit effects on natural resources; and
- supporting the establishment and administration of a mitigation banking program.

3.2.2 Threatened and Endangered Species

Permits may be required from the USFWS and/or CDFW if activities associated with a proposed project have the potential to result in the “take” of a species listed as threatened or endangered under the federal and/or state Endangered Species Acts. “Take” is defined by the state of California as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and the USFWS may act as trustee or responsible agencies under CEQA, and the USFWS as a cooperating agency under NEPA, when state and federally listed species have the potential to be impacted by a project. In such cases, both agencies review environmental

documents to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

The USFWS will be responding to a request for informal consultation on federally listed species potentially occurring in the vicinity of the PID In-Lieu Service Area Project.

3.2.3 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800).

3.2.4 Birds of Prey

Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

3.2.5 Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of “take” by the CDFW.

3.2.6 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered “waters of the United States” or “jurisdictional waters” subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As determined by the United States Supreme Court in its 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the U.S. Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water.

The USACE regulates the filling or grading of Waters of the U.S. under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be

issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“Waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. In addition to issuing Section 401 Water Quality Certifications and WDRs, the RWQCB administers locally the federal National Pollution Discharge Elimination System (NPDES) program. Discharges of wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit issued by the RWQCB.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

3.3 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/EFFECTS AND ASSOCIATED MITIGATION

As discussed in Section 1.0, the proposed project is the construction of one new turnout on the Wood-Central Ditch, two new service laterals, and potentially also one new detention basin. Two additional turnouts on the Wood-Central Ditch are included in the analysis as optional

project components to be installed at some point in the future. The project also includes 11 staging areas. Temporary impacts associated with the project may encompass up to 70 acres, including the disturbance corridors associated with service lateral construction, work zones surrounding the proposed and potential turnouts on the Wood-Central Ditch, and the 11 staging areas. Permanent impacts will consist of the footprints of the proposed and potential turnouts on the Wood-Central Ditch (less than 1 acre) and potentially also the footprint of the Service Area 2 lateral (5 acres) and detention basin (2 acres) if an open channel system is adopted during final design, for a maximum of 8 acres. The Service Area 1 lateral will be installed as a buried pipeline, with surface habitats allowed to naturally vegetate after construction; therefore, impacts associated with this service lateral are considered to be temporary in nature. Potentially significant project impacts/effects to biological resources and associated mitigation to reduce the magnitudes of these impacts/effects are discussed below.

3.3.1 Project Impacts to San Joaquin Kit Fox

Potential Impacts/Effects. As discussed in Section 2.5.2, the marginal nature of most of the onsite habitats, matrix of intensive land uses surrounding the sites, and lack of recent San Joaquin kit fox observations in the project vicinity make kit fox occurrence on the two project sites relatively unlikely. Nevertheless, it is at least theoretically possible that individual SJKF pass through or forage/den on the sites from time to time.

Mitigation. Prior to construction, the following measures from the San Joaquin River Restoration Program (SJRRP) Programmatic Environmental Impact Statement/Report Conservation Strategy will be implemented.

Mitigation Measure 3.3.1a. A qualified biologist will conduct preconstruction surveys no less than 14 days and no more than 30 days before the commencement of activities to identify potential dens more than 5 inches in diameter. The project proponent shall implement USFWS (2011) *Standardized Recommendations for the Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (Appendix E). The project proponent will notify USFWS and CDFW in writing of the results of the preconstruction survey within 30 days after these activities are completed.

Mitigation Measure 3.3.1b. If dens are located within the proposed work area, and cannot be avoided during construction activities, a USFWS-approved biologist will determine if the dens are occupied.

Mitigation Measure 3.3.1c. If occupied dens are present within the proposed work area, their disturbance and destruction shall be avoided. Exclusion zones will be implemented following the latest USFWS procedures (currently USFWS 2011).

Mitigation Measure 3.3.1d. The project proponent will notify USFWS and CDFW immediately if a natal or pupping den is found in the survey area. The project proponent will present the results of preactivity den searches within 5 days after these activities are completed and before the start of construction activities in the area.

Mitigation Measure 3.3.1e. Construction activities shall be conducted when they are least likely to affect the species (i.e. after the normal breeding season of December to April). This timing shall be coordinated with USFWS and CDFW.

Implementation of these measures will reduce potential impacts to the San Joaquin kit fox to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting this species.

3.3.2 Project-Related Mortality of Burrowing Owl

Potential Impacts/Effects. As discussed in Section 2.5.3, portions of the project sites have the potential to be used by burrowing owls from time to time for foraging, roosting, and/or nesting. If individual owls occupy burrows on or immediately adjacent to the project sites at the time of construction, then these owls would be at risk of construction-related injury or mortality. Construction mortality of the burrowing owl would constitute a violation of the Federal Migratory Bird Treaty Act and related state laws (see Sections 3.2.4, 3.2.5, and 3.2.6) and is considered a potentially significant impact/adverse effect of the project.

Mitigation. The Applicant will implement the following measures adapted from the *Staff Report on Burrowing Owl Mitigation* (CDEFG 2012).

Mitigation Measure 3.3.2a (Take Avoidance Survey). A take avoidance survey for burrowing owls will be conducted by a qualified biologist between 14 and 30 days prior to the start of construction. This take avoidance survey will be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The survey area will include all suitable habitat on and within 200 meters of project impact areas, where accessible.

