Summary of Proposed Changes to

Biological Resources Assessment, Shifler Mining Project, Yolo County, California

(June 2018; revised January 2020; errata July 2020)

3.1 Wetland Delineation

A preliminary wetland assessment was prepared for the Project Site by ECORP Consulting, Inc. (ECORP 2010), which was based on field investigation conducted on 04 August 2010. ECORP subsequently prepared a wetland delineation based on additional field investigation conducted on 20 September 2010 and 12 March 2012 (ECORP 2012). The USACE issued a preliminary jurisdictional determination (PJD) for the site concurring with the wetland delineation on 02 July 2012.

Because over eight years had elapsed since the ECORP's delineation and some of the site conditions had changed during that period, Teichert engaged EcoSynthesis to prepare a new wetland delineation for the Project Site. EcoSynthesis prepared a wetland delineation based on field visits conducted 12 July 2019 and 13 November 2019 (EcoSythesis 2019). USACE issued a PJD concurring with this wetland delineation on 3 June 2020.

…

4.3.4 Wetlands and Waters of the U.S.

A delineation of wetlands and other Waters of the U.S. for the Project Site was prepared by ~~ECORP~~ EcoSynthesis in ~~2012~~ 2019 (~~ECORP~~ EcoSynthesis ~~2012~~2019). The U.S. Army Corps of Engineers issued a preliminary jurisdictional determination (PJD) on ~~02 July 2012~~03 June 2020. A total of approximately 2.2~~1.856~~ acres of ~~wetland and~~ waters of the U.S. ("Waters) have been identified on the Project Site (Figure 3). These include the Moore Canal and Magnolia Canal~~, an excavated pond, a seasonal wetland, a marsh, and a drainage ditch~~. The waters discussed in this section would also be considered "waters of the State" under Porter-Cologne.

4.3.4.1 Moore Canal and Magnolia Canal

Both the Moore Canal and Magnolia Canal (collectively totaling approximately ~~1.729~~2.2 acres) appear on the USGS 7.5-minute series "Woodland, California" quadrangle as a dashed blue line feature. The Moore Canal is an approximately 15-foot wide concrete-lined irrigation water conveyance system operated by the YCFCWCD. The Moore Canal enters the Project Site from underneath County Road 94B and flows in a west to east direction (Figure 3). A gate structure exists near the northeastern portion of the Project Site, which allows water from the Moore Canal to be diverted into the Magnolia Canal. The Magnolia Canal is an approximately 7-foot wide earthen-lined canal that starts at this gate structure and flows in a northeasterly direction (Figure 3). Both canals are continuously maintained, and vegetation is frequently absent. The earthen-lined Magnolia Canal supports some vegetation, which can vary between years depending on the availability of water allocations. When the canal is operating and flowing, predominant vegetation include nutsedge (Cyperus esculentus var. leptostachyus and C. eragrostis), Bermuda grass, rye grass (Festuca perennis), bearded sprangletop (Leptochloa fusca subsp. fascicularis),

common barnyard grass (Echinochloa crus-galli), and Johnson grass (Sorghum halepense). In drought years when the canal is not operating, vegetation generally consists of ruderal plants including milk thistle, perennial mustard, orach (Atriplex sp.), Bermuda grass, and rye grass.

~~4.3.4.2 Pond~~

~~One excavated pond (0.098 acre) was mapped near the northern portion of the site, and appears to be used to temporarily store runoff from agricultural fields (Figure 3). The pond is surrounded by a dense stand of milk thistle and Italian thistle along the perimeter. The bottom and edges of the pond are almost exclusively vegetated with perennial pepperweed (Lepidium latifolium).~~

~~4.3.4.3 Other Wetlands (Marsh, Seasonal Wetland, and Drainage Ditch)~~

~~Other wetlands at the Project Site include a seasonal wetland (0.014 acre), a marsh (0.009 acre) and a drainage ditch (0.006 acre) (Figure 3). These wetlands are interconnected with each other near the south-central portion of the Project Site. The source of hydrology appears to be a leak from an existing well on the adjacent property (Monument Hill Memorial Park) to the south. The seasonal wetland receives the majority of its hydrology from runoff from the abutting marsh. The drainage ditch appears to convey water from one agricultural field to another, as well as collect runoff from the marsh and seasonal wetland. Vegetation within this wetland complex is dominated by black willow (Salix gooddingii), southern cattail (Typha domingensis), prickly lettuce (Lactuca serriola), dock (Rumex crispus and R. stenophyllus), Bermuda grass, and rye grass.~~

4.3.5 Other Disturbed Areas

Other areas include an existing conveyor system and associated graveled maintenance road (approximately 3.564 acres) along the northern portion of the Project Site, which transports aggregate material from Teichert's adjacent Storz site to the west to the Woodland Processing Plant to the northeast (Figure 3). Features incidental to agriculture (approximately ~~16.2~~ 15.93 acres) are present throughout the Project Site (Figure 3). Landscape plantings (i.e., developed, vegetated corridor) consisting of oleanders (Nerium oleander) are present along County Road 94B and the southeastern portion of the Project Site (approximately 0.782 acres) (Figure 3).

…

6.1 Wetlands and Waters of the U.S.

A total of ~~1.856~~approximately 2.2 acres of ~~jurisdictional wetlands and~~ Waters of the U.S. – which would also be considered Waters of the State (collectively "Waters") - have been delineated within the Project Site (Table 1, Figure 3) (~~ECORP~~ EcoSynthesis ~~2012~~2019). All Waters that have been described for the study area would be affected by the proposed project. ~~The seasonal wetland, marsh, pond, and drainage ditch that occur within the study area would be permanently removed during mining activities associated with the Project.~~ The Moore and Magnolia Canals are proposed to be relocated/realigned to the northern Project boundary.

Table 1. Jurisdictional Wetlands and Waters of the U.S./State – Teichert Shifler Property

Wetland Type	Total Acres
~~Seasonal Wetland~~	~~0.014~~
~~Marsh~~	~~0.009~~
~~Pond~~	~~0.098~~
Irrigation Canals	~~1.729~~2.205
~~Drainage Ditch~~	~~0.006~~
Totals	~~1.856~~2.205

The Yolo HCP/NCCP contains two AMMs addressing impacts to wetlands: AMM 9 and AMM 10. AMM 9 requires the establishment of buffers around certain wetlands that will be avoided by a project. AMM 10 provides that project proponents must comply with any requirements imposed by applicable National Pollutant Discharge Elimination System (NPDES) permits. AMM 10 further states that when a Project will involve the fill of Waters or wetlands, the proponent must comply with all relevant requirements under Section 404 of the Clean Water Act, State Water Resources Control Board, Fish and Game Code section 1602 and applicable Regional Board regulations. Because the Waters and wetlands on the Project site cannot be avoided, AMM 9 is inapplicable. Teichert will comply with the provisions of AMM 10, as discussed below.

The Project will result in impacts to ~~1.856~~approximately 2.2 acres of ~~wetlands and~~ Waters. The impact to these ~~wetlands and~~ Waters is considered significant.

BIOLOGICAL RESOURCES ASSESSMENT

Teichert Shifler Mining Project
Yolo County, California

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June 2018
Revised January 2020

TEICHERT MATERIALS

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1 INTRODUCTION

Teichert Materials ('Teichert') conducted a biological resources assessment on approximately 319 ± acres of the Shifler Property ('Property'). Teichert proposes to mine approximately 277.1 ± acres of the Property for aggregate (sand and gravel) resources ('Project'). Upon the completion of mining operations, the site will be reclaimed to a combination of agricultural land and open space consisting of a lake, riparian and oak woodland habitat, and grassland areas. This report discusses the biological resources present on the Property and those potentially affected by the proposed Project. In addition, this report includes a summary of the applicable laws and regulations related to biological resources and the resource agencies responsible for their implementation.

Field surveys were conducted to identify existing biological resources present on the site and to determine if habitats present could support any special-status species. In addition, sensitive habitat areas (i.e., wetlands, riparian vegetation, oak woodland trees, etc.) have been mapped and quantified using global positioning system (GPS) technology and aerial interpretation. Potential significant impacts that may occur to these resources as a result of the proposed Project are identified and mitigation measures are suggested to reduce these impacts to less than significant levels.

1.1 Project Location and Setting

The Property is located approximately 3 miles west of the City of Woodland in unincorporated Yolo County (Figure 1). The site is located within a portion of Sections 27 and 28, Township 10 North, and Range 1 East (MDBM) of the "Woodland, California" 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 1981). The Project Site consists of portions of four parcels (APNs 025-120-032, 025-120-033, 025-430-001, and 025-430-002) (Figure 2). The approximate center of the Project Site is located at 38° 41' 02" North and 121° 51' 25" West within the Lower Cache Creek Watershed (#18020110, U.S. Department of Interior, Geological Survey 1978). Current surface elevations on the Project Site range from approximately 98 to 112 feet above mean sea level (MSL).

The vast majority of the site is in agricultural production (Figure 3) and is classified as prime agricultural land. A concrete-lined canal (Moore Canal) traverses the Project Site from west to east, and an unlined canal (Magnolia Canal) conveys water northeast from the Moore Canal (Figure 3). Both canals are owned and operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD). A small oak woodland stand is present just north of where the Moore Canal meets the Magnolia Canal, with additional scattered oaks occurring along the northern portion of the Project Site. Ruderal/annual grassland vegetation is present along agricultural borders and roads, in addition to the northern portion of the Project Site paralleling Cache Creek. A conveyor system and associated graveled road also exists within this portion of the Project Site (Figure 3), which previously transported aggregate material from Teichert's adjacent Storz site on the west to the Woodland Processing Plant at the northeast. Wetlands and other waters are also present on the site, as reported in the wetland delineation report prepared by ECORP Consulting (ECORP 2012) and also shown in Figure 3.

Surrounding land uses include Cache Creek to the north; Teichert's Woodland Processing Plant site to the northeast; agricultural land to the east; the Monument Hill Memorial Park cemetery and rural residences to the south; the Yolo Fliers Club golf course, Watts-Woodland Airport, and Monument Hills community to the southwest; Teichert's existing Storz mine site to the west; and the Cache Creek Nature Preserve to the northwest.

1.2 Project Description

Teichert is proposing to mine existing aggregate material (sand and gravel) on approximately 277.1 ± acres of the Property (Figure 4). The proposed Project will consist of aggregate removal and conveyance, with reclamation including agricultural and open space habitat (i.e., lake, riparian woodland, and grassland). The Project is an extension of mining on Teichert's Woodland properties, which have continuously supplied aggregate resources to Teichert's materials processing operations since the 1950s.

A timetable of 30 years is proposed to complete the Project. All of the proposed mining area would be off-channel and located a minimum of 200 feet from Cache Creek. In general, mining will begin at the northwestern corner of Project Site and progress in a southerly and eastern direction. Sequential activities in each area of operations include: removal and stockpiling of topsoil; removal and stockpiling of overburden; removal of aggregate material by means of a variable combination of scrapers, loaders, dozers, excavators and/or dragline; transport of material to Teichert's processing plant using an electrical conveyor system; and reclamation concurrent with mining. The Moore Canal, which currently traverses through the center of the Project Site, will be realigned to the north of the proposed mining area.

Material mined from the site will be transported via conveyor belt to Teichert's Woodland Processing Plant, located approximately 2,000 feet to the northeast (Figure 2). This conveyor (and associated access road) currently exists on the northern portion of the site, before exiting near the north-central portion of the Project Site. Once mining operations are completed, the conveyor line will be removed and its footprint reclaimed in accordance with the proposed reclamation plan for the Project.

1.3 Reclamation

The proposed end use for the Project Site after mining is agriculture and open space (lake, riparian woodland and wetland, and annual grassland habitat) (Figure 5). To achieve this end, overburden and salvageable topsoil shall be separated and stockpiled during mining. These materials will eventually be re-incorporated into reclamation to provide an appropriate growing medium for agricultural productivity, slope stability, and riparian habitat establishment. Slopes will be constructed to no steeper than 2-feet horizontal to 1-foot vertical (2:1) and then seeded with a native grassland mix to prevent erosion. After reclamation slopes have been completed, the pit floor will be graded and eventually planted for agricultural purposes. Reclamation of all mined areas will feature a total of approximately 21.3 acres of grassland slopes surrounding approximately 116.7 acres of agricultural land, 112.9 acres of lake, and 23.9 acres riparian woodland and wetland habitats. Other areas, totaling approximately 2.3

acres, will also be restored back to grasslands. In addition, stormwater retention ponds will be created within the agricultural areas to collect surface runoff and protect surrounding land areas from becoming inundated for prolonged periods.

A Reclamation Plan ('Plan') has been prepared for the Project (Teichert 2018a) pursuant to the California State Surface Mining and Reclamation Act (SMARA) of 1975 and associated regulations (updated January 2012) and the and the Yolo County Cache Creek Area Plan, which includes the Off-Channel Surface Mining Ordinance (OCSMO), Title 10 (Chapters 5 and 8) of the County Code Surface Mining Reclamation Ordinance (SMRO) and Agricultural Surface Mining and Reclamation Ordinance (ASMRO), and the Yolo County Off-Channel Mining Plan (OCMP). Included in the Plan are detailed descriptions of existing site conditions (including soils and hydrology), site-specific plans for soils removal/handling and erosion-control, protocols for vegetation establishment and protection (including noxious/invasive weed management), and specific monitoring and performance standards for agricultural and revegetation success.

2 REGULATORY OVERVIEW

This section provides a brief summary of the federal, state, and local policies and regulations that are relevant to addressing the biological resources identified at the Project Site. Regulated or sensitive resources studied and analyzed herein include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as oak woodland habitat.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act ('FESA') protects plants and animals that are listed as endangered or threatened by the National Marine Fisheries Service ('NMFS') and United States Fish and Wildlife Service ('USFWS'). In general, NMFS is responsible for the protection of listed marine species and anadromous fish species, while other listed species are under USFWS jurisdiction. Section 9 of the FESA prohibits the taking of threatened or endangered wildlife, where "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). Under Section 7 of the FESA, federal agencies are required to enter into formal consultation with the USFWS and/or NMFS on proposed federal actions (i.e., actions authorized, funded, or carried out by federal agencies) if their actions could adversely affect a listed (or proposed) species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the activity will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

The FESA prohibitions and requirements are different, however, for federally threatened or endangered plant species. For plants, the FESA prohibits the taking of threatened or endangered plants only from areas within federal jurisdiction, or if such take would result in a "knowing violation of any [State law or regulation]" (16 USC 1538). Therefore, in the absence of a federal nexus, a project does not require an incidental take permit pursuant to FESA for impacts to listed plants on private lands.

2.1.2 Federal Clean Water Act, Section 404

The purpose of the Clean Water Act ('CWA') is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The U.S. Army Corps of Engineers ('USACE') and the U.S. Environmental Protection Agency ('EPA') regulate the discharge of dredged or fill material into Waters of the United States (Waters of the U.S.) under Section 404 of the CWA. The definition of "Waters of the U.S." includes all navigable waters, interstate waters and wetlands, all intrastate waters and wetlands that could affect interstate or foreign commerce, impoundments of the above-listed waters, tributaries of the above-listed waters, territorial seas, and wetlands adjacent to the above-listed waters. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.37b).

As part of its wetland delineation and verification process, the USACE will determine whether wetlands and other features on a project site are considered Waters of the U.S., and therefore regulated under Section 404 of the CWA. If a project would require the discharge of dredged or fill material into Waters of the U.S., the proponent must seek a permit from the USACE. The USACE can issue an individual permit (for projects resulting in substantial impacts) or a general permit (i.e., Nationwide Permit [for those that result in only minimal individual or cumulative adverse effects]). Pursuant to Section 404 (c) of the CWA, the EPA may "veto" or override a USACE permit if it finds that the proposed discharge will have unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas, wildlife or recreational areas.

2.1.2.1 *Federal Clean Water Act, Section 401*

Section 401 of the Clean Water Act requires any applicant seeking a Section 404 permit for activities resulting in a discharge into Waters of the U.S. to obtain a water quality certification from the Regional Water Quality Control Board ('RWQCB'). The goal of this program is to protect Waters of the U.S. by ensuring that waste discharged into these features meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit and because both programs are a part of the Clean Water Act, the definition of "Waters of the U.S." under Section 401 is identical to the definition used by USACE under Section 404 (above).

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act ('MBTA') implements international treaties between the United States and other nations devised to protect migratory birds. The MBTA makes it unlawful to take any of their parts, eggs, and nests as a result of activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit (i.e., rehabilitation, scientific collecting, etc.).

The list of migratory birds (50 CFR 10.13) includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species.

2.2 State Regulations

2.2.1 California Fish and Game Code

2.2.1.1 *California Endangered Species Act*

The California Endangered Species Act ('CESA') (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA pertains to state-listed endangered and threatened species. Section 2080 of the California Fish and Game Code

prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

CESA requires state agencies to consult with the California Department of Fish and Wildlife (‘CDFW’) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species, or result in destruction or adverse modification of essential habitat. CESA allows CDFW to authorize exceptions to the state's prohibition against “take” of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project or activity (Fish and Game Code Section 2081).

2.2.1.2 *Fully Protected Species*

California Fish and Game Code Sections 4700 (mammals), Section 3511 (birds), Section 5050 (reptiles and amphibians), and Section 5515 (fish) designate certain species as “fully protected.” The State of California first began to designate species as “fully protected” prior to the creation of the CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Fully protected species, or parts thereof (e.g., feathers, wings, talons), may not be taken or possessed by any individual at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW may issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.1.3 *Migratory Bird Species and Birds of Prey (Raptors)*

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nests or eggs of any bird, except as provided by this code or any regulation made pursuant thereto. Additionally, Subsection 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. These stipulations are similar to the federal MBTA and serve to protect nesting native birds. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.1.4 *Native Plant Protection Act*

The Native Plant Protection Act (‘NPPA’) prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by the CDFW. The NPPA is administered by the CDFW and set forth in California Fish and Game Code Sections 1900-1913. The CESA (Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

2.2.1.5 *California Streambed Alteration Notification/Agreement*

Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement ('SAA') be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW must be notified prior to any such activities and will review the proposed action(s). If necessary, the CDFW will propose measures to protect affected fish and wildlife resources. The SAA is comprised of the final mitigation measure(s) and condition(s) mutually agreed-upon by the CDFW and the Applicant. Often, projects that require a SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

2.2.2 Porter-Cologne Water Quality Act

The State Water Resources Control Board ('SWRCB') and the local RWQCB have jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Act (Porter-Cologne). "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)).

Porter-Cologne requires any person discharging waste, or proposing to discharge waste, that could affect the quality of waters of the State to file a Report of Waste Discharge with the RWQCB (Water Code 13260(a)). The RWQCB will either issue, or waive the issuance of, Waste Discharge Requirements (WDRs) for the proposed discharge which will include conditions on the discharge to ensure the protection of water quality. Through the WDR program, the RWQCB also regulates discharges to "isolated" water features which are not considered Waters of the U.S. under the Federal CWA. Porter-Cologne also requires compliance with the National Pollutant Discharge Elimination System ('NPDES'), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan.

2.2.3 Species of Special Concern

Species of Special Concern ('SSC') is a category used by the CDFW for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. SSC are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that may not be legally protected under FESA, CESA, or the Fish and Game Code, but may be considered under CEQA Guidelines Section 15380.

2.2.4 California Rare Plant Ranks

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2019), which provides a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks (CRPRs). The rank

system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The California Rare Plant Ranks are currently recognized in the California Natural Diversity Database ('CNDDB'). The CNPS California Rare Plant Ranks include:

- CRPR 1A – presumed extirpated in California and either rare or extinct elsewhere;
- CRPR 1B – rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – presumed extirpated in California, but more common elsewhere;
- CRPR 2B – rare, threatened, or endangered in California but more common elsewhere;
- CRPR 3 – a review list of plants about which more information is needed; and
- CRPR 4 – a watch list of plants of limited distribution.

CRPR List 1A and 2A are presumed extirpated in California. In general, CRPR List 3 and 4 plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA Section 15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.5 California Natural Diversity Data Base (CNDDB)

The CDFW administers the CNDDB, which maintains a list of special-interest plants, animals, and natural communities that occur within California. These particular species, natural communities, or habitat types are designated as sensitive because of their rarity (e.g., very localized distribution, few scattered occurrences) and/or because of some threat (e.g., development, off-road vehicles) to this specific habitat type. The purpose of these listings is solely informational; there is no regulatory protection of these species or communities afforded by these CNDDB listings. However, these species or communities may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

2.2.6 California Environmental Quality Act (CEQA)

CEQA requires evaluations of project effects on biological resources, including species not protected on a federal or state list but may be considered rare or endangered if the species meets certain specified criteria (CEQA Guidelines Section 15380). These criteria follow the definitions in FESA, CESA, and Sections 1900-1913 of the Fish and Game Code, which deal with rare or endangered plants and animals. Section 15380 allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., SSC) would occur. The public agency that takes the lead on a project (having review and approval authority over the project) is known as the Lead Agency. Other agencies involved in subsequent approvals or that are responsible for implementing mitigation identified in the environmental documents are called Responsible Agencies.

2.2.6.1 *CEQA Significance Criteria*

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (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; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Other impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 Regional and Local Regulations

2.3.1 Yolo Habitat Conservation Plan/Natural Community Conservation Plan

The Yolo Habitat Conservation Plan/Natural Community Conservation Plan ('Yolo HCP/NCCP') is a comprehensive, regional approach to addressing development and habitat conservation for the benefit of Federal and State special-status species in Yolo County. The Yolo Habitat Conservancy (YHC), formerly

the Yolo County HCP/NCCP Joint Powers Agency (JPA), directed the preparation of the Yolo HCP/NCCP and is responsible for its implementation. The Yolo HCP/NCCP is intended to minimize regulatory hurdles by providing a means to coordinate and standardize mitigation and compensation requirements of FESA, CESA, CEQA, and other applicable laws and regulations relating to biological and natural resources within the planning area. The Yolo HCP/NCCP analyzes a range of future anticipated activities, including mining, development and agricultural uses, on 12 special-status species and their respective habitats. The Yolo HCP/NCCP created an agreement between State/Federal wildlife regulators and local jurisdictions (Yolo County, the cities of Davis, West Sacramento, Winters and Woodland, and University of California, Davis), to allow land owners and developers in those jurisdictions to engage in the "incidental take" of specific species in return for conservation commitments. A Public Review Draft of the Yolo HCP/NCCP (ICF 2017) and an accompanying draft EIR/EIS for that Plan was released for public review in the summer of 2017. The Final Yolo HCP/NCCP and the Final EIR/EIS was published on April 30, 2018. Subsequently, incidental take permits were issued by the U.S. Fish & Wildlife Service and the California Department of Fish & Wildlife. Implementation of the Yolo HCP/NCCP began in January 2019.

As will be discussed, Teichert intends to obtain coverage for the Project through the Yolo HCP/NCCP.