Mitigation Measure 3.3.2b (Avoidance of Active Nests). If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near project impact areas, a 200-meter disturbance-free buffer will be established around these burrows, or alternate avoidance measures implemented in consultation with CDFW. The buffers will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season, unless otherwise arranged with CDFW. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.

Mitigation Measure 3.3.2c (Avoidance or Passive Relocation of Resident Owls). During the non-breeding season (September 1-January 31), resident owls occupying burrows in project impact areas may either be avoided, or passively relocated to alternative habitat. If the Applicant chooses to avoid active owl burrows within the impact area during the non-breeding season, a 50-meter disturbance-free buffer will be established around these burrows, or alternate avoidance measures implemented in consultation with CDFW. The buffers will be enclosed with temporary fencing, and will remain in place until a qualified biologist determines that the burrows are no longer active. If the Applicant chooses to passively relocate owls during the non-breeding season, this activity will be conducted in accordance with a relocation plan prepared by a qualified biologist. Passive relocation may include one or more of the following elements: 1) establishing a minimum 50-foot buffer around all active burrowing owl burrows, 2) removing all suitable burrows outside the 50-foot buffer and up to 50 meters outside of the impact areas as necessary, 3) installing one-way doors on all potential owl

burrows within the 50-foot buffer, 4) leaving one-way doors in place for 48 hours to ensure owls have vacated the burrows, and 5) removing the doors and excavating the remaining burrows within the 50-foot buffer.

Implementation of the above measures will reduce potential project impacts to the burrowing owl to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting this species.

3.3.3 Project-Related Mortality of American Badger

Potential Impacts/Effects. As discussed in Section 2.5.4, the American badger is relatively uncommon in the region, but individuals may occasionally pass through or forage/den within the project sites. If one or more badgers were denning on the site(s) at the time of construction, then these individuals would be at risk of project-related injury or mortality. Construction mortality of American badgers is considered a potentially significant impact/adverse effect of the project.

Mitigation. The following measures will be implemented to avoid and minimize the potential for project-related mortality of American badgers.

Mitigation Measure 3.3.3a: Preconstruction Surveys. A preconstruction survey for American badgers will be conducted by a qualified biologist within 30 days of the start of construction. Preconstruction surveys will be conducted in all suitable denning habitat of the project site.

Mitigation Measure 3.3.3b: Avoidance. Should an active natal den be identified during the preconstruction surveys, a suitable disturbance-free buffer will be established around the den and maintained until a qualified biologist has determined that the cubs have dispersed or the den has been abandoned.

Implementation of the above measures will reduce potential project impacts to the American badger to a less than significant level under CEQA and NEPA and ensure compliance with state laws protecting this species.

3.3.4 Project-Related Mortality/Disturbance of Nesting Raptors and Migratory Birds (Including Swainson's Hawk, White-tailed Kite, and Loggerhead Shrike)

Potential Impacts/Effects. The majority of both project sites consists of habitat that could be used for nesting by one or more avian species protected by the federal Migratory Bird Treaty Act and related state laws. American robins and mourning doves may nest in the sites' orchards or residential trees. Ornamental shrubs of the Service Area 1 site could be used by the disturbance-tolerant house finch or northern mockingbird. Cliff swallows are known to nest in the box culvert at the Road 200 crossing of the Wood-Central Ditch on the Service Area 1 site. Killdeer may nest on bare ground in ruderal areas of either site. Although unlikely, the dead valley oak on the Service Area 1 site could theoretically be used for nesting by the Swainson's hawk or white-tailed kite, and these special status raptors could also nest in mature trees immediately adjacent to the project sites. Any birds nesting within the project sites at the time of construction have the potential to be injured or killed by project activities, and birds nesting adjacent to the sites could be disturbed by project activities such that they would abandon their nests. Project activities that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds would be in violation of state and federal laws and are considered a potentially significant impact/adverse effect of the project.

Mitigation. The following measures will be implemented prior to the start of construction.

Mitigation Measure 3.3.4a (Avoidance). In order to avoid impacts to nesting raptors and migratory birds, the project will be constructed, if feasible, outside the nesting season, or between September 1st and January 31st.

Mitigation Measure 3.3.4b (Preconstruction Surveys). If project activities must occur during the nesting season (February 1-August 31), a qualified biologist will conduct preconstruction surveys for active raptor and migratory bird nests within 30 days prior to the start of these activities. The survey will include the proposed work area(s) and surrounding lands within 500 feet, where accessible, for all nesting raptors and migratory birds save Swainson's hawk; the Swainson's hawk survey will extend to ½ mile outside

of work area boundaries. If no nesting pairs are found within the survey area, no further mitigation is required.

Mitigation Measure 3.3.4c (Establish Buffers). Should any active nests be discovered near proposed work areas, the biologist will determine appropriate construction setback distances based on existing conditions, applicable CDFW guidelines and/or the biology of the affected species. Construction-free buffers will be identified on the ground with flagging, fencing, or by other easily visible means, and will be maintained until the biologist has determined that the young have fledged.

Implementation of the above measures will reduce potential project impacts to nesting raptors and migratory birds to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting these species.

3.3.5 Project Impacts to Roosting Bats

Potential Impacts/Effects. The Service Area 1 project site contains a number of trees that could be used by roosting bats, including a dead valley oak and two palms along the north side of Avenue 160, and several ornamental trees located within staging area 4 and at the northeast corner of Road 200 and Avenue 160. Of these, only the ornamental trees at the northeast corner of Road 200 and Avenue 160 are proposed for removal under current project design. These trees are relatively immature, and are not expected to be used by bats associated with cavities or exfoliating bark; however, they may be used by foliage roosting species. If trees removed by the project contain maternity colonies, many individual bats could be killed. Such a mortality event would be considered a potentially significant impact/adverse effect of the project.

Mitigation. The following measures will be implemented prior to the removal of the trees at the northeast corner of Road 200 and Avenue 160.

Mitigation Measure 3.3.5a (Temporal Avoidance). To avoid potential impacts to maternity bat roosts, tree removal should occur outside of the period between April 1 and September 30, the time frame within which colony-nesting bats generally assemble, give birth, nurse their young, and ultimately disperse.

Mitigation Measure 3.3.5b (Pre-construction Surveys). If tree removal is to occur between April 1 and September 30 (general maternity bat roost season), then within 30 days prior to the removal of large trees, a qualified biologist will survey these trees for the presence of bats. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed to be roosting or breeding, then no further action would be required, and construction could proceed.

Mitigation Measure 3.3.5c (Minimization). If a non-breeding bat colony is found in disturbance areas, the individuals will be humanely evicted via two-stage removal of trees, under the direction of a qualified biologist to ensure that no harm or “take” of any bats occurs as a result of construction activities.

Mitigation Measure 3.3.5d (Avoidance of Maternity Roosts). If a maternity colony is detected during pre-construction surveys, a disturbance-free buffer will be established around the colony and remain in place until a qualified biologist determines that the nursery is no longer active. The disturbance-free buffer will range from 50 to 100 feet as determined by the biologist.

Implementation of the above measures will reduce impacts to roosting bats to a less than significant level under CEQA and NEPA.

3.3.6 Project Impacts to Native Wildlife Nursery Sites

Potential Impacts/Effects. The Service Area 1 project site contains limited habitat for colonial breeders, in the form of trees that could be used by roosting bats, and a box culvert observed to be in use by nesting cliff swallows at the time of the April 2015 field survey. As discussed, installation of the Service Area 1 pipeline may require removal of several trees at the northeast corner of Road 200 and Avenue 160 that could be used by foliage-roosting bat species. If maternity roosts are present in these trees at the time of their removal, many individual bats could be killed. These impacts were addressed in Section 3.3.5 and mitigated under *Mitigation Measures 3.3.5a-d*.

The project will not remove or alter the box culvert observed to be in use by nesting cliff swallows; therefore, no direct mortality of cliff swallows is anticipated. However, project activities in the vicinity of the box culvert may disturb cliff swallows such that they would abandon their nests. Project-related disturbance to nesting cliff swallows was addressed in Section 3.3.4 and mitigated under *Mitigation Measures 3.3.4a-c*.

Mitigation. No additional mitigation is required.

3.4 NO EFFECT, NOT LIKELY TO ADVERSELY AFFECT / LESS THAN SIGNIFICANT PROJECT IMPACTS

3.4.1 Loss of Habitat for Special Status Plants

Potential Impacts/Effects. Fifteen special status vascular plant species occur in the project vicinity (see Table 2). These plant species are absent from the two project sites due to past and ongoing disturbance of the site, the absence of suitable habitat, and/or the sites' being situated outside of the elevational range of the species. Therefore, the proposed project would have no effect on regional populations of these special status plant species.

Mitigation. Mitigation measures are not warranted.

3.4.2 Project Impacts to Special Status Animals Absent from, or Unlikely to Occur on, the Project Site

Potential Impacts/Effects. Of the 20 special status animal species potentially occurring in the region, nine species would be absent or unlikely to occur on the site due to the absence of suitable habitat and/or the distance of the site from the known distribution of the species. These species include the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), blunt-nosed leopard lizard (*Gambelia sila*), California condor (*Gymnogyps californianus*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), western spadefoot (*Spea hammondi*), foothill yellow-legged frog (*Rana boylei*), coast horned lizard (*Phrynosoma blainvillii*), and San Joaquin coachwhip (*Coluber flagellum*

ruddocki). Since there is little to no likelihood that these species would use the site, project development will have a less than significant impact/effect on these species.

Mitigation. Mitigation measures are not warranted.

3.4.3 Loss of Habitat for Special Status Animals that May Occur on the Project Site as Occasional or Regular Foragers but Breed/Nest/Den Elsewhere

Potential Impacts/Effects. Of the 20 special status animals potentially occurring in the project vicinity, three species may utilize the project site for foraging, but would not breed, nest, or den on-site. These species include the tricolored blackbird (*Agelaius tricolor*), northern harrier (*Circus cyaneus*), and western mastiff bat (*Eumops perotis* ssp. *californicus*). The project may temporarily disturb up to 26 acres of agricultural fields, fallow fields, and grassland habitats that could be used for foraging by the two avian species considered in this section. After construction, all such habitats on the Service Area 1 project site will be allowed to naturally revegetate, and are expected to provide the same foraging value as under pre-project conditions. However, up to 4.5 acres of agricultural fields on the Service Area 2 project site may be permanently impacted if an open channel system is adopted under final design. Given the regional abundance of agricultural fields, the loss of such a small area of this habitat type will not adversely affect the tricolored blackbird or northern harrier.