2.3.2 Yolo County General Plan

Yolo County's 2030 Countywide General Plan was adopted in November 2009The General Plan is used to guide land use decisions. It sets forth numerous goals with policy frameworks and implementation programs. The following goals are presented in The Conservation and Open Space Element, Section 7 of the General Plan, and are relevant to the Project:

- Goal CO-1 Provide a diverse, connected and accessible network of open space, to enhance natural resources and their appropriate use.
- Goal CO-2 Protect and enhance biological resources through the conservation, maintenance, and restoration of key habitat areas and corresponding connections that represent the diverse geography, topography, biological communities, and ecological integrity of the landscape.
- Goal CO-3 Protect mineral and natural gas resources to allow for their continued use in the economy.

The Project is consistent with the Yolo County General Plan in that there is a continued need for responsibly produced mineral resources, avoidance and mitigation measures are in place for impacts to biological and other resources, and reclamation to appropriate beneficial end uses will conserve both the biological and agricultural characteristics of the region. Below are General Plan Policies relevant to the Project. Each policy is followed by a short discussion of how the Project relates to the policy:

- Policy CO-1.21 emphasize the use of native grasses, shrubs and trees as the primary focus of restoration within resource parks and other open spaces.
    - Reclamation to open space / wildlife habitat will emphasize the use of native plant species.
- Policy CO-2.10 Encourage the restoration of native habitat.

    - Reclamation will result in an increased acreage of open space / wildlife habitat on-site.
- Policy CO-2.11 Ensure that open space buffers are provided between sensitive habitat and planned development.
    - A buffer, consistent with Policy CO-2.22 will protect sensitive riparian habitat and Cache Creek from Project activities.
- Policy CO-2.22 Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.
    - A protective buffer extending no less than 100 feet from the top of the bank for all relevant features will be installed/demarcated prior to initiating Project activities.
- Policy CO-2.38 Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds). Preserve the functional value of movement corridors to ensure that essential habitat areas do not become isolated from one another due to the placement of either temporary or permanent barriers within the corridors. Encourage avoidance of nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds) during periods when the sites are actively used and that nursery sites which are used repeatedly over time are preserved to the greatest feasible extent or fully mitigated if they cannot be avoided. (DEIR MM BIO-4a)
    - Mitigation measures for the Project are discussed in Section 6. These measures avoid, minimize, and mitigate for adverse impacts to wildlife, their habitats, and other biological resources.
- Policy CO-3.1 Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.
    - The Project will produce valuable mineral resources and return the land to beneficial uses including open space, wildlife habitat, and agriculture. In addition, mitigation measures introduced in Section 6 will protect environmental and biological resources.
- Policy CO-3.2 Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.
    - Mitigation measures presented in Section 6 ensure that the Project will not adversely affect the environment. Extraction and reclamation activities are comparable to those of Teichert projects throughout Yolo County.

2.3.3 Yolo County Oak Woodland Conservation and Enhancement Plan

The Yolo County Oak Woodland Conservation and Enhancement Plan was prepared in 2007 by the Yolo County Parks and Natural Resource Division. This plan is designed to promote the conservation and enhancement of the County oak woodlands through voluntary efforts of private land owners and public agencies, focusing on oak woodlands that cover one acre or more. It also includes oak woodland conservation policy recommendations for the 2030 General Plan. The plan also includes a checklist to help determine the resource value of existing oak woodlands. A completed checklist for the valley oak (*Quercus lobata*) woodlands on-site is included as Attachment D.

In general, the Project is in accord with the Yolo County Oak Woodland Conservation and Enhancement Plan as the Project design considered the avoidance, minimization, and mitigation of impacts to oak woodlands and the relevant special-status species associated with oak woodlands. As a result of reclamation activities, the Project will actually increase the acreage of oak woodland habitat on-site which is consistent with Goals 7 and 8 of the Yolo County Oak Woodland Conservation and Enhancement Plan. Respectively, these Goals are to "Increase the area covered by valley oak and other oak species that are now uncommon in Yolo County because they have been cleared from much of their historical range in the county" and "Maximize the total amount of oak woodland canopy cover to achieve erosion, flood, and air quality protection benefits, while recognizing the importance of including a variety of canopy cover levels within conserved and restored woodlands to provide habitat diversity". In addition, reclamation will be completed consistent with Policy 9, "Use only oaks of local genetic stock for plantings located in and near native oak stands to conserve the genetic integrity of local oak populations. Local trees are adapted to local conditions, so conserving genetic integrity is an important part of sustaining local oak populations".

3 METHODS

The analysis presented in this document utilizes previously conducted wetland delineations, biological assessments, various published documents, personal communication with expert biologists, and recent field surveys of the Project Site. The distributions of special-status species were primarily derived from the CNDDB records and various field survey efforts. The following provides a summary of existing documents related to the Project and describes the methodology for describing habitat communities and ascertaining likelihood of species occurrence.

3.1 Wetland Delineation

A preliminary wetland assessment was prepared for the Project Site by ECORP Consulting, Inc. (ECORP 2010), which was based on field investigation conducted on 04 August 2010. ECORP subsequently prepared a wetland delineation based on additional field investigation conducted on 20 September 2010 and 12 March 2012 (ECORP 2012). The USACE issued a preliminary jurisdictional determination (PJD) for the site concurring with the wetland delineation on 02 July 2012.

3.2 Pre-Field Survey Investigations and Literature Review Regarding Special-Status Species

Federal and State endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the Project Site. In addition, State resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents (i.e., CRPR plants and SSC animals), have identified additional species as sensitive and occurring in the vicinity of the Project Site. Such species are referred to collectively as "special-status species." A comprehensive literature review, based on the professional experience of contributing biologists within the region and elsewhere in California, has been conducted for the Project Site in order to develop the most accurate list of potentially-occurring special-status plant and animal species. In addition, using the Rarefind 5.2 (CDFW 2019) software program, a standard nine-quadrangle California Natural Diversity Data Base (CNDDB) report was generated for the study area (i.e., query of the U.S. Department of the Interior, Geological Survey 7.5-minute topographic quadrangle in which the study area is found as well as the immediate eight surrounding topographic quadrangles) (Figures 8, 9, and 10). The CNDDB contains extensive records for special-status species, as well as sensitive natural communities, which have been reported to the CDFW by a variety of sources, including researchers, landowners, field biologists and the public. Furthermore, because the CNDDB does not provide a comprehensive inventory of all sensitive species statewide, other sources of information on special-status species in California were also reviewed to determine if any special-status species not identified in the Rarefind 5.2 report have the potential to occur on the Project Site. Additional sources include:

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered species having the potential to occur in the study area;

generated on 07 April 2014 (USFWS 2014) 20 April 2017 (USFWS 2017) and December 5 2019 (USFWS 2019);

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status species that may occur in the study area; generated on various dates between April 2014 and April 2018 and November and December 2019 (CNPS 2019); and

eBird Data Base (http://ebird.org) – Online database of bird distribution and abundance (Accessed between 14 April and 20 April 2017 and November and December 2019).

Yolo HCP/NCCP Appendix A: Covered Species Accounts – Accounts of the life history, ecology, population trends, and other data for each species covered under the Yolo HCP/NCCP. The Appendix also includes modeled habitat for the covered species within the boundaries of the HCP/NCCP.

3.3 Special-Status Species Occurrence Potential

The potential for special-status plants and animals depends largely on the presence of specific habitat types on the Project Site. Habitat types identified in previous documents and recent field assessments were evaluated with known habitat requirements for each special-status species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- Known to Occur – Taxon was observed at the Project Site during recent surveys.
- Likely to Occur – Taxon previously reported within or immediately adjacent to the site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project Site.
- Could Occur – Suitable habitat is available at the site; however, there is little to no other indicators that the taxon might be present.
- Unlikely to Occur – Taxon is unlikely to be present due to poor habitat quality or known restricted current distribution that does not include the Project area.
- No Habitat Present – Taxon's distribution is within or close to the Project Site; however, taxon requires specific habitat type not present in Project area.

A list of all special-status plant and animal species known or potentially known to occur within the Project vicinity is shown in Attachment A (Table A-1). For each species identified to have reasonable potential to occur (i.e., "could occur") at the Project Site, additional biological data were provided to assist with field surveys and potential impact analyses. Information gathered included specific habitat requirements, known distribution, and regional occurrence(s). Species included in the results of the aforementioned CNDDB query for the study area which are widely considered extinct or possibly extinct (i.e., *Myrmosula pacifica* and *Cicindela hirticollis abrupta*) are not included in Table A-1 or Figures 8 and 9.

3.4 Field Surveys

Field surveys were conducted to document existing conditions on-site and assess the potential for habitats on-site to support special-status species (as listed in Table A-1). Surveys focused on rare plants and existing habitats (Teichert 2018b), but also included incidental observations of wildlife use and nesting species. The study area was extended beyond the Project Site boundary to ensure all areas within 50 meters (164 feet) of the proposed mining footprint (i.e., proposed limits of disturbance) were examined to address potential indirect impacts to other biological resources (i.e., elderberry shrubs).

Specific survey dates were 18 June, 20 June, and 06 August 2012, 18 July 2013, 19 August 2014, and 25 June and 05 August 2015, and 18 February and 21 July 2016. Most survey dates were established to focus on the range of flowering and identification periods for rare plants. Over the course of the 5-year survey period, Teichert's biologist B. Baba thoroughly surveyed all habitats present within the study area in order to properly inventory and document habitats and any potential occurrences of special-status species, including animals. Much of the area consisted of actively farmed fields and thus provided limited or no suitable habitat for special-status plants.

3.5 Accompanying Documents

3.5.1 Special-Status Plant Survey Report, Shifler Project (2018)

A rare plant survey report was prepared for the Project Site, including a 50-meter setback area from the limits of disturbance, by Teichert's biologist B. Baba (Teichert 2018b). The survey consisted of identifying all habitat types and vegetation communities, conducting protocol-level rare plant surveys, and compiling an inventory of all plant species observed at the site. Details of the rare plant survey methodology and resultant data can be found in Attachment B (*Special-Status Plant Survey Report, Shifler Project)* of this document.

3.5.2 Oak Tree Survey Report, Shifler Property (2018)

Teichert biologist B. Baba conducted an initial tree survey within the study area on 20 June 2012. A follow-up tree survey was conducted by Teichert biologists J. Greer (International Society of Arboriculture Cert. #WE-10104A) and B. Baba on 18 February and 22 March 2016 in order to account for growth in interim years. Tree surveys consisted of identifying, measuring, and mapping all trees larger than 6 inches in diameter (DBH) within and immediately adjacent to the study area (i.e., within 100 feet of the Project boundaries). Each tree was assigned a unique identifying number and the DBH, canopy radius, and overall health were recorded for each tree. Survey methodology and data collected can be found in Attachment C (*Oak Tree Survey Report, Shifler Property*) of this document.

4 EXISTING CONDITIONS

The Project Site consists of approximately 319 ± acres of land, the majority of which is used for farming and is classified as prime agricultural land. Surrounding land uses include Teichert's Woodland

processing plant to the northeast, Cache Creek and former (reclaimed) mine sites to the north, the Cache Creek Nature Preserve to the northwest, an active mining operation (Teichert's Storz property) to the west, and agriculture and rural residences to the south and east.

4.1 Climate, Topography, and Watershed

Woodland, as with the rest of California's Central Valley, is typical of a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 39°F in December to a high of 94°F in July and August (usclimatedata.com). Average annual precipitation is approximately 21.38 inches, with January usually being the wettest month (usclimatedata.com).

The majority of the Project Site consists of agricultural land planted with row crops. Site topography is relatively flat with surface elevations ranging from approximately 98 to 112 feet above mean sea level ('AMSL'). The Monument Hill Memorial Park cemetery is located immediately south of the Project Site and peaks at an elevation of 135 feet AMSL.

The Project Site is located within the boundaries of the Cache Creek Watershed (Figure 6). Cache Creek and its associated riparian vegetation parallel the northern boundary of Project Site.

4.2 Soils

The *Soil Survey of Yolo County, California* (U.S. Department of Agriculture, Soil Conservation Service) identifies four soil types within in the Project Site (Figure 7) (NRCS 1972; NRCS 2017). The predominant soil type is Yolo silt loam, which is a fine-silty series of Mollic Xerofluvents. Other soil types include Loam alluvial land; Brentwood silty clay, 0 to 2 percent slopes; and Sehorn-Balcom complex, 2 to 15 percent slopes. All of these soils are classified as well drained and non-hydric. The soils are non-saline though some may be very slightly saline at their most extreme. Detailed summaries of these soil types can be found in the *Soil Survey of Yolo County, California* (NRCS 1972; NRCS 2017).

4.3 Habitat Communities/Vegetation

Below is an analysis of the habitat communities and vegetation types present on-site using the land cover and natural communities classes provided in Chapter 2 of the Yolo HCP/NCCP. The majority of the Project Site is in agricultural production planted with row crops (Figure 3). Ruderal vegetation also exists along agricultural borders and roads. The northern portion of the Project Site paralleling Cache Creek supports ruderal and annual grassland vegetation, in addition to a small valley oak (*Quercus lobata*) stand near the northeastern portion of the site. The Moore Canal, Magnolia Canal, and other wetland features are also present.

4.3.1 Cultivated Land

The majority of the Project Site consists of agricultural land (i.e. cultivated land), totaling approximately 283.05 acres (Figure 3). Crops planted at the site over the past decade have included grain/hay crops (e.g. wheat), alfalfa, truck/berry crops (e.g. tomatoes, and cucumbers), canola, field crops (e.g. sunflowers), and safflower. Ruderal plants are common along agricultural borders and roads, including pigweed (*Amaranthus albus*, *A. blitoides*, and *A. retroflexus*), lamb's quarters (*Chenopodium album*), mallow (*Malva parviflora* and *M. leprosa*), bindweed (*Convolvulus arvensis*), devil's claw (*Proboscidea louisianica* and *P. lutea*), puncture vine (*Tribulus terrestris*), common knotweed (*Polygonum aviculare* subsp. *depressum*), bermuda grass (*Cynodon dactylon*), and Johnson grass (*Sorghum halepense*).

4.3.2 Grassland

The northern portion of the Project Site paralleling Cache Creek supports approximately 9.876 acres of grassland (Figure 3). The majority of the grasslands are separated from the agricultural area by a conveyor system and access/maintenance road. The remainder of the grasslands are south of the conveyer in incidental areas left to fallow. Common grassland species include filaree (*Erodium botrys*, *E. cicutarium*, and *E. moschatum*), common fiddleneck (*Amsinckia intermedia*), ripgut brome (*Bromus diandrus*), soft-chess (*Bromus hordeaceus*), wild oat (*Avena barbata* and *A. fatua*), hare wall barley (*Hordeum murinum*), and six-weeks fescue (*Festuca myuros*). Disturbed areas also support dense stands of ruderal vegetation, including milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), mallow, and perennial mustard (*Hirschfeldia incana*).

4.3.3 Valley Oak Woodland

A small area (approximately 1.7 acres) projecting south from the northeastern portion of the Project Site supports a valley oak woodland stand. Most of these oaks are associated with a segment of the earthen-lined Magnolia Canal just north of the Moore Canal. Common understory vegetation include poison oak, horehound (*Marrubium vulgare*), Italian thistle, and ripgut brome.

4.3.4 Wetlands and Waters of the U.S.

A delineation of wetlands and other Waters of the U.S. for the Project Site was prepared by ECORP in 2012 (ECORP 2012). The U.S. Army Corps of Engineers issued a preliminary jurisdictional determination (PJD) on 02 July 2012. A total of 1.856 acres of wetland and waters of the U.S. ("Waters) have been identified on the Project Site (Figure 3). These include the Moore Canal and Magnolia Canal, an excavated pond, a seasonal wetland, a marsh, and a drainage ditch. The waters discussed in this section would also be considered "waters of the State" under Porter-Cologne.

4.3.4.1 *Moore Canal and Magnolia Canal*

Both the Moore Canal and Magnolia Canal (collectively totaling 1.729 acres) appear on the USGS 7.5-minute series "Woodland, California" quadrangle as a dashed blue line feature. The Moore Canal is an approximately 15-foot wide concrete-lined irrigation water conveyance system operated by the

YCFCWCD. The Moore Canal enters the Project Site from underneath County Road 94B and flows in a west to east direction (Figure 3). A gate structure exists near the northeastern portion of the Project Site, which allows water from the Moore Canal to be diverted into the Magnolia Canal. The Magnolia Canal is an approximately 7-foot wide earthen-lined canal that starts at this gate structure and flows in a northeasterly direction (Figure 3). Both canals are continuously maintained, and vegetation is frequently absent. The earthen-lined Magnolia Canal supports some vegetation, which can vary between years depending on the availability of water allocations. When the canal is operating and flowing, predominant vegetation include nutsedge (*Cyperus esculentus* var. *leptostachyus* and *C. eragrostis*), Bermuda grass, rye grass (*Festuca perennis*), bearded sprangletop (*Leptochloa fusca* subsp. *fascicularis*), common barnyard grass (*Echinochloa crus-galli*), and Johnson grass (*Sorghum halepense*). In drought years when the canal is not operating, vegetation generally consists of ruderal plants including milk thistle, perennial mustard, orach (*Atriplex* sp.), Bermuda grass, and rye grass.

4.3.4.2 *Pond*

One excavated pond (0.098 acre) was mapped near the northern portion of the site, and appears to be used to temporarily store runoff from agricultural fields (Figure 3). The pond is surrounded by a dense stand of milk thistle and Italian thistle along the perimeter. The bottom and edges of the pond are almost exclusively vegetated with perennial pepperweed (*Lepidium latifolium*).

4.3.4.3 *Other Wetlands (Marsh, Seasonal Wetland, and Drainage Ditch)*

Other wetlands at the Project Site include a seasonal wetland (0.014 acre), a marsh (0.009 acre) and a drainage ditch (0.006 acre) (Figure 3). These wetlands are interconnected with each other near the south-central portion of the Project Site. The source of hydrology appears to be a leak from an existing well on the adjacent property (Monument Hill Memorial Park) to the south. The seasonal wetland receives the majority of its hydrology from runoff from the abutting marsh. The drainage ditch appears to convey water from one agricultural field to another, as well as collect runoff from the marsh and seasonal wetland. Vegetation within this wetland complex is dominated by black willow (*Salix gooddingii*), southern cattail (*Typha domingensis*), prickly lettuce (*Lactuca serriola*), dock (*Rumex crispus* and *R. stenophyllus*), Bermuda grass, and rye grass.

4.3.5 Other Disturbed Areas

Other areas include an existing conveyor system and associated graveled maintenance road (approximately 3.564 acres) along the northern portion of the Project Site, which transports aggregate material from Teichert's adjacent Storz site to the west to the Woodland Processing Plant to the northeast (Figure 3). Features incidental to agriculture (approximately 16.2 acres) are present throughout the Project Site (Figure 3). Landscape plantings (i.e., developed, vegetated corridor) consisting of oleanders (*Nerium oleander*) are present along County Road 94B and the southeastern portion of the Project Site (approximately 0.782 acres) (Figure 3).

5 SPECIAL-STATUS SPECIES AND SPECIES ACCOUNTS

As provided in Attachment A (Table A-1), a list of special-status species known or potentially known to occur in the local region was compiled from records found in the literature review and database records in the CNDDB and CNPS Online Inventory. The table also contains specific information for each of the special-status species, including federal and State designations, biological and distribution information, survey (blooming or activity) period, and likelihood of occurrence on the Project Site. Figures 8 and 9 include the results of special-status species locations from the USGS 7.5-minute series "Woodland, California" quadrangle and eight surrounding quadrangles. The sections below further describe those species with potential to occur on the Project Site based on the presence of suitable habitat. The sections below do not discuss species included in Table A-1 which do not have any significant potential to occur on-site for lack of suitable habitat. For example, California tiger salamander (*Ambystoma californiense*) is a federal and state listed species but is restricted to vernal pools, which do not occur on-site, and therefore the salamander is not discussed below. Similarly, special-status fishes are also not discussed below as the habitat provided by the Moore and Magnolia canals is not suitable for any of the special-status fishes included in Table A-1 and Cache Creek is outside of the limits of disturbance.

5.1 Plants

A number of special-status plants have been documented in the CNDDB to occur in the vicinity of the site (Table A-1, Figure 8). Additional species having a wide distribution within the Central Valley were also included. Based on a review of the CNDDB and CNPS database searches, previously prepared biological reports for the Project Site and surrounding areas, and reconnaissance-level field surveys, it was determined the Project Site supports potential suitable habitat for one special-status plant species, Sanford's arrowhead (*Sagittaria sanfordii*). This species was not identified on the "Woodland, California" 7.5-minute quadrangle or eight surrounding quadrangles; however, due to its wide distribution and occurrence in marshlands and irrigation ditches, Sanford's arrowhead was considered for further evaluation at the Project site.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is not listed pursuant to either the federal or California ESAs, nor is it covered by the Yolo HCP/NCCP; however, it is listed as a CRPR 1B.2 species by the CNPS. Sanford's arrowhead is a rhizomatous, herbaceous perennial associated with the shallow margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, and canals. Numerous populations have also naturalized in ditches associated with irrigation and other drainage systems. Little is known regarding the biology or ecology of the species, although it appears to tolerate a wide range of freshwater marsh environments. Flowering typically occurs between May and August.

This species is widely distributed throughout the Central Valley between 0 and 2,200 feet elevation. Sanford's arrowhead is documented from 93 occurrences and is presently known from Shasta to Tulare County, with the majority of records occurring in Sacramento County (CNDDB 2019). A disjunct

population also occurs near Crescent City in Del Norte County. The species is presumed to have been extirpated from much of its historic range in southern California (Orange and Ventura counties). The nearest documented occurrence of Sanford's arrowhead is approximately 20 miles east of the Project Site (CNDDB Occurrence No. 73) in Sacramento County (CNDDB 2019).

Field surveys for Sanford's Arrowhead were conducted over 5 years between 2012 and 2016 as part of the Shifler Property Rare Plant Survey (Teichert 2018b). No individuals of Sanford's arrowhead were found in or immediately adjacent to the Project Site. Therefore, Sanford's arrowhead is not expected to occur at the Project Site.

5.2 Animals

A number of special-status animals have been documented in the CNDDB within the USGS 7.5-minute series "Woodland, California" topographic quadrangle as well as the immediate eight surrounding quadrangles. The habitats and vegetation communities found on-site represent potentially suitable habitat for a number of other special-status animal species (Table A-1, Figure 9). One invertebrate (valley elderberry longhorn beetle), one reptile (western pond turtle), and seven birds (northern harrier, white-tailed kite, Swainson's hawk, merlin, short-eared owl, loggerhead shrike and ferruginous hawk) were considered to have potential to occur on the Project Site. Four of these species were observed during various field surveys between 2012 and 2016: valley elderberry longhorn beetle (exit hole), white-tailed kite (perched in willow tree), northern harrier (foraging), and Swainson's hawk (flyover/foraging). In addition, a field survey of the Project Site was conducted in April 2016 to determine if habitat exists for protected or otherwise monitored Chiroptera (bat) species (Wyatt 2016). During the field survey, the existing oak tree stand within and immediately adjacent to the property was examined for evidence of bat roosting. No individuals were found, nor any evidence of roosting; however, four trees were found to possess characteristics (e.g., cavities, crevices, exfoliating bark) that could provide potential habitat for three foliage-roosting bat species (western red bat, hoary bat, and silver-haired bat) known to occur in Yolo County (Wyatt 2016; CNDDB 2019).