Under existing conditions, the western mastiff bat has the potential to forage in flight over any of the habitats of the project site. The project is not expected to affect the availability of flying insects. Therefore, the western mastiff bat will not experience loss of foraging habitat as a result of the project.

Mitigation. Mitigation measures are not warranted.

3.4.4 Loss of Habitat for Special Status Animals that Could Breed or Forage on the Project Site

Potential Impacts/Effects. Of the 20 special status animals potentially occurring in the project vicinity, eight species may utilize portions of the project sites for breeding and foraging. These

species include the San Joaquin kit fox, Swainson's hawk, white-tailed kite (*Elanus leucurus*), Townsend's big-eared bat (*Corynorhinus townsendii*), burrowing owl, loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), and American badger. The SJKF, burrowing owl, and American badger have the potential to breed in the non-native grassland and fallow fields of the Service Area 1 site and the dry-farmed grain field of the Service Area 2 site, and forage in these habitats or other agricultural fields of the two project sites. The project may temporarily disturb up to 26 acres of agricultural fields, fallow fields, and grassland habitats. After construction, all such habitats on the Service Area 1 project site will be allowed to naturally revegetate, and are expected to provide the same foraging/breeding value as under pre-project conditions. However, up to 4.5 acres of agricultural fields on the Service Area 2 project site may be permanently impacted if an open channel system is adopted under final design. The area to be permanently impacted by the project represents potential foraging habitat, but not breeding habitat, for the SJKF, burrowing owl, and badger. Given the regional abundance of agricultural fields, the loss of such a small area of this habitat type is not expected to adversely affect these three species.

The Swainson's hawk and white-tailed kite could potentially nest in the dead valley oak on the Service Area 1 site, and could forage in the fallow fields and non-native grassland of that site, and the agricultural fields of either site. The dead valley oak is not proposed for removal under current project design; therefore, the project will not result in a loss of potential breeding habitat for this species. Of the 26 acres of fallow fields, non-native grassland, and agricultural fields of the two project sites, only 4.5 acres of agricultural field on the Service Area 2 site has the potential to be permanently impacted by the project. Given the regional abundance of agricultural fields, the loss of such a small area of this habitat type is not expected to adversely affect the Swainson's hawk or white-tailed kite.

The loggerhead shrike could potentially nest in the ornamental trees associated with the residence in staging area 1-4 of the Service Area 1 site, and could forage in the fallow fields and non-native grassland of that site, and the agricultural fields of either site. The trees in staging area 1-4 will not be removed by the project; therefore, the project will not result in a loss of breeding habitat for this species. Of the 26 acres of fallow fields, non-native grassland, and

agricultural fields of the two project sites, only 4.5 acres of agricultural field on the Service Area 2 site has the potential to be permanently impacted by the project. Given the regional abundance of agricultural fields, the loss of such a small area of this habitat type is not expected to adversely affect the loggerhead shrike.

Under existing conditions, the two bat species considered in this section have the potential to roost on the Service Area 1 project site in the dead valley oak on the north side of Avenue 160, and may forage in or over the remainder of the two sites. The valley oak is not proposed for removal, and will continue to be available to roosting bats following project implementation. The project is not expected to affect the availability of flying insects, such that both the Townsend's big-eared bat and pallid bat would be able to forage in flight over the project sites during and after project implementation. Although the project will temporarily disturb surface habitats that could be used for foraging by the pallid bat, most such habitats will be allowed to naturally revegetate following construction, and are expected to be of similar foraging value as under pre-project conditions. The project may permanently impact up to 8 acres of agricultural field, orchard/vineyard, irrigation ditch, and ruderal habitat. Given the regional abundance of these land use types, the loss of such a small area is not expected to adversely affect the pallid bat.

Project-related loss of breeding/foraging habitat will not result in a significant adverse effect on the eight species considered in this section.

Mitigation. Mitigation measures are not warranted.

3.4.5 Project Impacts to Wildlife Movement Corridors

Potential Impacts/Effects. The project sites do not contain any features that would function as a wildlife movement corridor. The project will have no effect on the Pacific flyway; birds using the flyway will continue to do so during and following project development.

Mitigation. Mitigation measures are not warranted.

3.4.6 Project Impacts to Potential Waters of the United States

Potential Impacts/Effects. The Wood-Central Ditch may fall under the jurisdiction of the U.S. Army Corps of Engineers owing to its apparent upstream and downstream connectivity to known Waters of the U.S. However, this potentially jurisdictional feature consists of a highly maintained irrigation ditch with minimal wetland function or value. Temporary impacts to the ditch will be restricted to an area approximately ½ acre in size, and permanent impacts are expected to be considerably less than ½ acre. For these reasons, the proposed impacts to the Wood-Central Ditch do not represent a significant adverse effect of the project.