5.2.1 Invertebrates

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle (VELB) is listed as threatened by the federal ESA. It is also a covered species under the Yolo HCP/NCCP. The VELB is entirely dependent upon its host plant, elderberry (*Sambucus* spp.). The elderberry shrub is primarily associated with riparian areas, but also occurs in grasslands, dredge tailings, and as isolated roadside shrubs. Most records indicate that the VELB occupies elderberry shrubs in association with other riparian vegetation. The VELB life cycle consists of four stages: egg, larva, pupa, and adult. Eggs are typically deposited within the bark crevices of live elderberry shrubs. Upon hatching, the larvae bore through the bark where they tunnel and feed in the pith of the stem for up to 2 years. Prior to pupating, the larvae bore out of the stem (thereby creating an "exit hole") and then return into the stem to enter the pupal stage. Exit holes are more frequently found in trunks or branches between 2 and 7 inches in diameter, or at least 1 inch or greater

in diameter at ground level (USFWS 1984). Between March and early June, about the same time the elderberries flower, VELB adults emerge from the exit holes. Adults feed on the leaves of elderberry shrubs and possibly the flowers. The life span of adults is unknown, but they are presumed to die after reproducing.

This taxon occurs at scattered locations in the Central Valley and adjacent foothills of the Sierra Nevada and Coast Ranges. At the time the VELB was federally listed, it was known from less than 10 locations along the American and Merced Rivers, and along Putah Creek (USFWS 1980). The known range now extends from southern Shasta County to Fresno County and across the Central Valley, with approximately 271 records (mostly based on exit holes) in existence (CNDDB 2019). The Yolo HCP/NCCP does not identify the Project site as modeled habitat for VELB, however, there is modeled riparian habitat immediately north of the Project Site. The nearest occurrence record for this taxon is approximately 0.25 mile (1320 ft) northwest of the Project Site (CNDDB Element Occurrence No. 81; CNDDB 2019). This occurrence is described as being located on elderberry shrubs within riparian habitat along the south bank of Cache Creek, just west of Road 94B. In addition, numerous exit holes have been documented just north of Cache Creek as part of an elderberry mitigation and mine reclamation site (Teichert 2007; Baba pers. observ). Numerous elderberry shrubs were observed within the Cache Creek riparian corridor just north of the Project Site, in addition to shrubs with exit holes. Some of these shrubs occur within the Project Site, but all are located beyond 165 feet from the limits of disturbance and, therefore, are considered avoided by the Project under both the Yolo HCP/NCCP and current USFWS Guidance (USFWS 2017 and ICF 2018).

5.2.2 Reptiles

Western Pond Turtle (*Emys marmorata*)

Western pond turtle is not listed pursuant to either the federal or California ESAs, but is designated by the CDFW as a California Species of Special Concern. It is also a covered species under the Yolo HCP/NCCP. This species occurs in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow moving streams. Although primarily aquatic, the western pond turtle will leave its aquatic habitats to reproduce, aestivate, or overwinter. Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops appears to be the preferred aquatic habitat of the species. Although adults are habitat generalists, hatchlings and juveniles require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western pond turtles are typically active between March and November. Mating generally occurs from late April to early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, within substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet of the aquatic habitat. However, sites have been documented as far as 1,310 feet from aquatic habitat (Jennings and Hayes 1994). Nests are typically located on a slope that is unshaded and at least partly south-facing. The slope of nest sites ranges up to 60 feet, but is typically less than 25 feet (Jennings and Hayes 1994).

Western pond turtle is discontinuously distributed from western Washington State south to northwestern Baja California, but exists at numerous localities in the Central Valley of California. The nearest known occurrences for this species are approximately 12 miles south of the Project Site, one in Putah Creek near the City of Winters and the other in Putah Creek in the City of Davis (CNDDB Occurrence Nos. 441 and 362; CNDDB 2019). Although there are no occurrences of this species recorded in the CNDDB for the vicinity of the Project Site, it has been regularly observed at locations in the upper reaches of Cache Creek (i.e., above Rumsey) and occasionally in the lower reaches of Cache Creek (M. Bumgardner pers. comm. pers. observ.), including the Cache Creek Nature Preserve (B. Baba pers. observ). Individuals could occur in the Moore and Magnolia canals given the canals' proximity to Cache Creek. While the Yolo HCP/NCCP identifies Moore Canal as modeled aquatic habitat for Western pond turtle it also states that their model overestimates the extent of aquatic habitat provided by agricultural waterways which often do not provide suitable habitat. The Yolo HCP/NCCP does not identify any modeled "nesting and overwintering habitat" for Western pond turtle on the Project Site. Most of the upland habitat within the proposed limits of disturbance is unsuitable for nesting or overwintering given that it is in active agricultural use each year. However, the narrow strip of ruderal vegetation north of the conveyor belt could be used for nesting. Therefore, Western pond turtle could potentially occur within the study area.

5.2.3 Birds

White-tailed Kite (*Elanus leucurus*)

White-tailed kite is not listed in accordance with either the FESA or CESA. However, the species is fully protected pursuant to Section 3511 of the California Fish and Game Code. It is also a covered species under the Yolo HCP/NCCP. This species is commonly found in savanna, open woodlands, desert grassland, marshlands, and cultivated fields. They prefer to eat small mammals (i.e., mice and voles), but will occasionally hunt reptiles, amphibians, and flying insects. In northern California, white-tailed kites typically nest from March through June. Nesting occurs in large, dense-topped trees within riparian, oak woodland, savannah, and agricultural communities that are near suitable foraging areas.

White-tailed kites are found from the West Coast and Gulf Coast of the United States south to Mexico, Central America, and South America. The species is a common resident in the Central Valley as well as most of the California coast (Dunk 1995). The species has been observed regularly throughout the lower elevation portions of Yolo County (Bumgardner pers. comm.), including the riparian areas adjacent to the Project Site (Baba, pers. observ.). The Yolo HCP/NCCP identifies the Project Site as containing modeled "Secondary Foraging" habitat for white-tailed kite. The nearest occurrence of this species reported in the CNDDB is approximately 8.5 miles south of the Project Site in a line of pine and eucalyptus trees bordered by fallow fields (CNDDB Occurrence No. 43; CNDDB 2019). The nearest eBird records are from immediately west of County Road 94B along Cache Creek at the Cache Creek Nature Preserve. Therefore, white-tailed kite is considered to have potential for nesting in trees within or immediately adjacent to the study area.

Northern Harrier (*Circus hudsonius,* formerly, *Circus cyaneus*)

Northern harrier is not listed in accordance with either the federal or state Endangered Species Acts, nor is it a species covered by the Yolo HCP/NCCP. However, it is designated as a California Species of Special Concern by the CDFW (when nesting). The species occurs in open habitats, including Arctic tundra, grasslands, open rangelands, desert flats, and marshes. Northern Harriers feed mostly on small mammals and other birds. Nesting usually occurs from April to September with peak activity occurring June through July. Nests are typically located on the ground in grassland, weedy fields, grain fields, or marshes.

The northern harrier occurs widely throughout North America and Eurasia (where it is called the Hen Harrier). In North America, nesting occurs from northern Alaska and Canada south to northern Baja California. In winter, the species may be found from southern Canada to as far south as Central North American and northern South America. Migration distance varies between populations and available food. An occurrence of nesting in Yolo County was documented in the CNDDB in 2015 (CNDDB 2019). The species is known to regularly nest in small numbers throughout the lower elevation portions of Yolo County (Bumgardner pers. comm.). The nearest eBird record during peak nesting season (i.e., June to July) is from 2019 and was approximately 1 mile west of the Project Site in Wild Wings Park. The species has also been observed foraging at the site on numerous occasions (Baba, pers. observ.) Consequently, the species could potentially occur within the study area.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is listed as a threatened species pursuant to the California ESA. It is also a covered species under the Yolo HCP/NCCP. Swainson's hawk prefer open to semi-open habits throughout much its range. In California, the nesting season for Swainson's hawk ranges from mid-March to late August. In the Central Valley, Swainson's hawks are known to nest within tall trees in a variety of wooded communities including, but not limited to, riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas.

Swainson's hawks have an unusual raptor diet, in that they are predominantly insectivorous, feeding on grasshoppers, dragonflies and crickets. During the breeding season, larger prey, such as rabbits, rodents and small reptiles, are incorporated as the main source of protein. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), passerine birds, and grasshoppers (*Melanopulus* spp.). Foraging habitat includes open grassland, savannah, low-cover row and field crops, and livestock pastures. The species is an opportunistic forager and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). According to a recent study by Swolgaard, et al. (2008), the most frequently used foraging habitats within the Sacramento-San Joaquin Delta region are irrigated hay fields, ruderal areas, and dryland grain fields, with the heaviest usage immediately after mowing. This is likely due to a temporary increase in prey availability due to the loss of vegetative cover. The least frequently used habitats were oak woodland, irrigated field crops, urban environments, and riparian and lacustrine areas.

Swainson's hawk nests in western North America and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (England et al. 1997). In California, the species occurs primarily in the Central Valley, Modoc Plateau, Owens Valley, and the Antelope Valley. The majority of Central Valley nest sites occur in Sacramento, Yolo, and San Joaquin Counties. The Yolo HCP/NCCP identifies the Project Site as containing modeled Agricultural Foraging habitat for Swainson's hawk. Swainson's hawks have been observed on-site (flyover/foraging) during rare plant surveys conducted between 2012 and 2015 (Baba pers. observ.). Though no Swainson's hawk nests have been documented on-site, nine nests have been reported to the CNDDB within 2 miles of the Project Site (CNDDB 2019, Figure 10). A pair of Swainson's hawk was observed nesting in a eucalyptus tree at Teichert's Woodland Plant site approximately 0.5 mile to the northeast in 2007 and 2008 (Baba, pers. observ.). Although the Yolo HCP/NCCP does not identify the Project Site as containing modeled nesting habitat for Swainson's hawk, tall trees (i.e., oaks, cottonwoods) along the northern boundary of the Project Site provide potential nesting habitat, for Swainson's hawk, while the annual grassland/ruderal vegetation and agricultural land currently provide potential foraging habitat. Therefore, the species is likely to occur within or immediately adjacent to the Project Site.

Ferruginous Hawk (*Buteo regalis*)

The winter distribution of ferruginous hawks historically included Kansas, Colorado, California, and Nevada south to New Mexico. Wintering ferruginous hawk is not listed in accordance with either the federal or California ESAs, but is currently tracked by the CNDDB. Ferruginous hawk is not covered by the Yolo HCP/NCCP. The historic nesting distribution of the ferruginous hawk in North America included eastern Washington, southern Saskatchewan, southwestern Manitoba, and western North Dakota south to eastern Oregon, Nevada, northern and southeastern Arizona, northern and southwestern New Mexico, northwestern Texas, western Oklahoma, western Kansas, western Nebraska, and rarely northeastern California. Currently, ferruginous hawks occupy much of their former breeding distribution. However, they are now gone from southwestern Manitoba, southeastern Arizona, southwestern New Mexico, and northwestern Texas. Historically, a few pairs of ferruginous hawks were known to nest in extreme northeastern California in Modoc County (Grinnell and Miller, 1944), and a few pairs still nest in this region of the State (particularly the Fall River Valley of Shasta County). Ferruginous hawks begin to migrate into California in August or September and return to their breeding habitat in late February or early March. Expansive, open grassland is the primary wintering habitat of the species. The wintering distribution of the ferruginous hawk in California extends from the Oregon state line to the Mexican border, west of the Colorado Desert and east of the northern humid coastal belt. The nearest known CNDDB occurrence is located is 24.8 miles southeast from the study area (CNDDB Element Occurrence No. 7; CNDDB 2019) near the Sacramento Regional County Sanitation District Bufferlands. Though no ferruginous hawks have been reported within the Project Vicinity, there are multiple winter eBird records for the species in Yolo County. Consequently, the species is considered to have potential to winter at the Project Site.

Short-eared Owl (*Asio flammeus*)

Short-eared owl is not listed in accordance with either the federal or state Endangered Species Acts, nor is it a species covered by the Yolo HCP/NCCP. However, it is designated as a California species of special concern by the CDFW (when nesting). Easier to see than most owls, this species lives in open terrain with no or only small numbers of scattered trees. Short-eared owls prey mostly on small rodents, especially voles, but will eat other small birds. Hunting occurs mostly at night, but this owl is also known to be diurnal. This species does require dense cover (e.g., prairie, grasslands, vegetated dunes, meadows, irrigated pasture, and fresh or saltwater marsh) for roosting or nesting. It nests on the ground in a depression concealed by vegetation. Nesting occurs from early March through late July.

The short-eared owl has one of the most widespread distribution of any bird, occurring on all continents except Australia and Antarctica. The species nests in Europe, Asia, North and South America, the Caribbean, Hawaii and the Galapagos Islands. It is partially migratory, moving south in winter from the northern parts of its range. No occurrences of this species have been reported in the CNDDB for Yolo County (CNDDB 2019). However, multiple eBird records exist documenting the presence of short-eared owls in Yolo County approximately 3.75 miles from the Project Site in January 2018. The species has only been confirmed as an occasional nesting species at the Hunt Wesson Hawk and Owl Reserve north of Davis (Bumgardner pers. comm.). However, individuals have been observed during the peak nesting season (i.e., June to July) at the Conaway Ranch and Yolo Basin Wildlife Preserve as recent as 2013 (Bumgardner pers. comm.). Consequently, the species is considered to have some potential, albeit low, to occur at the Project Site.

Merlin (*Falco columbarius*)

Merlin is not listed in either the FESA or CESA, nor is it a species covered by the Yolo HCP/NCCP, but the wintering distribution of this species is currently tracked by the CNDDB. This species breeds in rugged terrain that provides both trees for nests and open areas for hunting. The merlin feeds mostly on small birds, capturing them in mid-air, but also feeds on large insects, rodents, bats, and reptiles. In winter, suitable foraging habitat includes a wide range of open environments such as sea coast estuaries, desert, open grasslands, and semi-open woodlands within which it can hunt from low perches. Consequently, annual grassland and ruderal vegetation and fallow agricultural land provide potential winter foraging habitat for the species.

The merlin occurs throughout much of the northern hemisphere. In North America, the species breeds in Alaska, Canada, Alaska, and south into Idaho, Oregon, Wyoming, and Minnesota. In winter, this species migrates south into other parts of the United States and as far south as South America. The species occurs in California as an uncommon migrant and winter resident (August through April). There are no CNDDB records for this species in the vicinity of the study area, with the nearest record reported approximately 7 miles east in a bare field in the northeast corner of the city of Woodland (CNDDB Element Occurrence No. 26; CNDDB 2019). However, the species has occasionally been observed foraging in rangeland or agricultural fields throughout the lower elevation portions of Yolo County (M. Bumgardner pers. comm.). The nearest eBird records are from immediately west of County Road 94B along Cache Creek at the Cache Creek Nature Preserve in 2014 and two sightings, one in 2017 and one in

2018, approximately 1 mile away from the Project site nearby the YCFCWCD building. Therefore, it is considered to have potential for wintering within the Project Site.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is not listed pursuant to either the FESA or CESA, nor is it a species covered by the Yolo HCP/NCCP, but it is considered a California Species of Special Concern by the CDFW (when nesting). The species generally occurs in a variety of open grassland, oak savannah, shrubland, and other similar habitats where it feeds primarily on large insects (e.g., grasshoppers). This species is known to store its uneaten prey by impaling it on thorn or barbed wired, returning to eat it later. The species may also occasionally feed on small reptiles, birds, and mammals. It nests in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 1996). It has even been observed nesting in cattails (M. Bumgardner pers. comm.). Nesting typically occurs during March to June with young becoming independent during July or August. The nest is generally well-concealed on a stable branch in a densely-foliaged shrub or tree. Nest territories have been found to range in size from 11 to 40 acres (Miller 1931). In areas of year-round residence (such as much of lowland California) members of a pair are known to defend adjoining territories during the non-breeding season and then defend a single nesting territory comprised of the adjoining winter territories during the breeding season (Lefranc 1997).

The loggerhead shrike is endemic to North America, occurring from southern Canada south through the United States and Mexico. Northern populations are migratory, moving south for the winter, while most southern populations remain near their breeding range. The nearest CNDDB record for this species is in Alameda County (CNDDB 2019). Though no nesting occurrences of loggerhead shrike have been reported within the vicinity of the Project Site (CNDDB 2019), it has occasionally been observed in rangeland or agricultural fields throughout the lower elevation portions of Yolo County (M. Bumgardner pers. comm.). The nearest eBird record is on the County Road 94B bridge immediately northwest of the Project Site in 2018. Additional eBird records exist immediately west of County Road 94B along Cache Creek at the Cache Creek Nature Preserve in 2014 and Wild Wings Park in 2015. Therefore, it is considered to potentially nest within the Project Site.

Tricolored Blackbirds (*Agelaius tricolor)*

Following an assessment guided by Appendix 1: Survey Protocol Provided to Volunteers of Results of the Tricolored Blackbird 2008 Census and AMM 21 of the Yolo HCP/NCCP, tricolored blackbirds were classified as “unlikely to occur” in Table A-1. Despite being considered “unlikely to occur,” Tricolored blackbird is discussed in this section because it is a covered species under the Yolo HCP/NCCP, is the subject of a statewide census, and has a complex life-history which warrants in-depth analysis. Tricolored blackbird (*Agelaius tricolor*) is listed as a threatened species under the CESA. It is also a covered species under the Yolo HCP/NCCP. Tricolored blackbird is not migratory over most of its range,

but leaves northeastern California in fall and winter. Flocks become nomadic in fall seeking food. In winter, flocks become more widespread from Marin to Santa Cruz counties and in the Sacramento River Delta. The breeding season for this species generally extends from mid-April into late July. Prospecting (i.e., searching for and visiting potential nest sites) typically occurs between early April and early June in the Sacramento area. Nesting colonies vary in size from about 50 nests to over 20,000 nests. Historically, tricolored blackbirds were found nesting in large to very large colonies (some estimated at over 100,000 nests) in areas with cattail or tule marsh habitats. However, with the decline of such habitats, the species now also nests in other vegetation including Himalayan blackberry, grain fields (i.e. triticale), especially when weedy or associated with dairies, and flooded woody riparian vegetation (Meese 2017). Foraging habitats are generally associated with open grassland, fields, and farm lands that provide high densities of prey species such as grasshoppers and butterfly larvae during the nesting season. Such foraging habitats are typically within 3 miles or less of the nesting colony.

The tricolored blackbird has one of the smallest ranges of any bird species in North America. Almost the entire population occurs year-round in cismontane California, with the Central Valley supporting the largest populations. However, small numbers occur in transmontane California (i.e., deserts and Great Basin), Oregon, western Nevada, Washington, and northern Baja California. The San Joaquin Valley supports the largest populations of tricolored blackbird (Meese 2017). In the 2017 statewide census of tricolored blackbirds, Yolo County contained 5.6% of all recorded tricolored blackbirds (Meese 2017). While potential nesting habitat exists within the Woodland Quad it has not attracted nesting tricolored blackbirds in the recent past. The nearest recorded CNDDB occurrence of tricolored blackbird (nesting or otherwise) is over 20 years old, located over 5,000 feet from the Project Site, and was destroyed by flooding in 1995 (CNDDB Element Occurrence No. 303; CNDDB 2019). Many nearby CNDDB records are "Extirpated" or "Possibly Extirpated". Other CNDDB records are "Presumed Extant" yet known to be inactive through the results of the triennial statewide surveys for tricolored blackbird (e.g. Occurrence Numbers 303, 495, 498, 997). The Yolo HCP/NCCP does not identify the Project Site as containing modeled nesting habitat for tricolored blackbird. The nearest modeled nesting habitat, approximately 2,750 feet from the Project site, is a marsh within the Cache Creek Nature Preserve. While parts of the marsh are dominated by tule and cattail, it has never attracted tricolored blackbirds (Mizoguchi pers. observ.).

Since 1994 triennial statewide surveys for tricolored blackbirds have documented the presence of breeding colonies and the abundance of tricolored blackbirds in California. "The goal of the survey is to obtain a count of Tricolored Blackbirds in the state by utilizing a large number of experienced volunteers who attempt to visit all known breeding colony sites and search for new breeding sites at previously unknown locations" (Meese 2017). Pre-surveys also occur as part of the census, "These pre-survey colony detections are conducted both by professional biologists who make systematic searches for active breeding colonies and by private citizens who enter records of colony locations into the Tricolored Blackbird Portal, eBird, various birding community listservs, or who report directly to survey coordinators" (Meese 2017). The absence of tricolored blackbirds from the Project Site and surrounding areas is well documented through the results of the triennial statewide surveys, the CNDDB, and local knowledge. Though no tricolored blackbirds have been reported within the Study Area, the species may

forage in field and row crops and could utilize the site for nesting during years when certain grain crops are being grown. However, this has never occurred and local conditions have not changed substantially to become more attractive for tricolored blackbird. As such, the species is considered unlikely to occur in the study area.

Western Burrowing Owl (*Athene cunicularia*)

Following a habitat assessment guided by Appendix C: Habitat Assessment and Reporting Details of the 2012 USFWS Staff Report on Burrowing Owl Mitigation and AMM 18 of the Yolo HCP/NCCP, Burrowing owls were classified as "unlikely to occur" in Table A-1. Despite being considered "unlikely to occur," Burrowing owl is discussed in this section because it is a covered species under the Yolo HCP/NCCP and has complex habitat requirements which warrant in-depth analysis. The following discussion addresses the directives in Appendix C of the 2012 USFWS Staff Report on Burrowing Owl Mitigation.

The burrowing owl is a California species of special concern and is a Bird of Conservation Concern per the USFWS Region 1,2, and 5 (USFWS 2002), but is not listed in accordance with either the federal or state Endangered Species Acts. Burrowing owl habitat, generally includes short and/or sparse vegetation, well-drained soils, and available prey and requires burrows, fossorial mammal dens, or burrow surrogates. Prey items are most often invertebrates though small mammals, reptiles, amphibians, and carrion contribute significantly to the burrowing owl's diet.

Burrowing owls are present in much of the western United States. Both resident and migratory populations exist within North America. In California, the burrowing owl is primarily a year-round resident. The Yolo HCP/NCCP does not identify "primary habitat" or "other habitat" within the Project Site or the Project's limit of disturbance. The Yolo HCP/NCCP identifies "other habitat" and "primary habitat" within 500ft of the Project site. The CNDDB has no recorded occurrences of burrowing owls in the Woodland quad, where the Project is located. Two of the nearest CNDDB occurrences (occurrences 28 and 102) are "extirpated" and another (occurrence 231) is "possibly extirpated". The nearest "extant" or "presumed extant" CNDDB occurrence, occurrence 662, is approximately 5.8 miles northwest of the Project. The nearest eBird observation of burrowing owls is approximately 2.5 miles south of the Project.

"In California, preferred habitat is generally typified by short sparse vegetation with few shrubs, level to gentle topography and well drained soils" (USFWS 2012). The habitat on-site is not typical of burrowing owl habitat as described above, trees and shrubs are dispersed throughout and understory vegetation is often dense and tall (e.g., thistle patches, non-native grass stands, horehound shrubs). The semi-natural communities are not managed and therefore vegetation height, density, and abundance are consistently not suitable for burrowing owls throughout the year. Agricultural lands can support burrowing owl if certain conditions are met, "…burrowing owls may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity" (USFWS 2012). The agricultural crops on-site vary but are usually of an unsuitable stature, density, and abundance. "Burrows and the associated surrounding habitat are essential ecological requisites for burrowing owls throughout the year and especially during the

breeding season" (USFWS 2012). The Project site has been disked at a minimum, twice a year, for many years, precluding fossorial mammals from using the Project Site and creating suitable burrows throughout the majority of the Project Site. Barren land is present but occupied by land-uses incompatible with supporting burrows (e.g., gravel-conveyers, earthen-lined canals). In addition to having no burrows on-site, no indications of the presence of burrowing owl (e.g. pellets, feathers, whitewash, etc.) have been found during any biological surveys or site visits.

Though some characteristics of suitable burrowing owl habitat are present on-site, essential elements (i.e., burrows and vegetation structure) are not present and current and past management practices would strongly deter burrowing owls. As such, burrowing owls are unlikely to occur on the Project Site.

5.2.3.1 *Other Birds of Prey (Raptors)*

All raptors, including species that are not considered special-status species, are protected under Section 3503.5 of the California Fish and Game Code. This section of the California Fish and Game Code provides protection to the nests, eggs, and individuals of raptor species. Raptor species that are not considered special-status species by CDFW but occur in the vicinity of the Project Site include American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) in the order Falconiformes, and great-horned owl (*Bubo virginianus*), western screech owl (*Otus kennicottii*), and barn owl (*Tyto alba*) in the order Strigiformes (M. Bumgardner pers. comm.). It should be noted that American kestrel, western screech owl, and barn owl are cavity or crevice nesters, whereas the other mentioned raptor species build stick nests. Nonetheless, suitable nesting locations for each of these species are limited to the larger trees in and immediately adjacent to the Project Site (typically with DBH larger than 15 inches). A barn owl was observed nesting in a barn owl box mounted to an oak tree near the northern portion of the Project site. Furthermore, a large stick nest in a dead snag was also observed. No focused surveys for nesting raptors have been conducted at the Project Site. However, given the presence of suitable nesting structures within and immediately adjacent to the Project Site and known occurrences of other nesting raptors within the site vicinity, these species are considered to have potential to nest at the site

5.2.4 Mammals

Western Red Bat (*Lasiurus blossevillii*)

Western red bat is not listed pursuant to either the FESA or CESA, nor is it a species covered by the Yolo HCP/NCCP, but is designated by the CDFW as a California Species of Special Concern. It can be found from southern British Columbia, the western U.S., Mexico, and possibly South America (Cryan 2003; Pierson et al. 2006). Western red bat occurs throughout much of California at lower elevations. This species prefers forest and woodland habitat with open spaces for foraging. The western red bat almost exclusively roosts in large trees (cottonwoods, sycamores, walnuts, and willows) and occasionally shrubs. It forages primarily on insects and can be found in riparian woodlands, orchards, or habitat edges next to streams, open fields, or urban areas (CWHR 2017). This species breeds in August and September, and young are born in May through July.

Although the western red bat has a wide range, relatively few records for the species exist outside of California (et al. 2006). Most records are from the Central Valley, which is the breeding center for the species. Individuals appear to stay in California year-round, with some evidence of relatively short migrations between summer and winter ranges. There have been multiple recorded occurrences of the western red bat in Yolo County. The closest to the Project Site is about 9 miles to the west in a fig orchard near the town of Esparto (CNDDB Occurrence No. 92; CNDDB 2019). The stand of oak trees located within and immediately adjacent to the Project boundary may provide roosting habitat for the western red bat along the Cache Creek riparian corridor (Wyatt 2016). Therefore, this species is considered to have potential to occur within the Project site.

Silver-Haired Bat (*Lasionycteris noctivagans*)

The silver-haired bat is not listed pursuant to either the FESA or CESA, nor is it a species covered by the Yolo HCP/NCCP, but is currently tracked by the CNDDB. This bat occurs throughout much of the U.S. (with Florida as the exception), northward into southern Canada, with a northward peninsular extension following the coast into the lower south-central portion of Alaska. They are also found southward into Mexico. During the summer months the species usually inhabits coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats below 3,000 feet elevation. The silver-haired bat feeds primarily on insects in forested areas near streams and ponds. It roosts in tree and shrub foliage (i.e., snags, cavities, crevices, and exfoliating bark) as well as rock crevices, caves, mines, and buildings (CWHR 2017).

In California, its primary range is the northern and southern coastal, Klamath, and Sierra Nevada mountain ranges. Due to its long-distance migratory patterns, it has also sporadically been recorded in many areas outside its typical range, including Yolo County. These occurrences are more likely during the spring and fall migration seasons. The nearest known CNDDB occurrence is located is 4.1 mile east from the study area (CNDDB Element Occurrence No. 89; CNDDB 2019). The stand of oak trees located within and immediately adjacent to the project boundary may provide roosting habitat for the silver-haired bat (Wyatt 2016). Therefore, this species is considered to have potential to occur within the Project site.

Hoary Bat (*Lasiurus cinereus*)

The hoary bat is not listed pursuant to either the FESA or CESA, nor is it a species covered by the Yolo HCP/NCCP, but is currently tracked by the CNDDB. It is wide-spread throughout North and South America, with disjunct populations in the Galapagos Islands and Hawaii. The species preys primarily on moths and roosts in medium to large trees with dense foliage. Preferred habitats are forests and woodlands along habitat edges or adjacent to riparian areas with large riparian trees species such as cottonwoods and willows. This species may also be found roosting in nut and fruit orchard trees and to a lesser extent caves or rock ledges (CWHR 2017; Wyatt 2016).

The hoary bat can be found in all regions of California as high as 13,200 feet elevation. It migrates during the spring and fall seasons between southern, coastal, inland, and northern regions of the state.

Scattered occurrences have been recorded by CNDDB throughout Yolo County. The nearest known CNDDB occurrence is located is 4.1 miles east of the Project Site (CNDDB 2019). The stand of oak trees located within and immediately adjacent to the project boundary may provide roosting habitat for the hoary bat (Wyatt 2016). Therefore, this species is considered to have potential to occur within the Project site.

6 POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

This section of the document addresses changes in the existing environmental baseline for biological resources (i.e., impacts) that may result from implementation of the Project and are considered significant consistent with Section 15065 and Appendix G of the CEQA Guidelines. Mitigation measures are provided to avoid, minimize, or otherwise compensate for the identified impacts where such measures are available.

It should be noted that no potential impacts are associated with the following criteria:

- 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; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Consequently, impacts associated with the above criteria are not analyzed in this document.

6.1 Wetlands and Waters of the U.S.

A total of 1.856 acres of jurisdictional wetlands and Waters of the U.S. – which would also be considered Waters of the State (collectively "Waters") - have been delineated within the Project Site (Table 1, Figure 3) (ECORP 2012). All Waters that have been described for the study area would be affected by the proposed project. The seasonal wetland, marsh, pond, and drainage ditch that occur within the study area would be permanently removed during mining activities associated with the Project. The Moore and Magnolia Canals are proposed to be relocated/realigned to the northern Project boundary.

Table 1. Jurisdictional Wetlands and Waters of the U.S./State – Teichert Shifler Property

Wetland Type	Total Acres
Seasonal Wetland	0.014
Marsh	0.009
Pond	0.098
Irrigation Canals	1.729
Drainage Ditch	0.006
Totals	**1.856**

The Yolo HCP/NCCP contains two AMMs addressing impacts to wetlands: AMM 9 and AMM 10. AMM 9 requires the establishment of buffers around certain wetlands that will be avoided by a project. AMM 10 provides that project proponents must comply with any requirements imposed by applicable National Pollutant Discharge Elimination System (NPDES) permits. AMM 10 further states that when a Project will involve the fill of Waters or wetlands, the proponent must comply with all relevant requirements under

Section 404 of the Clean Water Act, State Water Resources Control Board, Fish and Game Code section 1602 and applicable Regional Board regulations. Because the Waters and wetlands on the Project site cannot be avoided, AMM 9 is inapplicable. Teichert will comply with the provisions of AMM 10, as discussed below.

The Project will result in impacts to 1.856 acres of wetlands and Waters. The impact to these wetlands and Waters is considered *significant.*

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-1 *Before conducting any grading or excavation activity within Waters of the U.S. and/or Waters of the State, Teichert shall obtain all necessary permits under Sections 401 and 404 of the CWA and/or the State's Porter-Cologne Act.*

MM-2 *Teichert shall mitigate for the loss of wetlands and Waters of the U.S. and/or Waters of the State consistent with the requirements of any permits or authorizations issued by the regulatory agencies pursuant to MM-1.*

MM-3 *A Storm Water Pollution Prevention Plan (SWPPP) will also be required during construction activities. SWPPPs are required in issuance of a National Pollutant Discharge Elimination System (NPDES) construction discharge permit by the U.S. Environmental Protection Agency. Implementation of Best Management Practices (BMPs) during construction is standard in SWPPPs and water quality certifications. Examples of BMPs include stockpiling of debris away from regulated wetlands and waterways; immediate removal of debris piles from the site during the rainy season; use of silt fencing and construction fencing around regulated waterways; and use of drip pans under work vehicles and containment of fuel waste throughout the site during construction.*

MM-4 *A Streambed Alteration Agreement will be obtained from CDFW, pursuant to Section 1602 of the CDFW Code, for the relocation of the Moore/Magnolia Canal and any other activities affecting the bed, bank, or associated riparian vegetation of the canals. Teichert will coordinate with CDFW in developing appropriate mitigation, and should abide by the conditions of any executed permits.*

6.2 Special-Status Species

Implementation of the proposed Project could result in both temporary (with reclamation), direct, and/or indirect impacts on a number of special-status species. A discussion of those potential impacts is provided below, along with a discussion of mitigation measures that may be implemented to reduce the significance of these impacts.

As mentioned above, some of these species are covered by the Yolo HCP/NCCP. The Project will be implemented in accordance with the Yolo HCP/NCCP avoidance and minimization measures (Attachment E). Moreover, through payment of Yolo HCP/NCCP fees or equivalent mitigation, the Project will contribute to the HCP/NCCP's conservation strategy, thereby benefitting those species covered by the Plan. As will be discussed, through payment of HCP/NCCP fees and adherence to the Yolo HCP/NCCP's avoidance and minimization measures to the satisfaction of the YHC and the County, the Project's impacts to covered species are expected to be less than significant

6.2.1 Loss of Habitat for the Valley Elderberry Longhorn Beetle

Elderberry shrubs (*Sambucus* spp.) are the host of the federally threatened Valley Elderberry Longhorn Beetle (VELB). Numerous elderberry shrubs are located adjacent to the Project boundary on the north along Cache Creek corridor (Teichert 2018b). However, no elderberry shrubs occur within 165 feet of Project activities. All elderberry shrubs will be protected from disturbance during the construction and operation of the Project in accordance with USFWS conservation guidelines, which assumes complete avoidance when a 165 foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level (USFWS 2017). The Yolo HCP/NCCP assumes complete avoidance of impacts to shrubs when a 100 foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level.

Mitigation Measure

The following mitigation measure would ensure that the Project's impacts to VELB are less-than-significant:

MM-5 Teichert will obtain coverage under the Yolo HCP/NCCP. In addition to payment of any applicable HCP/NCCP fees, Teichert shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-12 (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle) to the satisfaction of the County and the YHC. The text of AMM-12 is provided in Attachment E.

6.2.2 Loss of Habitat for and Disturbance to Western Pond Turtle

Western pond turtle typically occurs in natural or semi-natural slow-moving aquatic sites. As such it sometimes appears in canals and ditches, probably more so as transportation corridors. The Yolo HCP/NCCP identifies Moore Canal as modeled aquatic habitat for Western pond turtle though, as stated previously, this may be an overestimate on behalf of the model. The Project proposes to relocate the canals and impact these existing aquatic environments where it may occur. However, this impact is expected to be *less-than-significant* given that the canal will be relocated and rerouted prior to impacts.

In addition, the Project will result in the creation of approximately 112.9 acres of lake and shoreline through reclamation, increasing future habitat for the western pond turtle.

The Yolo HCP/NCCP does not identify any modeled "nesting and overwintering habitat" for Western pond turtle on the Project Site. However, given the relatively close proximity to Cache Creek, the narrow strip of ruderal vegetation located along the northern boundary of the Project Site may provide suitable nesting habitat. Thus ground disturbance activities within this area could result in the destruction of eggs or neonate turtles. It should be noted that neonate western pond turtles may overwinter in the nest as individuals have almost never been observed in early fall (Holland 1985). They are believed to exit the nest during the following spring (Buskirk 1992). Therefore, a limited operating period (i.e., period when eggs or neonates could not be affected by ground disturbance) is not available for this species. The loss of eggs, neonates, or adults is considered to be *potentially significant*

Mitigation Measure

The following mitigation measure will ensure that the Project's potential impacts to Western pond turtle are *less-than-significant*:

MM-6 *Teichert will obtain coverage under the Yolo HCP/NCCP. In addition to payment of any applicable HCP/NCCP fees, Teichert shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-14 (Minimize Take and Adverse Effects on Habitat of Western Pond Turtle) to the satisfaction of the County and the YHC. The text of AMM-14 is provided in Attachment E.*

6.2.3 Disturbance to Nesting White-Tailed Kite

White-tailed kite are known to nest in the vicinity of the Project Site. Though there is no evidence to suggest that White-tailed kite have nested within the Project Site, it is possible that nesting could occur in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the Project (see Section 6.3 Oak Woodland), occur during the nesting season for this species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.25 mile (1,320 feet) of the Project Site could be adversely affected during mining-related vegetation removal or earthmoving associated with the Project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measure

The following mitigation measure would reduce the above potential impacts to a less-than-significant level.

MM-7 Teichert will obtain coverage under the Yolo HCP/NCCP. Teichert shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the County and the YHC. The text of AMM-16 is provided in Attachment E. Any surveys outside the Project Site conducted pursuant to AMM-16 shall occur to the extent practicable from publicly accessible areas. In addition to implementing AMM-16, Teichert shall establish a 500 ft protective buffer around active White-tailed Kite nests if nesting is initiated after active mining has begun.

6.2.4 Disturbance to Nesting Swainson's Hawk

Swainson's hawk are known nest in the vicinity of the Project Site. Though there is no evidence to suggest that Swainson's Hawk have nested within the Project Site, however, it is possible that nests could be sited in the larger trees on and adjacent to the site in the future. Consequently, should tree removal, as proposed for the Project (see Section 6.3 Oak Woodland), occur during the nesting season for this species (i.e., mid-March to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nesting pairs located within up to 0.25 mile (1,320 ft) of the Project Site could be adversely affected during mining-related vegetation removal or earthmoving associated with the Project. Such adverse effects are typically associated with noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measures

The following mitigation measure will ensure that the Project's potential impacts to Swainson's hawk are *less-than-significant*:

MM-8 Teichert will obtain coverage under the Yolo HCP/NCCP. Teichert shall implement Yolo HCP/NCCP Avoidance and Minimization Measure AMM-16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite) to the satisfaction of the County and the YHC. The text of AMM-16 is provided in Attachment E. Any surveys outside the Project Site conducted pursuant to AMM-16 shall occur to the extent practicable from publicly accessible areas. In addition to implementing AMM-16, Teichert shall establish a 500 ft protective buffer around active Swainson's hawk nests if nesting is initiated after active mining has begun.

6.2.5 Disturbance to Nesting Northern Harrier or Short-eared Owl

Northern harrier is known to nest in grassland, weedy fields, grain fields, and emergent marsh while short-eared owl is suspected to nest at a small number of similar locations in Yolo County. As such, these species may nest in the patch of ruderal habitat located along the northern boundary of the Project site. The patch of ruderal habitat is small and unlikely to be occupied, but the species cannot be completely discounted from nesting at this location. Consequently, should project-related vegetation removal or earthmoving associated with the Project occur during the nesting season of these species (i.e., mid-February to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, nearby project-related vegetation removal or earthmoving could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. As such, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measure

The following mitigation measure would reduce the above potential impacts to a less than-significant level.

MM-9 *To avoid and minimize impacts to nesting northern harrier or short-eared owl, Teichert shall not initiate project-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving removal shall occur between September 1 and February 14 to the extent feasible.*

Alternatively, if Teichert initiates project-related vegetation removal or earthmoving between February 15 and August 31, a survey shall be conducted for northern harrier and short-eared owl in suitable nesting habitat within and out to 500 feet from the Project boundaries. Any surveys conducted outside the Project Site shall occur to the extent practicable from publicly accessible areas. The survey shall be conducted by a qualified biologist immediately preceding initiation of each phase of project-related vegetation removal or earthmoving on the Project. The survey shall occur within 14 days prior to any vegetation removal or earthmoving activities.

If nesting individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 500 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 500 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all

activities within 500 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall project-related vegetation removal or earthmoving be initiated within 200 feet of an active nest once nesting has begun. Teichert shall establish a 500 ft protective buffer around active northern harrier or short-eared owl nests if nesting is initiated after active mining has begun.

6.2.6 Disturbance to Other Nesting Raptors

Common raptors (i.e., species not designated as special-status species) which are not covered species under the Yolo HCP/NCCP that are known to nest near the Project Site include red-tailed hawk, red-shouldered hawk, American kestrel, great-horned owl, and barn owl. Most of these species nest in larger tree stands in the Project Vicinity, but some individuals (especially red-tailed hawk and great-horned owl) may occasionally nest in "stand alone" trees. Consequently, should tree removal, as proposed for the Project (see Section 6.3), occur during the nesting season of these species (i.e., mid-February to late August), there is the potential for the loss of eggs or juveniles during the removal activities.

In addition, nearby mining activities could result in noise and visual changes that distract individuals from being properly attentive to eggs or juveniles. Though noise and visual disturbance from existing mining and agricultural activities in the Project Vicinity suggest that individuals nesting near the proposed project tolerate such disturbance, there is still some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measure

The following mitigation measure would reduce the above potential impacts to a less than-significant level.

MM-10 To avoid and minimize impacts to other nesting raptors, Teichert shall not initiate project-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively, if Teichert initiates construction between February 15 and August 31, a survey shall be conducted for other nesting raptors (species not designated as special-status) in suitable nesting habitat within and out to 500 feet from the Project boundaries. Any surveys conducted outside the Project Site shall occur to the extent practicable from publicly accessible areas. The survey shall be conducted by a qualified biologist immediately preceding initiation of each phase of project-related vegetation removal or earthmoving on the Project site. The survey shall occur within 14 days prior to any vegetation removal or earthmoving activities.

If nesting individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 300

feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest. All exclusion zones shall be demarcated by security fencing.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 300 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 300 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall project-related vegetation removal or earthmoving be initiated within 200 feet of an active nest once nesting has begun. Teichert shall establish a 300 ft protective buffer around active nests if nesting is initiated after active mining has begun.

6.2.7 Disturbance to Nesting Loggerhead Shrike

Loggerhead shrike has not been documented within the study area. However, it has been documented at nearby locations. In addition, potentially suitable habitat is provided by the ruderal habitat and other open habitats of the project site (particularly where it is adjacent to shrubby vegetation that can be used as nest sites). Therefore, the species is considered to have potential to occur on the project site. Adults are unlikely to be substantially disturbed from ground disturbing activities associated with the project at any time other than the nesting season. However, during the nesting season, eggs or juveniles could be abandoned or otherwise lost due to adjacent disturbances associated with project activities. This impact is considered to be *potentially significant*.

Mitigation Measure

The following mitigation measure would reduce the above potential impact to a less than-significant level.

MM-11 To avoid and minimize impacts to nesting loggerhead shrike, Teichert shall not initiate project-related vegetation removal or earthmoving during the nesting season (February 15 through August 31). All initial project-related vegetation removal and earthmoving shall occur between September 1 and February 14 to the extent feasible.

Alternatively if Teichert initiates project-related vegetation removal or earthmoving between February 15 and August 31, a survey shall be conducted for nesting loggerhead shrikes in all suitable shrubs and trees that are within and out to 200 feet from the Project boundaries. Any surveys conducted outside the Project Site shall occur to the extent practicable from publicly accessible areas. The survey shall be conducted by a qualified biologist immediately preceding initiation of each phase of project-related vegetation removal or earthmoving on the Project site. The survey shall occur within 14 days prior to any vegetation removal or earthmoving activities.

If nesting individuals are found prior to initiation of project-related vegetation removal or earthmoving in the year of the survey, a project exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from project-related vegetation removal or earthmoving to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall project-related vegetation removal or earthmoving be initiated within 100 feet of an active nest once nesting has begun. Teichert shall establish a 200 ft protective buffer around active loggerhead shrike nests if nesting is initiated after active mining has begun.

6.2.8 Disturbance to Nesting Birds Protected Under the Migratory Bird Treaty Act

Other nesting birds have not been documented within the Project Site, but are to be expected. Most of these species, with the exception of introduced species, are afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (particularly while nesting). Some of these species would nest in the onsite woody vegetation (i.e., trees and shrubs), but other species may nest on or near the ground. Consequently, should tree or other vegetation removal, as proposed for the Project, occur during the nesting season of these species (i.e., mid-February to late August), there is the potential for the loss of eggs or juveniles during these activities.

In addition, project-related vegetation removal or earthmoving could result in noise and visual changes that distract adjacent nesting individuals from being properly attentive to eggs or juveniles. Consequently, there is some potential for nesting pairs to be sufficiently disturbed that eggs or juveniles are abandoned or otherwise lost. These impacts are considered to be *potentially significant*.

Mitigation Measure

The following mitigation measures would reduce the above potential impact to a less than-significant level.

MM-13 To avoid and minimize impacts to other nesting birds within the study area (i.e., species not addressed by other impact analyses in this Biological Evaluation), Teichert shall not initiate construction activities or remove vegetation during the nesting season (February 15 through August 31). All initial construction activities and vegetation removal shall occur between September 1 and February 14 to the extent feasible.

If Teichert initiates construction between February 15 and August 31, a survey shall be conducted for other nesting birds in all suitable habitats that are within and out to 200 feet from the project boundaries. Any surveys conducted outside the Project Site shall occur to the extent practicable from publicly accessible areas. The survey shall be conducted by a qualified biologist immediately preceding initiation of each phase of project-related vegetation removal or earthmoving on the Project site. The survey shall occur within 14 days prior to vegetation removal or earthmoving. If nesting individuals are found prior to initiation of project activities in the year of the survey, a project exclusion zone shall be established within 200 feet of the active nest(s) until a qualified biologist determines that the young-of-the-year are no longer reliant upon the nest.