Regardless of the size of impact, impacts to waters of the U.S. are subject to the permit requirements of Section 404 and 401 of the Clean Water Act. If the Wood-Central Ditch is considered jurisdictional by the USACE, the placement of fill within this ditch would require 1) a Clean Water Act permit from the USACE, and 2) a Water Quality Certification from the RWQCB. It is important to note that the jurisdictional status of water features can only be determined by the USACE upon review and verification of a wetland delineation prepared for the project area. Clean Water Act permits cannot be issued without an accepted preliminary jurisdictional determination or a verified approved wetland delineation by the USACE.

Mitigation. Mitigation measures are not warranted.

3.4.7 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impacts. Extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek beds, canals, and adjacent wetlands. Furthermore, runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. The three hydrologic features found on the project sites, the Wood-Central Ditch, Tule River Intertie, and the unnamed V-ditch, are highly maintained and appear to primarily discharge water to agricultural lands and recharge basins. The Tule River Intertie and unnamed V-ditch do not have downstream connectivity to natural drainages. The Wood-Central Ditch has downstream connectivity to the Tule River, but its flows would only be expected to reach the river, located 20

miles downstream of the Service Area 1 project site, under rare circumstances. Therefore, downstream water quality would not be significantly impacted by work in or around any of the ditches of the two project sites.

Mitigation. No mitigation is warranted.

3.4.8 Project Impacts to Riparian Habitat, other Sensitive Habitats, or Designated Critical Habitat

Potential Impacts. No riparian or other sensitive habitats occur on the two project sites, and designated critical habitat is absent from the sites and adjacent lands. Because these habitats are absent from the project sites, they will not be impacted by project activities.

Mitigation. Mitigation measures are not warranted.

3.4.9 Local Policies or Habitat Conservation Plans

Potential Impacts. The proposed project is consistent with the goals and policies of the Tulare County General Plan. No known Habitat Conservation Plans or Natural Community Conservation Plans are in effect for the area.

Mitigation. Because the project would be carried out in compliance with local policies and ordinances, no mitigation is warranted.

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APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITES

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The vascular plant species listed below were observed within the project sites during site surveys conducted by Live Oak Associates, Inc. on April 28, 2015 and/or January 21, 2016. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
 FACW - Facultative Wetland
 FAC - Facultative
 FACU - Facultative Upland
 UPL - Upland
 NR - No review
 NA - No agreement
 NI - No investigation

ASTERACEAE – Sunflower Family

<i>Erigeron bonariensis</i>	Flax-leaved Horseweed	FACU
<i>Erigeron canadensis</i>	Canada Horseweed	FACU
<i>Lactuca serriola</i>	Prickly Lettuce	FACU
<i>Pseudognaphalium</i> sp.	Cudweed	
<i>Xanthium strumarium</i>	Rough Cocklebur	FAC

BORAGINACEAE – Borage Family

<i>Amsinckia intermedia</i>	Common Fiddleneck	UPL
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BRASSICACEAE – Mustard Family

<i>Brassica nigra</i>	Black Mustard	UPL
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	UPL
<i>Lepidium didymium</i>	Lesser Swinecress	UPL
<i>Sisymbrium officinale</i>	London Rocket	UPL

CHENOPODIACEAE – Goosefoot Family

<i>Salsola tragus</i>	Russian Thistle	FACU
<i>Chenopodium album</i>	Common Lambsquarters	FACU

CYPERACEAE – Sedge Family

<i>Cyperus rotundus</i>	Purple Nutsedge	FAC
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FABACEAE – Legume Family

<i>Melilotus officinalis</i>	Yellow Sweetclover	FACU
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GERANEACEAE – Geranium Family

<i>Erodium cicutarium</i>	Red-stemmed Filaree	UPL
<i>Erodium moschatum</i>	White-stemmed Filaree	UPL

MALVACEAE – Mallow Family

<i>Malva</i> sp.	Mallow	UPL
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PALMAE – Palm Family

<i>Washingtonia filifera</i>	Washington Fan Palm	FACW
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POACEAE – Grass Family

<i>Avena</i> sp.	Wild Oats	UPL
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<i>Bromus diandrus</i>	Ripgut	UPL
<i>Bromus madritensis</i>	Red Brome	UPL
<i>Cynodon dactylon</i>	Bermuda Grass	FAC
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Barnyard Barley	FACU
<i>Leptochloa</i> sp.	Sprangletop	FACW
<i>Polypogon monspeliensis</i>	Rabbit's-foot Grass	FACW
POLYGONACEAE – Buckwheat Family		
<i>Polygonum argyrocoleon</i>	Silversheath Knotweed	FAC
<i>Polygonum aviculare</i>	Prostrate Knotweed	FACW
<i>Rumex crispus</i>	Curly Dock	FAC
SOLANACEAE – Nightshade Family		
<i>Datura stramonium</i>	Jimsonweed	UPL
<i>Solanum nigrum</i>	Black Nightshade	FACU
TAMARICACEAE – Tamarisk Family		
<i>Tamarix</i> sp.	Tamarisk	FAC
URTICACEAE – Nettle Family		
<i>Urtica urens</i>	Dwarf Nettle	UPL
ZYGOPHYLLACEAE – Puncture Vine Family		
<i>Tribulus terrestris</i>	Puncture Vine	UPL

**APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT
POTENTIALLY OCCUR ON THE PROJECT SITES**

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITES

The species listed below are those that may reasonably be expected to use the habitats of the project site routinely or from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the project sites during the April 28, 2015 and/or January 21, 2016 field surveys have been noted with an asterisk.