Alternatively, Teichert may retain a qualified biologist to monitor any active nests that are within 200 feet or less from project activities to determine if the individuals are exhibiting any behaviors that would suggest that nest failure could occur. If the qualified biologist determines that disturbance is sufficient to cause nest failure, all activities within 200 feet of the nest will be terminated until the young-of-the-year are no longer reliant upon the nest. Under no circumstances shall project activities be initiated within 100 feet of an active nest once nesting has begun. Teichert shall establish a 200ft protective buffer around active nests if nesting is initiated after active mining has begun.

6.2.9 Impacts to and Loss of Foraging Habitat for Swainson's Hawk, White-tailed Kite, and Tricolored Blackbird

Swainson's hawk, white-tailed kite, and tricolored blackbirds are known to nest in the vicinity of the study area. Consequently, foraging habitat associated with nearby nest territories for these species may include the project site. These species utilize various row and field crops in addition to grasslands as suitable foraging habitat. Therefore, most of the study area is considered suitable foraging habitat for these species (though some of this suitability is temporal). The removal of up to 283.05 acres of cultivated land from agricultural production as well as up to 11.9 acres of other habitat suitable as foraging habitat (e.g., ruderal vegetation/annual grassland) would result in both temporary and permanent decreases in the local foraging habitat for the species (temporary given phasing of the project and subsequent phased reclamation). A net permanent loss of foraging habitat (156.95 acres) would occur upon project completion given that subsequent reclamation would result in only 138 acres of restored agricultural and other suitable foraging habitats. This is considered a potentially significant impact.

Mitigation Measure

The following mitigation measures would reduce the above potential impact to a less than-significant level.

MM-14 Teichert will obtain coverage under the Yolo HCP/NCCP. As mitigation for potential impacts to foraging habitat, Teichert will pay all applicable HCP/NCCP fees. These fees will be utilized by

the YHC to obtain suitable substitute foraging habitat for Swainson's hawk, white-tailed kite and tricolored blackbird.

6.2.10 Loss of Winter Foraging Habitat for Ferruginous Hawk and Merlin

Ferruginous hawk and merlin are known to winter throughout the Central Valley (including in the vicinity of the study area). The loss of winter-fallowed agricultural land associated with the project site would result in a net decrease in the local foraging habitat for the species. Most of this net decrease in local winter foraging habitat would be either temporary (with reclamation) or compensated for through mitigation for Swainson's hawk, white-tailed kite, and tricolored blackbird foraging habitat. Consequently, this impact is considered to be less than-significant.

Mitigation Measures

No additional mitigation is required.

6.2.11 Loss of Habitat for and Disturbance to Chiroptera (Bat) Species

The western red bat (*Lasiurus blossevillii*) is a California Species of Special Concern with the potential to occur in the oak tree stand in and immediately adjacent to the Project site. Two other bat species not listed under special status but tracked by the CNDDB with the potential to roost in or immediately adjacent to the Project Site are the silver-haired bat (*Lasionycteris noctivagans*) and the hoary bat (*Lasiurus cinereus*). All three bat species are tree-roosting species and prefer foliage cover or tree cavities, crevices, exfoliating bark, or dead trees (snags) as roosting sites. These species primarily forage for insects (i.e., moths, grasshoppers, wasps) in riparian or open habitats and may be found roosting in large trees near streams, open fields, or orchards. All three bat species are migratory and have different roosting sites for summer and winter. Maternity roosts are likely in this region of California during the summer season. Removal of the oak trees within the Project boundary may result in the destruction of potential maternity roosting sites if performed during the summer. The loss of suitable habitat for these bat species is considered *potentially significant*.

Mitigation Measure

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-15 Removal of any of the four trees found to have suitable characteristics for the aforementioned Chiroptera species, shall commence before maternity colonies form (i.e., prior to April 15) or after young are capable of flight (i.e., after August 15th). None of the four aforementioned trees shall be removed between April 15th and August 15th. Disturbance-free buffer zones, as determined by a qualified biologist, shall be observed for maternity roosts or hibernacula found during the maternity roost season (i.e., April 15th through August 15th).

Removal of any of the four aforementioned trees shall take place over a minimum of two days with the first day consisting of trimming to open the roosting area up to airflow. Demolition shall only occur after at least one night has passed since trimming has been completed. This should allow bats to wake from torpor and leave during darkness, thus increasing their chance of finding new roosts with a minimum potential for predation during daylight. Due to the extensive amount of potential habitat in nearby properties and along Cache Creek, no further mitigation is proposed.

6.3 Valley Oak Woodland

The Oak Tree Survey Report for the Shifler Property (Teichert 2018c, Attachment C) identifies a total of 52 native valley oak trees within the Project boundaries. Of these, 46 (1.7 acres) are expected to be directly or indirectly impacted by the project. Yolo County does not have an established tree preservation ordinance or policy. However, efforts have been made to prioritize conservation, minimize impacts, and develop enhancement opportunities for native oak trees, consistent with the provisions of the Yolo County Oak Woodland Conservation and Enhancement Plan. Impacts to native trees oaks are considered to be significant.

It should be noted that although other non-native tree species were identified during the tree survey (see Section 4.3.2, supra), those species do not require mitigation and, thus, are not discussed further.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts from the proposed Project to a *less-than-significant* level.

MM-16 Oak woodland habitat will be compensated for via the planting of three native oak seedlings for each tree potentially impacted. All plant material shall be gathered from locally native, ecologically appropriate sources. To compensate for the loss of 1.7 acres of oak woodland habitat, the resulting mitigation planting area shall meet or exceed the acreage removed. A minimum of 138 replacement oaks seedlings on at least 1.7 acres will be required. Teichert shall prepare a detailed tree mitigation planting plan to Yolo County prior to the removal of any trees on site. The tree mitigation plan shall illustrate planting locations and provide detailed descriptions on planting densities, species type, maintenance activities, and performance standards.

6.4 Consistency with Yolo HCP/NCCP

As mentioned previously, Teichert intends to seek coverage for the Project under the Yolo HCP/NCCP. The Project is not expected to result in conflicts with the Yolo HCP/NCCP. The Project is located within the HCP/NCCP's Willow Slough Basin Planning Unit. Aggregate mining is listed as a Covered Activity, and

the Shifler Project Site is specifically identified as a "future mining area" in the HCP/NCCP. (See Section 3.5.2.5.) None of the Project area proposed to be mined is identified as a potential preserve in the Plan.

The Project will be implemented in accordance with the Yolo HCP/NCCP avoidance and minimization measures. As mentioned above in Section 6.1, The Yolo HCP/NCCP contains two AMMs addressing impacts to wetlands: AMM 9 and AMM 10. AMM 9 requires the establishment of buffers around certain wetlands that will be avoided by a project. The Project will not avoid the wetlands within the Project Site; as such, the Project may be viewed as conflicting with this AMM. However, the other wetland measure - AMM 10 - provides requirements associated with the fill of wetland features, so clearly not all fill of wetlands is prohibited by the Yolo HCP/NCCP.

Moreover, through payment of Yolo HCP/NCCP fees or equivalent mitigation, the Project will contribute to the HCP/NCCP's conservation strategy, thereby benefitting those species covered by the HCP/NCCP. Through payment of HCP/NCCP fees and adherence to the Yolo HCP/NCCP's applicable avoidance and minimization measures to the satisfaction of the County and the YHC, the Project will be consistent with the HCP/NCCP. This impact is considered less-than-significant.

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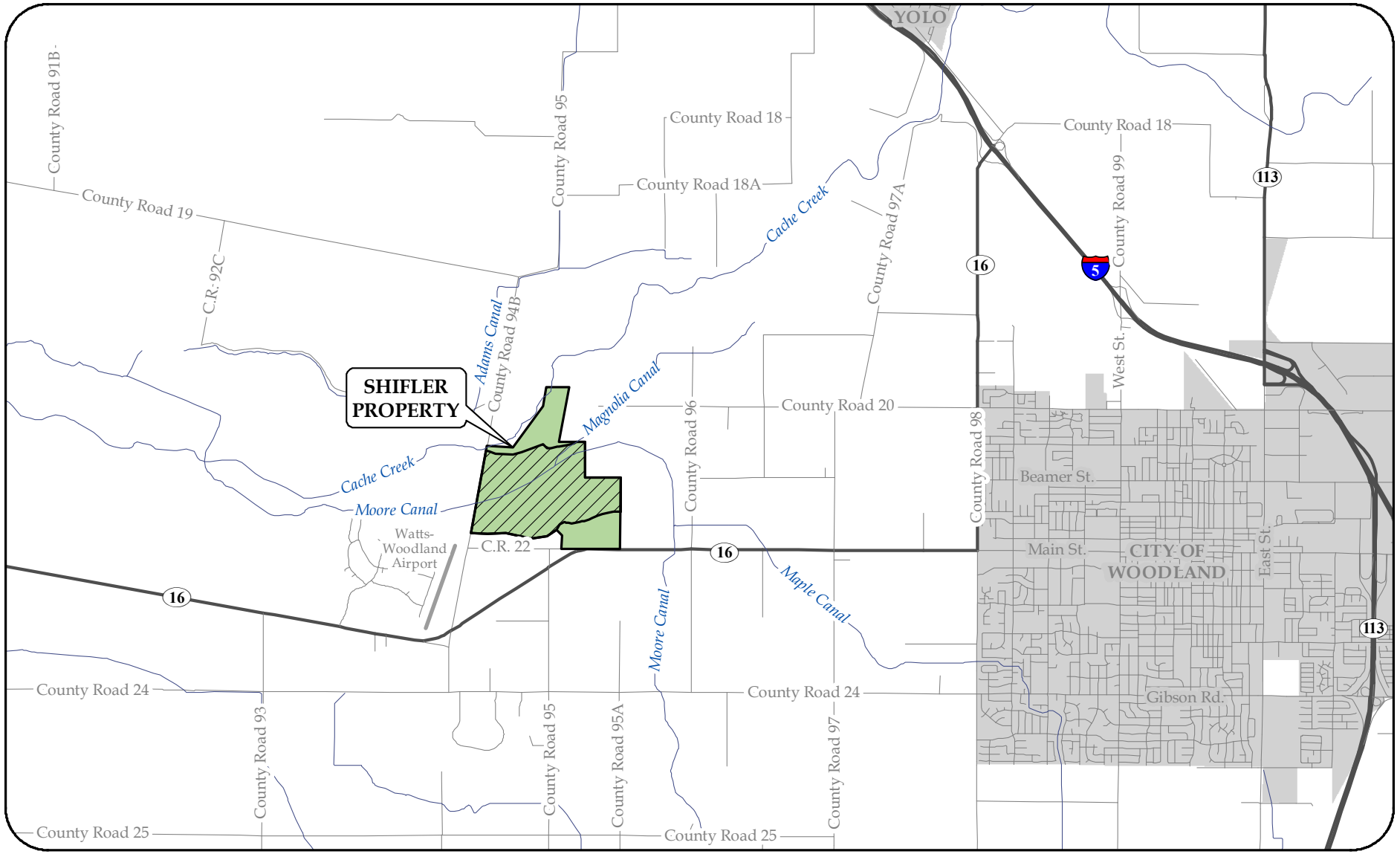
LIST OF FIGURES



TEICHERT MATERIALS

LEGEND:

Project Site

Shifler Property Boundary

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

0 0.5 1 Miles

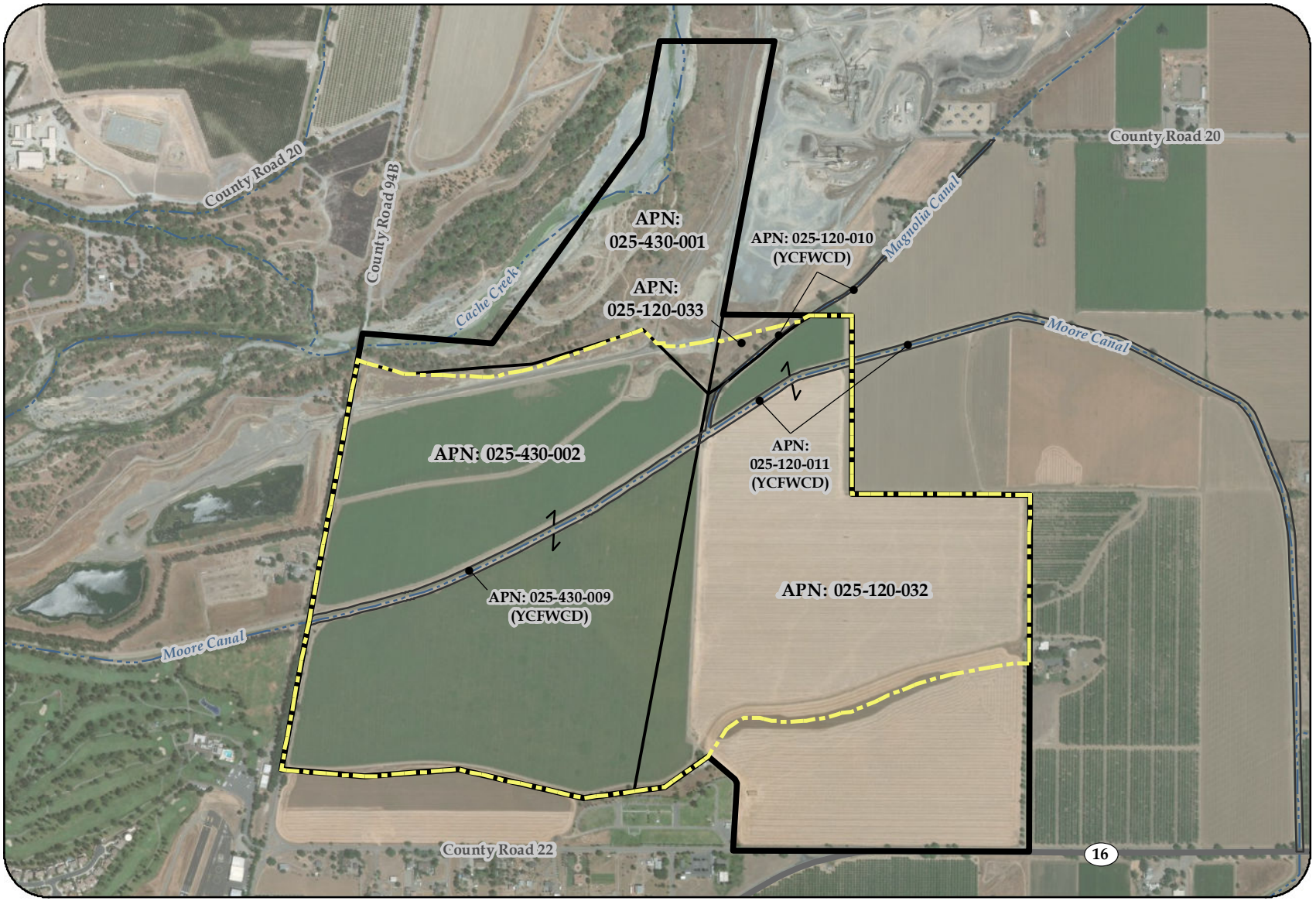
FIGURE 1

PROJECT SITE AND VICINITY

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 6/15/2018 SHF_BRA_Fig1_Vicinity_201806.mxd



TEICHERT MATERIALS

LEGEND:

- Project Site
- Yolo County Flood Control & Water Conservation District (YCFWCD) Parcel Boundaries (Approximate)
- Project Parcel Boundaries
- Shifler Property Boundary

SOURCE:

- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 550 1,100 Feet

DISCLAIMER:

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FIGURE 2

PROJECT SITE MAP

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

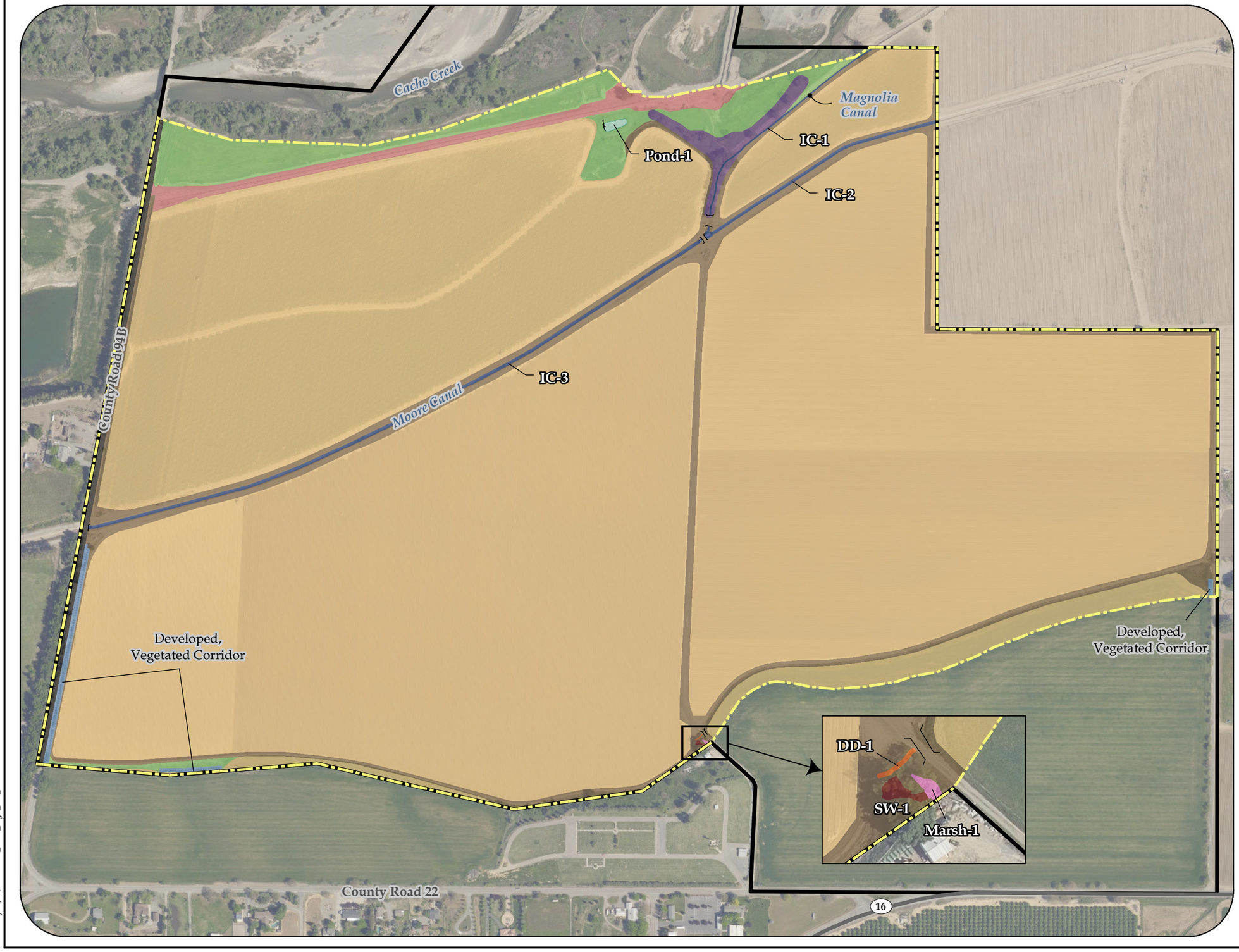
C. Cornejo 4/20/2018 SHF_BRA_Fig2_Site_201804.mxd

FIGURE 3

EXISTING HABITATS, WETLANDS AND FEATURES

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA



LEGEND:

- Culvert

WETLANDS:

- Seasonal Wetland (SW)
- Seasonal Marsh (Marsh)

OTHER WATERS:

- Pond
- Irrigation Canal (IC)
- Drainage Ditch (DD)
- Barren, Anthropogenic
- Cultivated Lands
- Developed, Vegetated Corridor
- Grassland
- Incidental to Agriculture
- Urban or Built Up, Paved Road
- Valley Oak Woodland
- Project Site
- Shifler Property Boundary

0 225 450 Feet

SOURCE:

- Existing Features Provided by Teichert (Dec. 2019)
- Wetland Features Provided by ECORP (Sept. 2010)
- Aerial Provided by ESRI Basemaps & Affiliates (Yolo County: April 13, 2018)

DISCLAIMER:

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TEICHERT MATERIALS

C. Cornejo 2/13/2020 SHF_BRA_Fig3_Bio_202002.mxd

TEICHERT MATERIALS

LEGEND:

- Proposed Relocated Moore Canal
- Proposed Mining Phases
- Project Site
- Shifler Property Boundary

0 350 700 Feet

SOURCE:

- Mining/ Relocated Moore Canal Provided by Cunningham Engineering (Feb. 2016)
- Aerial Provided by ESRI Basemaps (DG: July 8, 2016)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

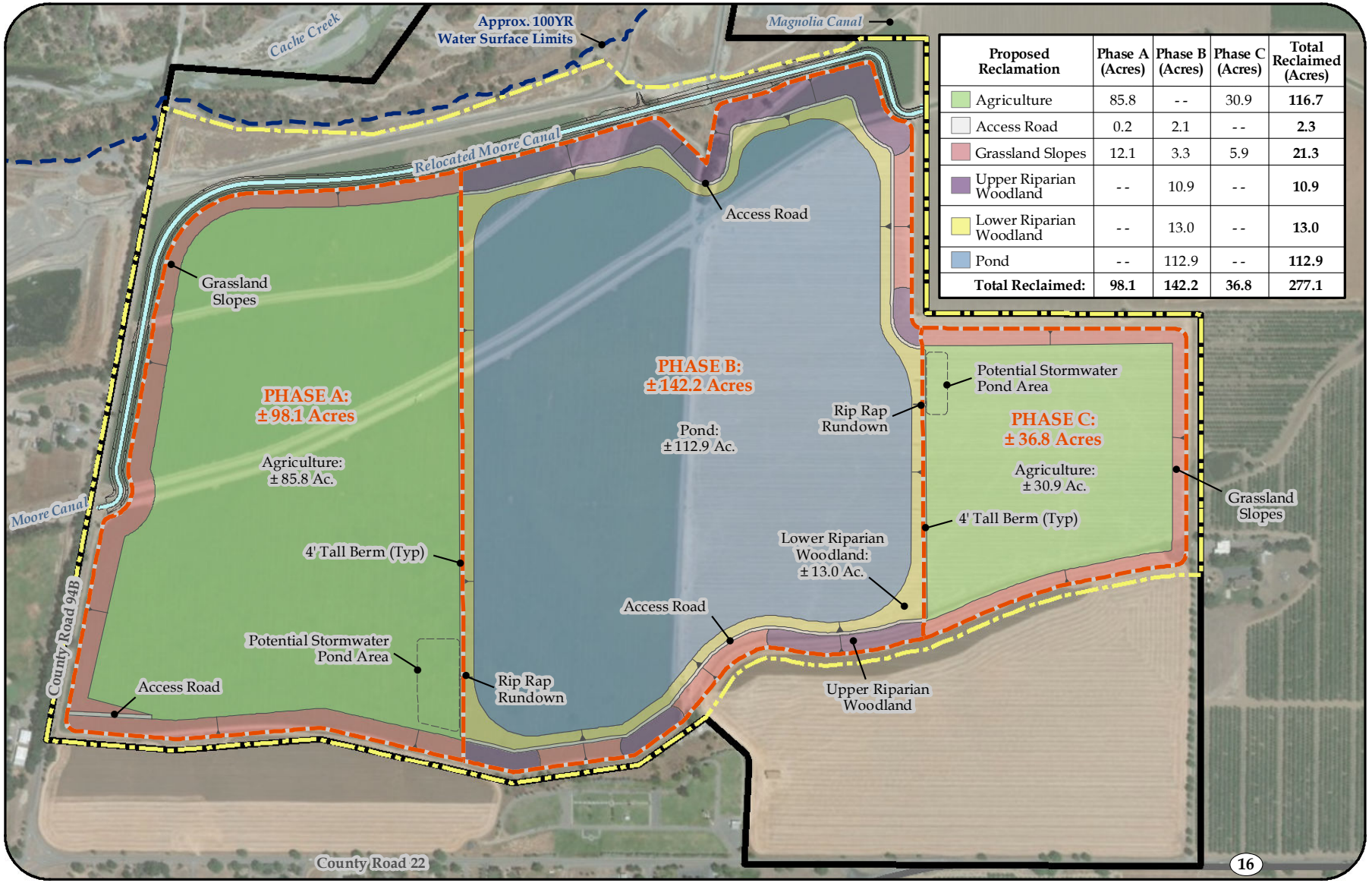
FIGURE 4

PROPOSED MINING AREA

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_BRA_Fig4_Mining_201804.mxd



Proposed Reclamation	Phase A (Acres)	Phase B (Acres)	Phase C (Acres)	Total Reclaimed (Acres)
Agriculture	85.8	--	30.9	**116.7**
Access Road	0.2	2.1	--	**2.3**
Grassland Slopes	12.1	3.3	5.9	**21.3**
Upper Riparian Woodland	--	10.9	--	**10.9**
Lower Riparian Woodland	--	13.0	--	**13.0**
Pond	--	112.9	--	**112.9**
Total Reclaimed:	**98.1**	**142.2**	**36.8**	**277.1**

TEICHERT MATERIALS

LEGEND:

- Approx. 100YR Water Surface Limits
- Relocated Moore Canal
- Proposed Reclamation Phases: Total ± 277.1 Ac.
- Project Site
- Shifler Property Boundary

SOURCE:

- Approx. 100YR Water Surface Limits Per Separate Hydraulic Report by Cunningham Engineering (Jan. 26, 2016)
- Reclamation/ Relocated Moore Canal Provided by Cunningham Engineering (Feb. 2016)
- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 350 700 Feet

DISCLAIMER:

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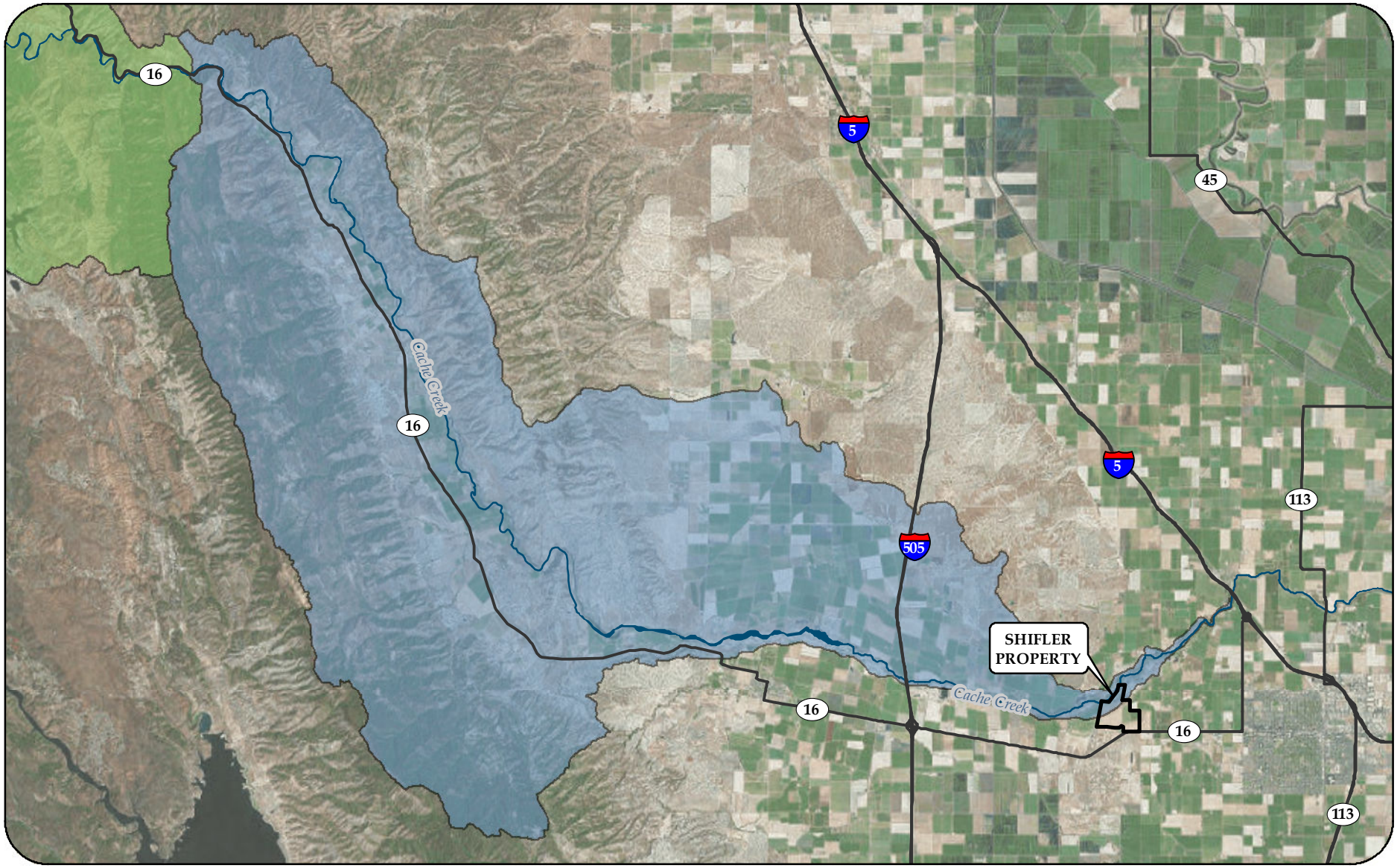
FIGURE 5

PROPOSED RECLAMATION PLAN

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 6/15/2018 SHF_BRA_Fig5_Rec_201806.mxd



TEICHERT MATERIALS

LEGEND:

- Cache Creek
- Upper Cache Creek Watershed
- Lower Cache Creek Watershed
- Shifler Property Boundary

SOURCE:

- Watersheds Provided by Calwater version 2.2.1 (May 2004)
- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 1.75 3.5 Miles

DISCLAIMER:

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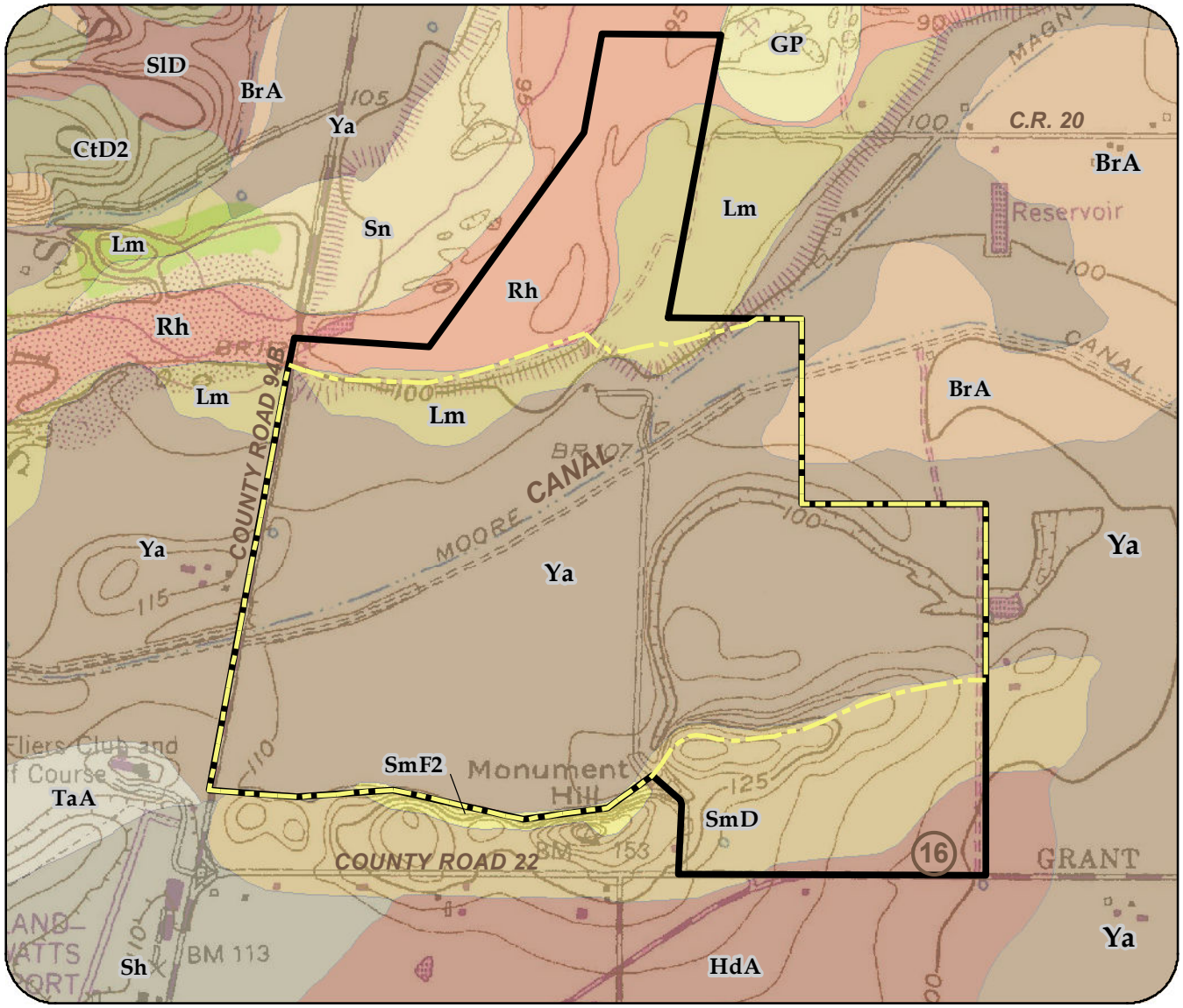
FIGURE 6

CACHE CREEK WATERSHED MAP

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_BRA_Fig6_Watershed_201804.mxd



NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- BrA- Brentwood silty clay loam, 0 to 2 percent slopes
- CtD2- Corning gravelly loam, 0 to 12 percent slopes, MLRA 17
- HdA- Hillgate loam, moderately deep, 0 to 2 percent slopes
- Lm- Loamy alluvial land
- Rh- Riverwash
- Sh- San Ysidro loam, 0 to 5 percent slopes, dry, MLRA 17
- SmD- Sehorn-Balcom complex, 2 to 15 percent slopes
- SmF2- Sehorn-Balcom complex, 30 to 50 percent slopes, eroded
- Sn- Soboba gravelly sandy loam
- TaA- Tehama loam, 0 to 2 percent slopes, loamy substratum, MLRA 17
- Ya- Yolo silt loam, 0 to 2 percent slopes, MLRA 17
- Project Site
- Shifler Property Boundary

TEICHERT MATERIALS

SOURCE:

Soil Survey Provided by NRCS
(Version 13, Sept. 13, 2017)

USGS 7.5' Quad: Woodland

0 600 1,200 Feet

DISCLAIMER:

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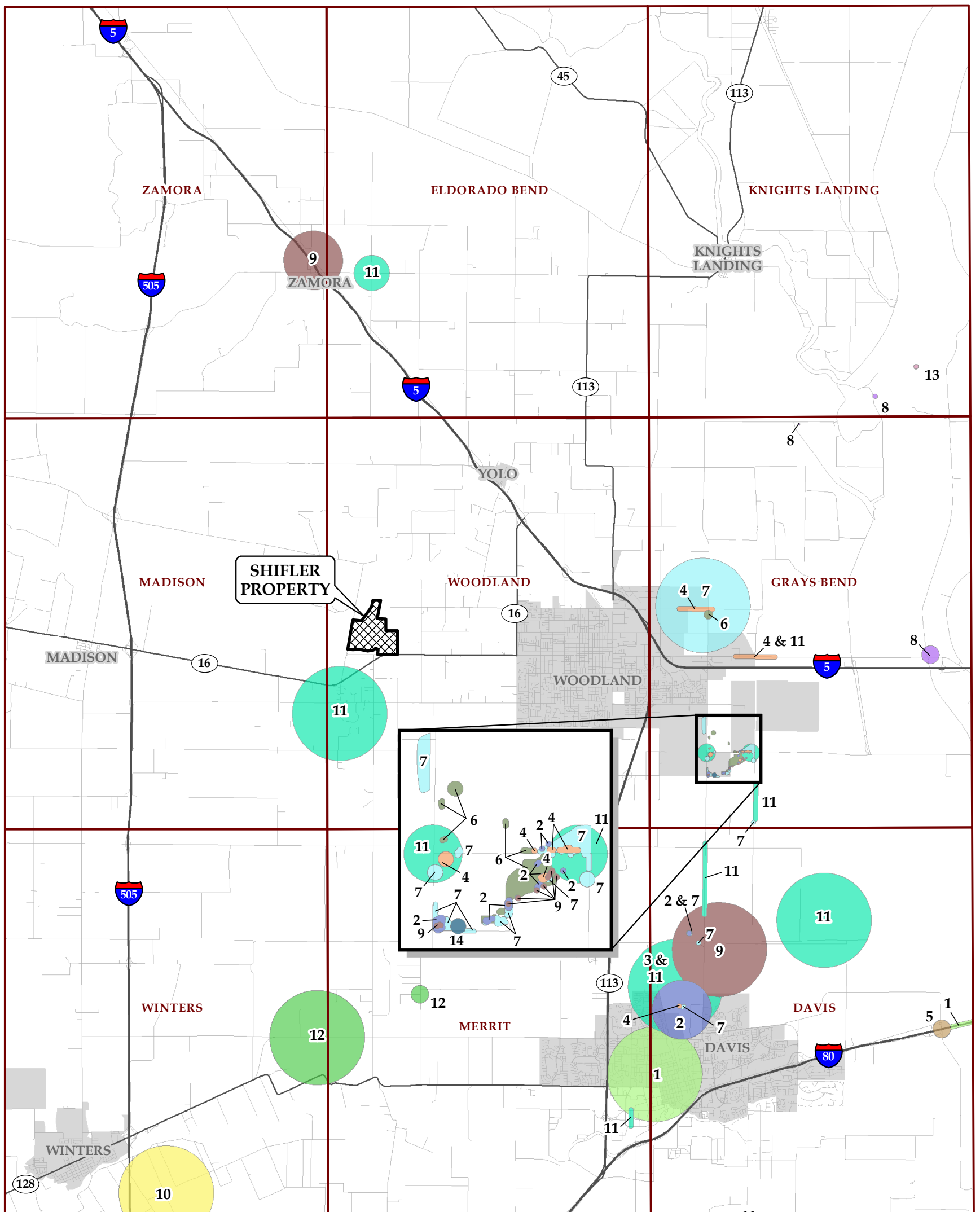
No liability is assumed for the accuracy of the data shown.

FIGURE 7
NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES
BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_BRA_Fig7_Soils_201804.mxd



CNDDB SPECIAL STATUS PLANTS:

1- Astragalus tener var. ferrisiae
2- Astragalus tener var. tener
3- Atriplex cordulata var. cordulata
4- Atriplex depressa
5- Centromadia parryi ssp. parryi
6- Chloropyron palmatum
7- Extriplex joaquinana
8- Hibiscus lasiocarpos var. occidentalis
9- Lepidium latipes var. heckardii
10 - Navarretia leucocephala ssp. bakeri
11 - Puccinellia simplex
12- Sidalcea keckii
13- Symphyotrichum lentum
14- Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

Shifler Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW
(November 2019)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

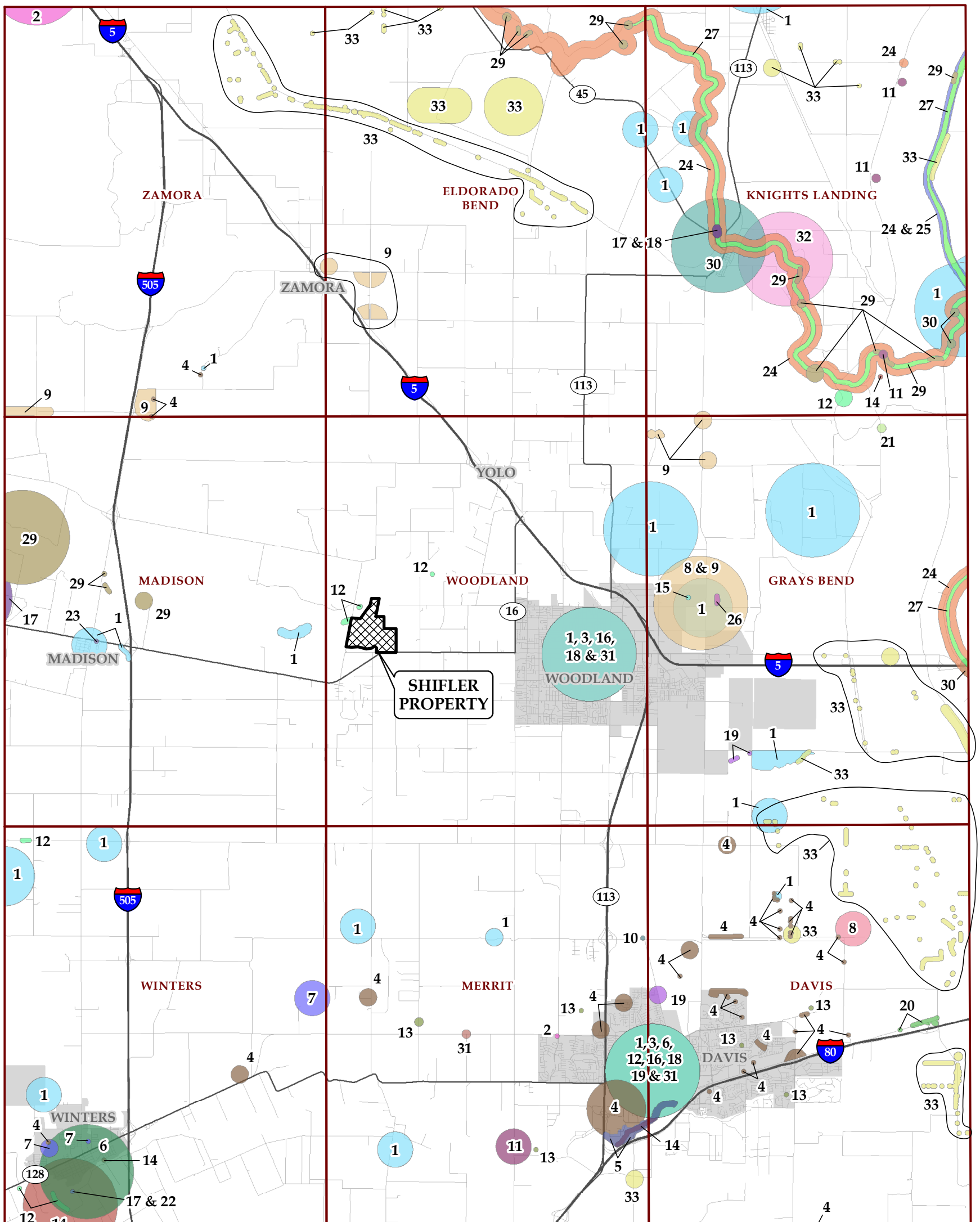
FIGURE 8

CNDDB OCCURRENCES OF SPECIAL- STATUS PLANT SPECIES

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 12/13/2019 SHF_BRA_Fig8_CNDDB_Plants_201912.mxd



CNDDB SPECIAL STATUS ANIMALS:

1- Agelaius tricolor
2- Ambystoma californiense
3- Antrozous pallidus
4- Athene cunicularia
5- Bombus crotchii
6- Bombus occidentalis
7- Branchinecta lynchi
8- Charadrius alexandrinus nivosus
9- Charadrius montanus
10- Circus hudsonius
11- Coccyzus americanus occidentalis
12- Desmocerus californicus dimorphus
13- Elanus leucurus
14- Emys marmorata
15- Falco columbarius
16- Lasionycteris noctivagans
17- Lasiurus blossevillii
18- Lasiurus cinereus
19- Lepidurus packardi
20- Linderiella occidentalis
21- Melospiza melodia
22- Myotis yumanensis
23- Nycticorax nycticorax
24- Oncorhynchus mykiss irideus pop. 11
25- Oncorhynchus tshawytscha pop. 6
26- Plegadis chihi
27- Pogonichthys macrolepidotus
29- Riparia riparia
30- Spirinchus thaleichthys
31- Taxidea taxus
32- Thaleichthys pacificus
33- Thamnophis gigas

Swainson's hawk occurrences are not included due to the extremely large number of occurrences throughout the project vicinity.