CLASS: AMPHIBIA (Amphibians)

ORDER: SALIENTIA (Frogs and Toads)

FAMILY: BUFONIDAE (True Toads)

Western Toad (*Bufo boreas*)

FAMILY: HYLIDAE (Treefrogs and relatives)

Pacific Tree Frog (*Pseudacris regilla*)

FAMILY: RANIDAE (True Frogs)

Bullfrog (*Lithobates catesbeianus*)

CLASS: REPTILIA (Reptiles)

ORDER: SQUAMATA (Lizards and Snakes)

SUBORDER: SAURIA (Lizards)

FAMILY: PHRYNOSOMATIDAE

Western Fence Lizard (*Sceloporus occidentalis*)

Side-blotched Lizard (*Uta stansburiana*)

FAMILY: TEIIDAE (Whiptails and relatives)

Western Whiptail (*Cnemidophorus tigris*)

SUBORDER: SERPENTES (Snakes)

FAMILY: COLUBRIDAE (Colubrids)

Pacific Gopher Snake (*Pituophis catenifer catenifer*)

Common Kingsnake (*Lampropeltis getulus*)

Common Garter Snake (*Thamnophis sirtalis*)

CLASS: AVES (Birds)

ORDER: ANSERIFORMES (Ducks, Geese, and Swans)

FAMILY: ANATIDAE (Ducks, Geese, and Swans)

Mallard (*Anas platyrhynchos*)

*Bufflehead (*Bucephala albeola*) – observed on Friant-Kern Canal

ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)

FAMILY: ARDEIDAE (Herons and Bitterns)

Great Blue Heron (*Ardea herodias*)

Cattle Egret (*Bubulcus ibis*)

Great Egret (*Ardea alba*)

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)

FAMILY: CATHARTIDAE (American Vultures)

*Turkey Vulture (*Cathartes aura*)

FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)

White-tailed Kite (*Elanus leucurus*)

*Northern Harrier (*Circus cyaneus*)

Sharp-shinned Hawk (*Accipiter striatus*)

Cooper's Hawk (*Accipiter cooperii*)

Red-shouldered Hawk (*Buteo lineatus*)

Swainson's Hawk (*Buteo swainsoni*)

*Red-tailed Hawk (*Buteo jamaicensis*)

FAMILY: FALCONIDAE (Caracaras and Falcons)

*American Kestrel (*Falco sparverius*)

ORDER: GRUIFORMES (Cranes and Rails)

FAMILY: RALLIDAE (Rails)

*American Coot (*Fulica americana*) – observed on Friant-Kern Canal

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and Relatives)

FAMILY: CHARADRIIDAE (Plovers and relatives)

*Killdeer (*Charadrius vociferus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

Rock Pigeon (*Columba livia*)

*Mourning Dove (*Zenaida macroura*)

*Eurasian Collared-Dove (*Streptopelia decaocto*)

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)

Barn Owl (*Tyto alba*)

FAMILY: STRIGIDAE (Typical Owls)

Burrowing Owl (*Athene cunicularia*)

Great Horned Owl (*Bubo virginianus*)

Western Screech Owl (*Otus kennicottii*)

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Black-chinned Hummingbird (*Archilochus alexandri*)

Anna's Hummingbird (*Calypte anna*)

Rufous Hummingbird (*Selasphorus rufus*)

ORDER: PICIFORMES (Woodpeckers and relatives)

FAMILY: PICIDAE (Woodpecker and Wrynecks)

*Acorn Woodpecker (*Melanerpes formicivorus*)

*Nuttall's Woodpecker (*Picoides nuttallii*)

*Northern Flicker (*Colaptes auratus*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

*Black Phoebe (*Sayornis nigricans*)

Say's Phoebe (*Sayornis saya*)

*Western Kingbird (*Tyrannus verticalis*)

FAMILY: LANIIDAE (Shrikes)

Loggerhead Shrike (*Lanius ludovicianus*)

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

*Western Scrub Jay (*Aphelocoma coerulescens*)

*American Crow (*Corvus brachyrhynchos*)

*Common Raven (*Corvus corax*)

FAMILY: ALAUDIDAE (Larks)

*Horned Lark (*Eremophila alpestris*)

FAMILY: HIRUNDINIDAE (Swallows)

*Cliff Swallow (*Hirundo pyrrhonota*)

Barn Swallow (*Hirundo rustica*)

FAMILY: TURDIDAE

Western Bluebird (*Sialia mexicana*)

*American Robin (*Turdus migratorius*)

FAMILY: MIMIDAE (Mockingbirds and Thrashers)

*Northern Mockingbird (*Mimus polyglottos*)

FAMILY: STURNIDAE (Starlings)

*European Starling (*Sturnus vulgaris*)

FAMILY: MOTACILLIDAE (Wagtails and Pipits)

*American Pipit (*Anthus rubescens*)

FAMILY: BOMBYCILLIDAE (Waxwings)

Cedar Waxwing (*Bombycilla cedrorum*)

FAMILY: PARULIDAE (Wood Warblers and Relatives)

Yellow-rumped Warbler (*Dendroica coronata*)

FAMILY: EMBERIZIDAE (Sparrows and Relatives)

*Savannah Sparrow (*Passerculus sandwichensis*)

*White-crowned Sparrow (*Zonotrichia leucophrys*)

FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)

Red-winged Blackbird (*Agelaius phoeniceus*)

Tricolored Blackbird (*Agelaius tricolor*)

Western Meadowlark (*Sturnella neglecta*)

Brewer's Blackbird (*Euphagus cyanocephalus*)

Brown-headed Cowbird (*Molothrus ater*)

Bullock's Oriole (*Icterus bullockii*)

FAMILY: FRINGILLIDAE (Finches)

*House Finch (*Carpodacus mexicanus*)

*Lesser Goldfinch (*Carduelis psaltria*)

FAMILY: PASSERIDAE (Old World Sparrows)

House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA (Mammals)

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia Opossum (*Didelphis virginiana*)

ORDER: CHIROPTERA (Bats)

FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)

Southern Long-nosed Bat (*Leptonycteris curasoae*)

FAMILY: VESPERTILIONIDAE (Evening Bats)

Pallid Bat (*Antrozous pallidus*)
 Yuma Myotis (*Myotis yumanensis*)
 California Myotis (*Myotis californicus*)
 Townsend's Big-eared Bat (*Corynorhinus townsendii*)
 Western Pipistrelle (*Pipistrellus hesperus*)
 Big Brown Bat (*Eptesicus fuscus*)
FAMILY: MOLOSSIDAE (Free-tailed Bat)
 Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
 Western Mastiff Bat (*Eumops perotis* spp. *californicus*)
ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)
FAMILY: LEPORIDAE (Rabbits and Hares)
 Audubon's Cottontail (*Sylvilagus audubonii*)
 Black-tailed (Hare) Jackrabbit (*Lepus californicus*)
ORDER: RODENTIA (Rodents)
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)
 *California Ground Squirrel (*Spermophilus beecheyi*)
FAMILY: GEOMYIDAE (Pocket Gophers)
 *Botta's Pocket Gopher (*Thomomys bottae*)
FAMILY: MURIDAE (Old World Rats and Mice)
 Western Harvest Mouse (*Reithrodontomys megalotis*)
 Deer Mouse (*Peromyscus maniculatus*)
 Norway Rat (*Rattus norvegicus*)
 House Mouse (*Mus musculus*)
 California Vole (*Microtus californicus*)
ORDER: CARNIVORA (Carnivores)
FAMILY: CANIDAE (Foxes, Wolves, and relatives)
 Coyote (*Canis latrans*)
 Red Fox (*Vulpes vulpes*)
 San Joaquin Kit Fox (*Vulpes macrotis mutica*)
FAMILY: PROCYONIDAE (Raccoons and relatives)
 Raccoon (*Procyon lotor*)
FAMILY: MEPHITIDAE (Skunks)
 Striped Skunk (*Mephitis mephitis*)
FAMILY: MUSTELIDAE (Weasels and relatives)
 American Badger (*Taxidea taxus*)
FAMILY: FELIDAE (Cats)
 Feral Cat (*Felis domesticus*)

APPENDIX C: SELECTED PHOTOGRAPHS OF THE PROJECT SITES



Photo 1 (above): One of several orchards partially contained within the Service Area 1 project site.
Photo 2 (below): Vineyard east of Road 208 along the Service Area 2 alternate route.





Photo 3 (above): Road 200, facing north along the Service Area 1 preferred route. **Photo 4 (below):** Avenue 140, facing west along the Service Area 2 preferred route. Roads and disturbed roadsides comprised the majority of both sites' ruderal habitats.





Photo 5 (above): Looking west into an alfalfa field that comprised the entirety of the proposed basin on the Service Area 2 project site. **Photo 6 (below):** Facing northeast into a cabbage field along the Service Area 2 preferred route. Staging area 2-2 consists of this field and an adjacent furrow-irrigated grain field.





Photo 7 (above): Dry-farmed grain field located west of Road 204 along the Service Area 2 preferred route. California ground squirrel burrows was abundant in the old stockpiles pictured. **Photo 8 (below):** Tilled agricultural field located within staging area 1-6 on the Service Area 1 project site.





Photo 9 (above): One of several fallow fields partially contained within the Service Area 1 project site.

Photo 10 (below): Non-native grassland habitat located along the Service Area 1 preferred route west of Road 200.





Photo 11 (above): Tailwater basin located along the Service Area 1 alternate route south of Avenue 160.
Photo 12 (below): Tailwater basin partially contained with staging area 2-4 on the Service Area 2 project site.





Photo 13 (above): The Wood-Central Ditch at the location of the westernmost turnout that may be constructed at some point in the future. **Photo 14 (below):** The Tule River Intertie, facing south from Avenue 140 along the Service Area 2 preferred route.





Photo 15 (above): Dead valley oak and fan palms located along the Service Area 1 alternate route north of Avenue 160. **Photo 16 (below):** Box culvert at Road 200's crossing of the Wood-Central Ditch on the Service Area 1 site, showing cliff swallow nests that were active during the April 2015 survey.