TEICHERT MATERIALS

LEGEND:

Shifler Property Boundary

7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:

CNDDB Provided by CDFW (November 2019)

DISCLAIMER:

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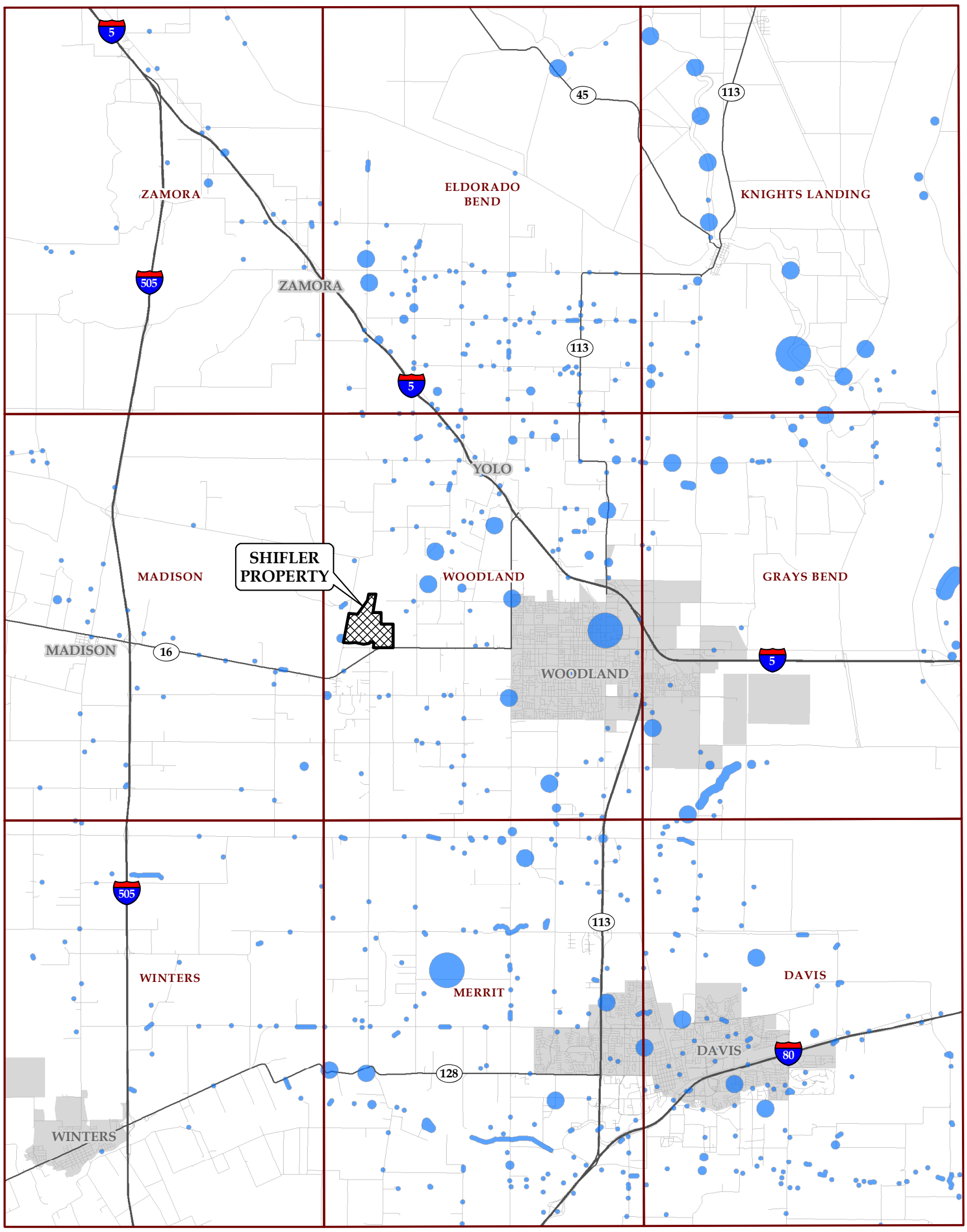
FIGURE 9

CNDDB OCCURRENCES OF SPECIAL- STATUS ANIMAL SPECIES

BIOLOGICAL RESOURCES ASSESSMENT SHIFLER PROPERTY TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo Rev by T. Yee 12/13/2019 SHF_BRA_Fig9_CNDDB_Animals_201912.mxd



C. Cornejo 12/13/2019 SHF_BRA_Fig10_CNDDB_SwainsonHawk_201912.mxd

TEICHERT MATERIALS

LEGEND:

- Buteo swainsoni
- Shifler Property Boundary
- 7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (November 2019)

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 10

CNDDB OCCURRENCES OF SWAINSON'S HAWK

BIOLOGICAL RESOURCES ASSESSMENT
SHIFLER PROPERTY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

ATTACHMENT A

Teichert – Shifler Biological Resources Assessment
Special-Status Species Known or Potentially Known to Occur within the Project Vicinity

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
PLANTS				
FERRIS' MILKVETCH *Astragalus tener* var. *ferrisiae*	— / — / 1B	Vernally moist meadows, alkaline flats & fallow rice fields. Scattered throughout the Sacramento Valley region from Butte Co. south to Solano Co. Elev. <75 m.	April - May	No Habitat Present
ALKALI MILKVETCH *Astragalus tener* var. *tener*	— / — / 1B	Alkali meadows, vernal pools & playas, edges of salt marshes, & moist grassy flats. Western portion of Central Valley & San Francisco Bay area from Yolo Co. south to Merced, San Benito & Monterey Cos. Elev. < 60 m.	March - June	No Habitat Present
HEARTSCALE *Atriplex cordulata* var. *cordulata*	— / — / 1B	Generally alkali grassland, alkali meadow & alkali scrub. Occasional on margins of alkali pools. Western Central Valley from Glenn Co. south to Tulare & San Luis Obispo Cos. Elev. < 200 m.	April - Oct	No Habitat Present
BRITTLESCALE *Atriplex depressa*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Mostly western regions of Sacramento Valley from Glenn & Butte Cos. south throughout the San Joaquin Valley (Kern Co.). Elev. < 320 m.	May - Oct	No Habitat Present
SAN JOAQUIN SALTBUSH *Extriplex joaquinana*	— / — / 1B	Alkali flats, alkali scrub, alkali grassland & playas. Western Central Valley & Inner South Coast Range from Glenn Co. south to San Luis Obispo Co. Elev. < 835 m.	April - Oct	No Habitat Present
VERNAL POOL SMALLSCALE *Atriplex persistens*	— / — / 1B	Deeper portions of large, alkaline vernal pools. Central Valley from Glenn Co. south to Tulare Co. Most occurrences in San Joaquin Valley. Elev. < 115 m.	June - Oct	No Habitat Present
ROUND-LEAVED FILAREE *California microphylla*	— / — / 1B	Clay soils in open cismontane woodland and valley/foothill grasslands. Central western California, southern coast, and northern Channel Islands. Elev. <1,200m.	March - July	Unlikely to Occur
PALMATE BIRD'S-BEAK *Chloropyron palmatum*	FE / SE / 1B, YHCP	Saline alkali flats, alkali scrub & alkali grassland. Scattered locations in the Central Valley from Glenn Co. south to Fresno Co. Also Livermore Valley in Alameda Co. Elev. < 150 m.	May - Oct	No Habitat Present
HISPID BIRD'S-BEAK *Cordylanthus mollis* ssp. *hispidus*	— / — / 1B	Saline marshes, alkali flats & alkali vernal pools. Scattered locations throughout San Joaquin Valley. Also Solano & Alameda Cos. & near Rocklin in Placer Co. Elev. < 150m.	June - Sept	No Habitat Present
DWARF DOWNINGIA *Downingia pusilla*	— / — / 2B	Vernal pools & swales, ephemeral drainages & margins of other seasonal wetlands. Central Valley from Tehama Co. south to Fresno Co. Also in valleys north of S.F. in Napa & Sonoma Cos. Elev. < 450 m.	March - May	No Habitat Present
TUOLUMNE BUTTON-CELERY *Eryngium pinnatisectum*	— / — / 1B	Swales, vernal pools, moist flats & ephemeral drainages. North-central Sierra Nevada Foothill & adjacent valley from Sacramento Co. south to Tuolumne Co. Elev. 70-900 m.	May - August	No Habitat Present
BOGGS LAKE HEDGE-HYSSOP *Gratiola heterosepala*	— / SE / 1B	Marshy lake margins, cattle ponds & in vernal pools. Central Valley & foothills from Shasta to Tulare Co. Also occurs in Lake Co., Modoc Plateau, & Oregon. Elev. < 1200 m.	April - Aug.	No Habitat Present

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
HOGWALLOW STARFISH *Hesperevax caulescens*	— / — / 4	Vernal pools & seasonally saturated clay flats. Central Valley & adjacent foothills from Tehama Co. south to Kern Co. Also reported in San Luis Obispo Co. Elev. < 500 m.	March - June	No Habitat Present
WOOLY ROSE MALLOW *Hibiscus lasiocarpos* var. *occidentalis*	— / — / 1B	Freshwater marshes and swamps. Scattered locations from Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Cos. Elev. < 100m.	June - Sept	Unlikely to Occur
LEGENERE *Legenere limosa*	— / — / 1B	Vernal pools, seasonal wetlands, drainages, & along margins of cattle ponds. Northern Central Valley (Shasta to San Joaquin Co.) & Inland Coast Range (Sonoma to Santa Clara Co.). Elev. < 880 m.	April - June	No Habitat Present
HECKARD'S PEPPERGRASS *Lepidium latipes* var. *heckardii*	— / — / 1B	Alkali flats and alkali grassland near the margins of vernal pools. Western Sacramento Valley from Glenn Co. south to Solano Co. Elev. < 200 m.	March - May	No Habitat Present
TEHAMA NAVARRETIA *Navarretia heterandra*	— / — / 4	Typically growing heavy soils, vernal pools, & drying flats. Scattered throughout northern California & southern Oregon. Elev. 30-1000 m.	April - June	No Habitat Present
BAKER'S NAVARRETIA *Navarretia leucocephala* ssp. *bakeri*	— / — / 1B	Vernal pools and ephemeral drainages. Western Sacramento Valley & northern Inland Coast Range from Glenn & Mendocino Cos. to Solano Co. Elev. < 1700 m.	April - July	No Habitat Present
MYER'S PINCUSHION NAVARRETIA *Navarretia myersii* ssp. *myersii*	— / — / 1B	Vernal pools, usually with acidic soils. E. Central Valley & adjacent Sierra Nevada Foothill from Placer Co. south to Merced Co. Elev. 20-330 m.	April - May	No Habitat Present
ADOBE NAVARRETIA *Navarretia nigelliformis* ssp. *nigelliformis*	— / — / 4	Vernal pools & vernally moist swales. Scattered locations from the Sierra Nevada Foothills, Central Valley & Inner South Coast Range. Elev. 90-1000 m.	April - June	No Habitat Present
SLENDER ORCUTT GRASS *Orcuttia tenuis*	FT / SE / 1B	Generally restricted to deeper vernal pools & other ephemeral wetlands with clay soils. Scattered from the Sacramento Valley north to the Modoc Plateau area. Also occurs in Lake Co. Elev. 30-1700 m.	May - Oct	No Habitat Present
CALIFORNIA ALKALIGRASS *Puccinellia simplex*	— / — / 1B	Generally restricted to saline and alkaline habitats, often associated with springs, seeps, vernal pools. Elev. Below 3,000ft	Mar - May	No Habitat Present
SANFORD'S ARROWHEAD *Sagittaria sanfordii*	— / — / 1B	Margins of small lakes and ponds and slow-moving sloughs, creeks, rivers, ditches, and canals. Widely distributed throughout the Central Valley from Shasta Co. to Kern Co. Elev. < 650m.	May - Aug	Could Occur
SALINE CLOVER *Trifolium hydrophilum*	— / — / 1B	Salt marshes, alkali meadows, & vernal pools. Central Western California (Sonoma Co. to San Luis Obispo Co.) & southwestern Sacramento Valley. Elev. < 300 m.	April - June	No Habitat Present
INVERTEBRATES				
BLENNOSPERMA VERNAL POOL ANDRENID BEE *Andrena blennospermatis*	— /—/CNDDB	Bee is oligolectic on *Blennosperma*. Occurs in vernal pool grassland habitats where *Blennosperma* is found. Records include scattered locations along the edges of the Central Valley in Yolo, Solano, El Dorado, Sacramento & Tehama	Late Feb - April	No Habitat Present

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		Cos., & near the base of the Coast Ranges in Contra Costa, Lake & Sonoma Cos.		
Western Bumblebee *Bombus occidentalis occidentalis*	FC /— /CNDDB	Generalist pollinator found from southern British Columbia to central California, northern Arizona, Northern New Mexico an. In California, it occupies subalpine sites in the Sierra Nevada and areas along the northern coast.	Mar - July	Unlikely to Occur
Crotch's Bumblebee *Bombus crotchii*	FC /— /CNDDB	Common to grassland and scrub habitats, Crotch's bumblebee is not a specialist and commonly nests underground. Distribution includes portions of California, Nevada, and Mexico. Recent observations are primarily restricted to coastal southern California.	Mar - July	Unlikely to Occur
CONSERVANCY FAIRY SHRIMP *Branchinecta conservatio*	FE/ — / —	Alkaline pools, vernal lakes & vernal pools that are typically large and/or relatively deep and moderately turbid. Known from several disjunct locations in the Central Valley from Tehama Co. south to Ventura Co.	Nov - May	No Habitat Present
VERNAL POOL FAIRY SHRIMP *Branchinecta lynchi*	FT/—/—	Vernal pools and swales from Jackson County near Medford, Oregon, throughout the Central Valley, and west to the central Coast Ranges.	Nov - May	No Habitat Present
MID-VALLEY FAIRY SHRIMP *Branchinecta mesovallensis*	— /—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats throughout southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa regions.	Nov - May	No Habitat Present
VALLEY ELDERBERRY LONGHORN BEETLE *Desmocerus californicus dimorphus*	FT/—/YHCP	The subspecies occurs at scattered locations in the Central Valley & adjacent foothills of the Sierra Nevada & Coast Ranges. The subspecies is entirely dependent upon its host plant (i.e., *Sambucus* spp.) and is only found where this shrub occurs (typically in riparian vegetation associations, but occasionally in isolated shrubs or stands of the plant). Known to occur with the Cache Creek corridor, and observed within 1 mile of project site. Host plant with exit holes present in Project site but is at least 50 meters outside of limit of disturbance and therefore entirely avoided (USFWS 2017).	Year-round (exit holes)	Known to Occur
Hairy water flea *Dumontia oregonensis*	—/—/CNDDB	First described in 2003 from three pools in Oregon, this species has since been reported from southern Sacramento Co., as well as from Solano Co. Little information exists regarding the species' habitat or life history requirements.	Nov - May	No Habitat Present
RICKSECKER'S HYDROCHARA *Hydrochara rickseckeri*	—/—/CNDDB	Known historically from pond habitats around the San Francisco Bay area. Vernal pools and other large seasonally inundated wetlands.	Nov - May	No Habitat Present
VERNAL POOL TADPOLE SHRIMP *Lepidurus packardi*	FE/—/—	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta to Merced County, with the majority of populations occurring in the Sacramento Valley.	Nov - May	No Habitat Present
CALIFORNIA LINDERIELLA *Linderiella occidentalis*	—/—/CNDDB	Vernal pools, swales, and other ephemeral freshwater habitats from Shasta County south to	Nov - May	No Habitat Present

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		Fresno County, across the Central Valley and some of the coast ranges.		
AMPHIBIANS				
California Tiger Salamander *Ambystoma californiense*	FT / ST /YHCP	Found mostly in the Central Valley of California and is restricted to large vernal pools, seasonal ponds, or stock ponds that hold water for at least 4 months during spring for breeding & larval development. Adult non-breeding habitat is generally grasslands & oak savannah.	March - May	No Habitat Present
California Red-Legged Frog *Rana draytonii*	FT/—/ SSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and stream-sides with plant cover. Most common in lowlands or foothills along the California coast and surrounding the Central Valley. Only a handful of scattered populations within the Central Valley.	Jan – Feb	No Habitat Present
Western Spadefoot *Spea hammondii*	—/—/ SSC	Restricted to vernal pools, seasonal wetlands, stock ponds, & quiet in-channel pools for breeding & larval development. Adult non-breeding habitat is generally grasslands. Known to occur within the Central Valley & surrounding foothills from Colusa Co. to Tulare Co.	March - May	No Habitat Present
REPTILES				
Western Pond Turtle *Emys marmorata*	—/—/ SSC, YHCP	Found in ponds, reservoirs, or other slow-moving perennial aquatic habitats (e.g., sloughs, streams, and rivers) along the west coast of the U.S. and Mexico. Prefers loose soils in adjacent banks, grasslands, and open woodland for nesting. Known to occur along Cache Creek.	March - Oct	Could Occur
Giant Garter Snake *Thamnophis gigas*	FT / ST / YHCP	Found in marshes, low gradient streams and adjacent rice fields supported by perennial fresh water in the Central Valley.	April - Sept	Unlikely to Occur
BIRDS				
Cooper's Hawk *Accipiter cooperii* (nesting)	—/—/CNDDB	Nests in dense riparian or oak woodland. Hunts and winters in wide variety of woodland and forest vegetation communities. Distributed from Southern Canada to Northern Mexico. Most nesting occurrences in Yolo County are associated with riparian habitat along the larger rivers or large urban stands of trees.	May - July	Unlikely to Occur
Sharp-shinned Hawk *Accipiter striatus* (nesting)	—/—/ CNDDB	Nests in dense pole and small-tree stands of riparian and coniferous forest near water. Hunts and winters in wide variety of woodland and shrub vegetation communities. Occurs throughout much of North America.	May - July	Unlikely to Occur
Grasshopper Sparrow *Ammodramus savannarum* (nesting)	—/—/ SSC	Nests in dense, dry, expansive grasslands (sometimes with scattered shrubs).Forages in similar habitat. Species exhibits extreme site fidelity.	April - July	Unlikely to Occur
Tricolored Blackbird *Agelaius tricolor* (nesting)	—/ SE / YHCP	Nests in dense stands of emergent freshwater marsh, willow, blackberry, thistle, nettles, or certain crops. Forages in grassland or rangeland	April - July	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		providing an abundant source of food (e.g., grasshoppers or butterfly larvae) - often within three miles of the nest colony. Almost the entire population occurs year-round in cismontane California, with the Central Valley supporting the largest populations.		
GOLDEN EAGLE *Aquila chrysaeto* (nesting & wintering)	—/—/ CFP	Nests on secluded cliffs, but may also use large, isolated trees. Hunts widely over open areas. Occurs throughout much of North America. Most records in Yolo County are winter occurrences.	Year-round	Unlikely to Occur
GREAT EGRET *Ardea alba* (nesting colony)	—/—/ CNDDB	Scattered throughout the U.S. and Mexico. Nesting colonies are located in large trees adjacent to bodies of water, such as lakes, ponds, marshes and estuaries. Foraging habitat includes a variety of wetland habitats. Frequently found roosting with great blue herons.	April - May	Unlikely to Occur
GREAT BLUE HERON *Ardea herodias* (nesting colony)	—/—/ CNDDB	Breeding colonies are located in trees near isolated swamps or on islands, or near lakes and ponds bordered by forests throughout the U.S. and southern Canada. Foraging habitat includes freshwater and saltwater wetlands/water bodies, as well as grasslands and agricultural fields. Frequently found roosting with great egrets.	March – May	Unlikely to Occur
SHORT-EARED OWL *Asio flammeus* (nesting)	—/—/ SSC	Suitable nesting habitat is provided by freshwater and coastal marshes, coastal prairie and dunes, wet meadows, and dense grasslands. Most nesting occurs within Canada and the north-central portion of the U.S.	April - July	Could Occur
LONG-EARED OWL *Asio otus* (nesting)	—/—/ SSC	Species requires grassland or other open spaces for foraging, as well as dense tall shrubs/trees for nesting and roosting. Occurs throughout much of the U.S. and Canada. Scattered populations exist in the mountain and coastal regions of California.	Feb - July	Unlikely to Occur
BURROWING OWL *Athene cunicularia* (burrow sites & some wintering sites)	—/—/ SSC, YHCP	Occurs in western North America south to Mexico. Generally a resident species in California. Nests and winters in low open grassland or other low, open habitats with abundant small mammal burrows. Nest sites are in ground burrows, usually surrounded by bare soil or short grass. Forages in similar habitats.	Feb – Aug (Breeding) Dec – Jan (Non-breeding)	Unlikely to Occur
FERRUGINOUS HAWK *Buteo regalis* (wintering)	—/—/ CNDDB	Nests are usually built in tall trees along streams or rivers, or in junipers with a view of surrounding grassland. Cliffs, hills, boulders, and man-made structures are occasionally used as nest sites. Nests primarily within the interior portions of North America. Hunts in expansive, open vegetation communities.	Oct - April	Could Occur (Winter)
SWAINSON'S HAWK *Buteo swainsoni* (nesting)	— /ST / YHCP	Nests in large trees in riparian and oak woodland (sometimes single large oaks) adjacent to large open areas for hunting. Occurs throughout much of western North America. Previously observed foraging at Project Site and adjacent areas.	April - Sept	Likely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
WESTERN SNOWY PLOVER *Charadrius alexandrinus nivosus*	FT/—/ SSC	Western snowy plover nests on bare ground, typically in beaches or other coastal habitats with friable soils and little or no vegetation. Less typical nesting sites include river bars, sandy shores, salt pans, and dredge material disposal sites.	Mar – Sep	Unlikely to Occur
MOUNTAIN PLOVER *Charadrius montanus* (wintering)	—/—/ SSC	Found patchily distributed as a wintering species in California where it occurs on relatively level lands with short grass, plowed or burned agricultural fields, and sprouting grain or alfalfa fields.	Oct - March	Unlikely to Occur
NORTHERN HARRIER *Circus hudsonius* Previously *Circus cyaneus* (nesting)	—/—/ SSC	Nests throughout much of North America in tall grasses, marshes, and grain fields. Forages in open vegetation communities. Previously observed foraging at Project Site and adjacent areas.	Year-round	Known to Occur
WESTERN YELLOW-BILLED CUCKOO *Coccyzus americanus occidentalis* (nesting)	FT / SE / YHCP	Species is restricted to cottonwood & willow-dominated riparian forests along large rivers. In California, the majority of breeding population currently concentrated along upper Sacramento River.	June - Aug	Unlikely to Occur
WHITE-TAILED KITE *Elanus leucurus* (nesting)	—/—/ CFP, YHCP	Found throughout the lower elevation portions of California in low rolling grasslands with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Requires grasslands, meadows, or marshes (for foraging) located near dense-topped trees (for nesting and roosting). Previously observed foraging at Project Site and adjacent areas.	Year-round	Could Occur
WILLOW FLYCATCHER *Empidonax traillii* (nesting)	— / SE / —	Breeds from southern British Columbia, Alberta, North Dakota, New York, & Maine south to central California, Nevada, Arkansas, & Virginia. Nests in riparian brush dominated by deciduous willows/shrubs. Nesting season records for the state limited to the Sierra Nevada & Cascades.	May - Aug	Unlikely to Occur
MERLIN *Falco columbarius* (wintering)	—/—/ CNDDB	Occurs in a variety of low elevation, relatively flat habitats that include wooded areas, coastlines, open grasslands, savannah, and the periphery of lakes. It is less often found in open desert. It typically requires dense stands of trees for cover and roosting. It is most often found where there are substantial populations of small birds (the primary prey item). It is a regular winter visitor to much of the U.S.	Oct - March	Could Occur
PRAIRIE FALCON *Falco mexicanus* (nesting)	—/—/ SSC	Generally year-round bird from south Canada, western U.S. and Mexico. Nests on secluded cliffs, bluffs, or rock outcrops (particularly with southeastern exposure). Hunts in open terrain (grassland, oak savannah, and early succession stages of shrub and woodland habitats). Most records in Yolo County are winter occurrences.	April - Aug	Unlikely to Occur
AMERICAN PEREGRINE FALCON *Falco peregrinus anatum* (nesting)	FD/ SD / CFP	Species occurs all over the world; in North America, breeds in open landscapes with cliffs (or skyscrapers) for nest sites. Can be found nesting at	March – Aug	Unlikely to Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		elevations up to 12,000 feet, as well as along rivers, coastlines, or in cities. Known from mountain & coastal regions throughout the state. No records for this species from the Central or Sacramento Valleys.		
BALD EAGLE *Haliaeetus leucocephalus* (nesting & wintering)	FD/ SE / CFP	Nests near large lakes, reservoirs, and rivers. Wintering occurs near these latter habitats as well as in rangelands and coastal wetlands. Occurs throughout much of North America. Occasional winter visitor in Yolo County.	Oct - March	Unlikely to Occur
LEAST BITTERN *Ixobrychus exilis* (nesting)	—/—/ SSC	Breeds in tall emergent vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps. Breeding populations known from throughout California, including the Central Valley.	May – July	Unlikely to Occur
LOGGERHEAD SHRIKE *Lanius ludovicianus* (nesting)	—/—/ SSC	Endemic to North America, from southern Canada south through the U.S. and Mexico. Utilizes shrubs and other dense, woody vegetation for nesting. Uses adjacent open vegetation communities for foraging.	April - July	Could Occur
CALIFORNIA GULL *Larus californicus* (nesting colony)	—/—/ CNDDB	Mostly western North America. Breeds on islands in lakes or rivers in the Sierra Nevada & Cascade Ranges, & on the coast. Forages in a variety of habitats, from parking lots to farm fields to the open ocean. No nesting season records exist for this species in the Central or Sacramento Valleys.	May - July	Unlikely to Occur
SONG SPARROW (MODESTO POPULATION) *Melospiza melodia* "Modesto" (nesting)	—/—/ SSC	The Modesto Song Sparrow is found in areas containing extensive wetlands, such as the Sacramento-San Joaquin Delta. Prefers freshwater marsh & riparian forest habitats with available water, open areas for foraging & moderately dense vegetation cover for nesting.	March - Aug	Unlikely to Occur
BLACK-CROWNED NIGHT HERON *NYCTICORAX NYCTICORAX*	—/—/ CNDDB	The black-crowned night heron is a medium-sized, carnivorous wading bird. It is associated with wetlands and riparian areas. This species forms communal rookeries but often forage as individuals.	Apr – Aug	Unlikely to Occur
AMERICAN WHITE PELICAN *Pelecanus erythrorhynchos* (nesting colony)	—/—/ SSC	California's nesting pelicans have been confined mainly to the Klamath Basin, within Siskiyou, Modoc and Lassen Cos. Historic breeding range includes the Central Valley, prior to large-scale urban and agricultural development.	March - July	Unlikely to Occur
DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus* (nesting colony)	—/—/ CNDDB	This species is widely distributed throughout North America. Breeding colonies are typically formed in clusters of large trees near water. Require aquatic bodies (lakes, ponds) large enough to support a mostly fish diet.	April – Aug	Unlikely to Occur
YELLOW-BILLED MAGPIE *Pica nuttalli* (nesting & communal roosts)	—/—/ CNDDB	Found as a resident & wintering species throughout the lower elevation portions of California in grasslands, saltbush scrub, chaparral, oak savannah, & other open woodland types near water (generally where there are large trees with	Year-round	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		dense cover for nesting and roosts). Also common in residential areas.		
WHITE-FACED IBIS *Plegadis chihi* (nesting colony)	—/—/ CNDDB	This species nests at scattered locations in the Central Valley as well as elsewhere in California where there are dense, freshwater emergent wetlands.	May – July	Unlikely to Occur
PURPLE MARTIN *Progne subis* (nesting)	—/—/ SSC	Extremely localized & limited distribution along Central to North Coast, Sierra Nevada and Cascades, southern California mountains, & Sacramento. Nests mostly in old woodpecker cavities in tall, old, isolated trees or snags.	April - Sept	Unlikely to Occur
BANK SWALLOW *Riparia riparia* (nesting)	— / ST / YHCP	Formerly found as a summer nesting species within a larger California distribution along the coast & adjacent to larger streams & rivers. Range is now concentrated along Central Valley streams & rivers. Species nests in vertical banks & cliffs with fine-textured sandy soils. No existing nesting habitat for the species occurs on the project site. Species may intermittently use areas (i.e., stockpiles, vertical mine faces, etc.) during mining phases.	April - July	Unlikely to Occur
MAMMALS				
PALLID BAT *Antrozous pallidus*	—/—/ SSC	Found as a resident in all desert, grassland, shrub, woodland, & forest habitats from sea level to approximately 6,000 feet. Day roosts are typically found in buildings, bridges, rocky outcrops, mines, caves, & trees. Night roosts are generally provided by bridges, mines, & caves.	April - Sept	Unlikely to Occur
SILVER-HAIRED BAT *Lasionycieris noctivagans*	—/—/ CNDDB	Found in coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats from the Oregon border south along the coast to San Francisco Bay, and in the Sierra Nevada and Great Basin regions to Inyo County. It also occurs in southern California from Ventura and San Bernardino counties south to Mexico and on some of the Channel Islands. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark	April - Sept	Could Occur
WESTERN RED BAT *Lasiurus blossevillii*	—/—/ SSC	Occurs at scattered locations throughout the lowland portions of California west of the Sierra Nevada crest and desert regions (typically in riparian forest or orchards). Roosting sites are found in tree or shrub foliage between 2 - 40 ft above ground (typically in large cottonwoods, sycamores, walnuts, and willows).	April - Sept	Could Occur
HOARY BAT *Lasiurus cinereus*	—/—/ CNDDB	This species occurs throughout California, although its distribution is patchy in the southeastern deserts. It is a common, solitary species that typically occurs in woodlands and forests with undisturbed, medium to large-size trees and dense foliage up to 13,200 feet in	April - Sept	Could Occur