Photo 17 (above): This eucalyptus was one of several mature trees located immediately adjacent to the Service Area 1 project site that could be used by nesting raptors such as the Swainson's hawk. **Photo 18 (below):** Facing south from Avenue 140 along the Service Area 2 preferred alignment toward valley oak (tallest tree in group) with inactive stick nest.



APPENDIX D: TULARE COUNTY GENERAL PLAN POLICIES

8. Environmental Resources Management

the assurance of rail transport for commodities such as grain, row crops, and fruit, a number of farming colonies soon appeared throughout the region.

The colonies grew to become cities such as Tulare, Visalia, Porterville, and Hanford. Visalia, the County seat, became the service, processing, and distribution center for the growing number of farms, dairies, and cattle ranches. By 1900, Tulare County boasted a population of about 18,000. New transportation links such as SR 99 (completed during the 1950s), affordable housing, light industry, and agricultural commerce brought steady growth to the valley. The U.S. Census Bureau estimated the 2003 Tulare County population to be 390,791.

8.1 Biological Resources

ERM-1

To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.
[New Goal]

ERM-1.1 Protection of Rare and Endangered Species

The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or federal government, through compatible land use development. [New Policy based on ERME IV-C; Biological Resources; Issue 12, and ERME; Pg 32]

ERM-1.2 Development in Environmentally Sensitive Areas

The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth. [New Policy based on EMRE; Water; Issue 3; Recommendation 3, ERME; Pg 28]

ERM-1.3 Encourage Cluster Development

When reviewing development proposals, the County shall encourage cluster development in

areas with moderate to high potential for sensitive habitat. [New Policy]

ERM-1.4 Protect Riparian Areas

The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls. [New Policy]

ERM-1.5 Riparian Management Plans and Mining Reclamation Plans

The County shall require mining reclamation plans and other management plans include measures to protect, maintain and restore riparian resources and habitats. [New Policy]

ERM-1.6 Management of Wetlands

The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. [New Policy]

ERM-1.7 Planting of Native Vegetation

The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained. [New Policy]

ERM-1.8 Open Space Buffers

The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state. [New Policy based on EMRE policies]

ERM-1.9 Coordination of Management on Adjacent Lands

The County shall work with other government land management agencies (such as the Bureau of Land Management, US Forest Service, National Park Service) to preserve and protect biological resources while maintaining the ability to utilize and enjoy the natural resources in the County. [New Policy]

ERM-1.10 Appropriate Access for Recreation

The County shall encourage appropriate access to resource-managed lands. *[New Policy]*

ERM-1.11 Hunting and Fishing

The County shall provide opportunities for hunting and fishing activities within the County pursuant to appropriate regulations of the California Fish & Game Code. *[New Policy]*

ERM-1.12 Management of Oak Woodland Communities

The County shall support the conservation and management of oak woodland communities and their habitats. *[New Policy]*

ERM-1.13 Pesticides

The Tulare County Agricultural Commissioner/Sealer will cooperate with State and federal agencies in evaluating the side effects of new materials and techniques in pesticide controls to limit effects on natural resources. *[ERME IV-C; Pesticides; Recommendation 1] [ERME; Pg 131, Modified]*

ERM-1.14, Mitigation and Conservation Banking Program

The County shall support the establishment and administration of a mitigation banking program, including working cooperatively with TCAG, federal, State, not-for-profit and other agencies and groups to evaluate and identify appropriate lands for protection and recovery of threatened and endangered species impacted during the land development process. *[New Policy]*

8.2 Mineral Resources - Surface Mining

ERM-2

To conserve protect and encourage the development of areas containing mineral deposits while considering values relating to water resources, air quality, agriculture, traffic, biotic, recreation, aesthetic enjoyment, and other public interest values. *[New Goal based on MRPAC June 28, 2006]*

ERM-2.1 Conserve Mineral Deposits

Emphasize the conservation of identified and/or potential mineral deposits, recognizing the need for identifying, permitting, and maintaining a 50 year supply of locally available PCC grade aggregate. *[MRPAC June 28, 2006]*

ERM-2.2 Recognize Mineral Deposits

Recognize as a part of the General Plan those areas which have identified and/or potential mineral deposits. *[MRPAC June 28, 2006]*

ERM-2.3 Future Resource Development

Provide for the conservation of identified and/or potential mineral deposits within Tulare County as areas for future resource development. Recognize that mineral deposits are significantly limited within Tulare County and that they play an important role in support of the economy of the County. *[MRPAC June 28, 2006]*

ERM-2.4 Identify New Resources

Encourage exploration, evaluation, identification, and development of previously unrecognized but potentially significant hard rock resources for production of crushed stone aggregate. *[MRPAC June 28, 2006]*

ERM-2.5 Resources Development

The County will promote the responsible development of identified and/or potential mineral deposits. *[MRPAC June 28, 2006]*

ERM-2.6 Streamline Process

Create a streamlined and timely permitting process for the mining industry, which will help encourage long-range planning and the reasonable amortization of investments. *[MRPAC June 28, 2006]*

ERM-2.8 Minimize Adverse Impacts

Minimize the adverse effects on environmental features such as water quality and quantity, air quality, flood plains, geophysical characteristics, biotic, archaeological and aesthetic factors. *[MRPAC June 28, 2006]*

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

**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 Pupping 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.