Table A-1
Special-Status Species Known or Potentially Known to Occur within the Shifler Project Vicinity

Common Name *Scientific Name*	Status Fed/State/ Other	Habitat and Distribution	Survey Period	Potential For Occurrence
		elevation. It winters along the coast and in southern California.		
YUMA MYOTIS *Myotis yumanensis*	—/—/ CNDDB	Found in a variety of habitats (including coastal vegetation communities & urban areas) with nearby sources of water over which the species forages. Day roosts are found in caves, mines, buildings, or crevices. Night roosts are typically associated with bridges, buildings, & other man-made structures.	April - Sept	Unlikely to Occur
AMERICAN BADGER *Taxidea taxus*	—/—/ SSC	Found as a resident species at scattered localities throughout California (except in the coastal redwood region). Generally occurs in extensive, open habitats in the vicinity of abundant rodent populations.	Year-round	Unlikely to Occur
FISHES				
STEELHEAD – CENTRAL VALLEY DPS *Oncoryhnchus mykiss irideus pop. 11*	FT /—/ —	Anadramous salmonid fish this population is local to the Sacramento and San Joaquin rivers and their tributaries. Males display plastic and diverse reproductive strategies.	Dec - Apr	No Habitat Present
CENTRAL VALLEY CHINOOK SALMON *Oncoryhnchus tshawytscha pop. 6*	—/—/ SSC	Anadramous salmonid fish which is largely restricted to the Sacramento River. Errant fishes have been observed spawning in other rivers.	Dec - Apr	No Habitat Present
SACRAMENTO SPLITTAIL *Pogonichthys macrolepidotus*	—/—/ SSC	Endemic to California's Central Valley with a migratory life history. Found in the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and the San Francisco Estuary. Relies on both brackish and freshwater habitats.	Nov - Apr	No Habitat Present
LONGFIN SMELT *Spirinchus thaleichthys*	—/ST/ —	An anadromous species which can be found in the San Francisco Estuary, Sacramento-San Joaquin Delta, Humboldt Bay, and the estuaries of the Eel and Klamath Rivers. The Longfin smelt can tolerate saline and fresh waters. It is typically found in lower portions of freshwater streams.	Dec - Feb	No Habitat Present

SPECIAL STATUS CODE ABBREVIATIONS AND DEFINITIONS

FEDERAL

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed as Endangered
FPT	Federally proposed as Threatened
FC	Federal Candidate Species (former Category 1 candidates)
FD	Federally Delisted

STATE

SE	State listed as Endangered
ST	State listed as Threatened
SR	State listed as Rare
SD	State Delisted

Other

CFP	California Department of Fish and Wildlife designated "Fully Protected"
SSC	California Department of Fish and Wildlife designated "Species of Special Concern"

1A	California Rare Plant Rank - Presumed extinct
1B	California Rare Plant Rank - Rare or Endangered in California and elsewhere
2A	California Rare Plant Rank - Presumed extirpated in California, more common elsewhere
2B	California Rare Plant Rank - Rare or Endangered in California, more common elsewhere
3	California Rare Plant Rank - Plants About Which More Information is Needed, A Review List
4	California Rare Plant Rank - Plants of Limited Distribution, A Watch List
CNDDB	Species is tracked by the California Department of Fish and Wildlife's "California Natural Diversity Database"
YHCP	Species is covered by the Yolo Habitat Conservation Plan / Natural Communities Conservation Plan

LIKELIHOOD OF OCCURRENCE DEFINITIONS

Known to Occur	Taxon was observed at the Project site during recent surveys.
Likely to Occur	Taxon previously reported within or immediately adjacent to the Project site or otherwise expected to occur due to neighboring occurrences and substantial habitat on the Project site.
Could Occur	Suitable habitat is available at the Project site; however, there is little to no other indicators that the taxon might be present.
Unlikely to Occur	Taxon is unlikely to be present due to poor habitat quality or known restricted current distribution that does not include the Project area.
No Habitat Present	Taxon's distribution is within or close to the Project Site; however, taxon requires specific habitat type not present in Project area.

ATTACHMENT B

Teichert – Shifler Property
Rare Plant Survey Report

SPECIAL-STATUS PLANT SURVEY REPORT

Shifler Project

Woodland, Yolo County

Prepared For:

County of Yolo
Planning and Public Works Department
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Date:

April 2018

TEICHERT

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WOODLAND SHIFLER PROJECT

TEICHERT MATERIALS – YOLO COUNTY, CALIFORNIA

Special-Status Plant Survey Report

April 2018

1 INTRODUCTION

This report presents the methods and results of rare (special-status) plant surveys conducted on Teichert Materials' ("Teichert's") Shifler property ("Project Site"). The 319-acre Project Site is located in an unincorporated portion of Yolo County, California, approximately 3 miles west of the City of Woodland (Figure 1). Teichert proposes to mine existing aggregate material (sand and gravel) on approximately 277.1 ± acres of the Project Site. The Project will also include relocation of an existing irrigation canal and reclamation of disturbed areas to agriculture, wetland and riparian habitat, and open space following mining activities. The Project is an extension of mining on Teichert's 'Woodland' properties, which have continuously supplied aggregate resources to the region since the 1950s.

1.1 Property Site Location and Description

The Project Site is located approximately 3 miles west of the City of Woodland in Yolo County and includes three separate parcels (APNs 025-120-032, 025-120-033, and 025-430-002) (Figure 2). Material mined from the site will be transported via conveyor to Teichert's Woodland processing plant, located approximately 0.5 mile to the northwest (Figure 1). A conveyor currently exists along the northern boundary of the Project Site, where it is used for transporting aggregate material from Teichert's Storz property to the west (Figure 1). The Project Site is located in Township 10N, Range 01E, Sections 27 and 28 (MDBM) of the "Woodland, California" 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 1981). The approximate center of the site is located at 38° 41' 02" North and 121° 51' 25" West within the Lower Cache Creek Watershed.

The Project Site is bounded by Cache Creek and County Road 94B to the north and west, respectively. To the south and east of the Project Site are agricultural lands and rural residences. The Monument Hill Memorial Park is located to the south of the property. Moore Canal is an irrigation water conveyance canal operated by the Yolo County Flood Control and Water Conservation District (YCFCWCD) that traverses through the center of the Project site in a west to east direction.

2 ENVIRONMENTAL SETTING

The majority of the Project Site is used for agriculture and is classified as prime agricultural land. Surrounding land uses include Teichert's Woodland processing plant to the northeast, Cache Creek and former (reclaimed) mine sites to the north, the Cache Creek Nature Preserve to the northwest, active

mining operations (Teichert's Storz property) to the west, and agriculture and rural residences to the south and east.

2.1 Climate, Topography, and Hydrology

Woodland is similar to the rest of California's Central Valley with a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters. Average temperatures range from a low of 39°F in December to a high of 94°F in July and August (usclimatedata.com). Average annual precipitation is approximately 21.38 inches, with January usually the wettest month (usclimatedata.com).

The majority of the Project Site consists of agricultural land planted with row crops. Site topography is relatively flat with surface elevations ranging from approximately 104 to 112 feet above mean sea level (AMSL). The Project Site is located within the boundaries of the Cache Creek Watershed (Figure 3). Cache Creek and its associated riparian vegetation parallel the northern boundary of Project Site.

2.2 Soils

The Natural Resources Conservation Service ("NRCS") soil surveys for Yolo County identifies four soil types within in the Project Site (NRCS 1972). The most dominant soil type is Yolo silt loam (Figure 4), which is a fine-silty series of Mollic Xerofluvents. Other soil types include Loam alluvial land; Brentwood silty clay, 0 to 2 percent slopes; and Sehorn-Balcom complex, 2 to 15 percent slopes. Detailed summaries of these soil types can be found in the *Soil Survey of Yolo County, California* (NRCS 1972).

2.3 Existing Habitat and Plant Communities

The majority of the Project Site is currently used for agricultural land. Other habitats include annual grassland, oak woodland, and Waters (Figure 5). A brief summary of these habitats, plant communities, and Waters are described below and shown in Figure 5. A conveyor system and access/maintenance road separates the agricultural land from the annual grassland area to the north.

ECORP Consulting, Inc. ("ECORP") conducted a wetland delineation for the Project Site in 2010 and 2012 (ECORP 2012). The U.S. Army Corps of Engineers issued a preliminary jurisdictional determination (PJD) on 02 July 2012. A total of 1.855 acres of wetland and waters of the U.S. ("Waters) have been identified on the Project Site (Figure 5). These include the Moore Canal and Magnolia Canal (collectively totaling 1.728 acres), an excavated pond (0.098 acre), a seasonal wetland (0.014 acre), a marsh (0.009 acre) and a drainage ditch (0.006 acre).Waters include the Moore Canal and Magnolia Canal, an excavated pond, a seasonal wetland, a marsh, and a drainage ditch.

2.3.1 Agricultural Land

The majority of the Project Site consists of agricultural land, totaling 285.6 acres (Figure 5). Crops planted at the site over the past decade have included wheat, alfalfa, tomatoes, cucumbers, canola, sunflower, and safflower. Most fields are generally irrigated (when water allocations are available) during the summer. Ruderal plants are common along agricultural borders and roads, including pigweed

(*Amaranthus albus*, *A. blitoides*, and *A. retroflexus*), lamb's quarters (*Chenopodium album*), mallow (*Malva parviflora* and *M. leprosa*), bindweed (*Convolvulus arvensis*), devil's claw (*Proboscidea louisianica* and *P. lutea*), puncture vine (*Tribulus terrestris*), common knotweed (*Polygonum aviculare* subsp. *depressum*), bermuda grass (*Cynodon dactylon*), and Johnson grass (*Sorghum halepense*).

2.3.2 Annual Grassland and Ruderal Vegetation

The northern portion of the Project Site paralleling Cache Creek supports approximately 19.2 acres of annual grassland and ruderal vegetation (Figure 5). This area is separated from the agricultural area by a conveyor system and access/maintenance road. Common grassland species include filaree (*Erodium botrys*, *E. cicutarium*, and *E. moschatum*), common fiddleneck (*Amsinckia intermedia*), ripgut brome (*Bromus diandrus*), soft-chess (*Bromus hordeaceus*), wild oat (*Avena barbata* and *A. fatua*), hare wall barley (*Hordeum murinum*), and six-weeks fescue (*Festuca myuros*). Disturbed areas also support dense stands of ruderal vegetation, including milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), yellow star-thistle (*Centaurea solstitialis*), mallow, and perennial mustard (*Hirschfeldia incana*). Also scattered throughout the northern portion of the site are isolated trees and shrubs, including valley oak, Northern California black walnut (*Juglans hindsii*), tree of heaven (*Ailanthus altissima*), almond (*Prunus dulcis*), Fremont cottonwood (*Populus fremontii*), blue elderberry (*Sambucus nigra* subsp. *caerulea*), and poison oak (*Toxicodendron diversilobum*).

2.3.3 Oak Woodland

A small area (approximately 1.7 acres) projecting south from the northeastern portion of the Project Site supports a valley oak woodland stand. Most of these oaks are associated with a segment of the earthen-lined Magnolia Canal just north of the Moore Canal. Common understory vegetation include poison oak, horehound (*Marrubium vulgare*), Italian thistle, and ripgut brome.

2.3.4 Moore Canal and Magnolia Canal

Both the Moore Canal and Magnolia Canal (collectively totaling 1.728 acres) appear on the USGS 7.5-minute series Woodland, California quadrangle as a dashed blue line feature. The Moore Canal is an approximately 15-foot wide concrete-lined irrigation water conveyance system operated by the YCFCWCD. The Moore Canal enters the Project Site from underneath County Road 94B and flows in a west to east direction. A gate structure exists near the northeastern portion of the Project Site, which allows water from the Moore Canal to be diverted into the Magnolia Canal. The Magnolia Canal is an approximately 7-foot wide earthen-lined canal that starts at this gate structure and flows in a northeasterly direction. Both canals are continuously maintained, and vegetation is frequently absent. The earthen-lined Magnolia Canal supports some vegetation, which can vary between years depending on the availability of water allocations. When the canal is operating and flowing, predominant vegetation include nutsedge (*Cyperus esculentus* var. *leptostachyus* and *C. eragrostis*), bermuda grass, rye grass (*Festuca perennis*), bearded sprangletop (*Leptochloa fusca* subsp. *fascicularis*), common barnyard grass (*Echinochloa crus-galli*), and Johnson grass (*Sorghum halepense*). In drought years when

the canal is not operating, vegetation generally consists of ruderal plants including milk thistle, perennial mustard, orach (*Atriplex* sp.), bermuda grass, and rye grass.

2.3.5 Pond

One excavated pond (0.098 acre) was mapped near the northern portion of the site, and appears to be used to temporarily store runoff from agricultural fields. The pond is surrounded by a dense stand of milk thistle and Italian thistle along the perimeter. The bottom and edges of the pond are almost exclusively vegetated with perennial pepperweed (*Lepidium latifolium*).

2.3.6 Other Wetlands (Marsh, Seasonal Wetland, and Drainage Ditch)

Other wetlands at the site include a seasonal wetland (0.014 acre), a marsh (0.009 acre) and a drainage ditch (0.006 acre). These wetlands are interconnected with each other near the south-central portion of the Project Site. The source of hydrology appears to be a leak from an existing well on the adjacent property (Monument Hill Memorial Park) to the south. The seasonal wetland receives the majority of its hydrology from runoff from the abutting marsh. The drainage ditch appears to convey water from one agricultural field to another, as well as collect runoff from the marsh and seasonal wetland. Vegetation within this wetland complex is dominated by black willow (*Salix gooddingii*), southern cattail (*Typha domingensis*), prickly lettuce (*Lactuca serriola*), dock (*Rumex crispus* and *R. stenophyllus*), bermuda grass, and rye grass.

3 SPECIAL-STATUS PLANT SPECIES

Special-status plants are those that are legally protected under state and federal Endangered Species Acts (ESAs) or other regulations, or species that are considered sufficiently rare by the scientific community to qualify for such listing. These include the following:

- Plants listed or proposed for listing as threatened or endangered under the federal ESA or candidates for possible listing as threatened or endangered under the ESA (50 Code of Federal Regulations (CFR] §17.12);
- Plants listed or candidates for listing by the state of California as threatened or endangered under the California ESA (Fish and Game Code of California §2050 et seq.);
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code of California §1900 et. seq.);
- Plants listed that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA) §15380;
- Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (California Rare Plant Rank [CRPR]1A, 2B, 2A and 2B); and

- Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (CRPR 3 and 4). In general, these plants do not meet the definition of endangered, threatened, or rare pursuant to CEQA §15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

4 METHODS

This section describes the methods used to conduct special-status plant surveys on the Project Site. All research and surveys were conducted over a four-year period.

4.1 Pre-field Survey Investigations

Prior to field surveys, a preliminary list of special-status plants was generated by a query search of existing databases and agency information. These plant species are documented as occurring in the region and have the potential to occur on the Project Site. Databases used for this query included:

California Natural Diversity Database (Rarefind Version 5) – Database query of special-status plant species and sensitive natural communities reported in the study area; generated on 05 March 2013 and 04 April 2015 (CNDDB 2016) (Figure 6). Query included the "Woodland, California" 7.5-minute quadrangle and eight surrounding quadrangles;

U.S. Fish and Wildlife Service, Sacramento Field Office website – Official list of federal candidate, proposed, threatened, and endangered plant species having the potential to occur in the study area; generated on 15 March 2013 (USFWS 2013) and 07 April 2014 (USFWS 2014); and

California Native Plant Society's Online Inventory of Rare and Endangered Plants of California – List of special-status plants that may occur in the study area; generated on various dates between March 2013 (CNPS 2013) and August 2014 (CNPS 2014).

A list of all special-status plant species known or potentially known to occur on the Project Site is shown in Table A-1 in Appendix A. For each species (CRPR 1A, 1B, 2A, and 2B) identified as having a moderate to high potential to occur on the Project Site, phenological data and photographs were compiled prior to field surveys. Specific information gathered included distribution, life cycles, habitat requirements, regional occurrence(s), representative photographs, and species keys. This information was referenced from the CNDDB data, individual treatments from Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012), and photographs from the CalPhoto website.

4.2 Special-Status Plant Species Occurrence Potential

The potential for special-status plants to occur on the Project Site depends largely on the presence of specific habitat types required for each species. Reconnaissance-level field surveys were conducted on 30 January 2012 and again on 18 June 2012 to review resources (i.e., wetlands) that warrant additional

or more focused surveys. Habitat types identified during the reconnaissance-level field assessments were evaluated with known habitat requirements for each special-status plant species with potential to occur in the regional area. Each species' potential to occur on the Project Site was then assessed and ranked as either:

- No Potential – species reported to have a current or historic range in the regional area, but does not occur on the Project Site due to the lack of required habitat for the species;
- Unlikely/Low Potential – species reported to have a current or historic range in the regional area, but has only marginal quality habitat on the Project Site (i.e., disturbed, fragmented, or otherwise degraded), or its presence cannot be completely discounted due to incomplete information on the taxon's distribution or habitat requirements;
- Moderate Potential – species reported to have a current or historic range in the regional area and moderate quality habitat on the Project Site;
- Present/High Potential – species previously reported from the site or otherwise expected to occur due to substantial habitat on the Project Site.

Based on review of the CNDDB and CNPS database searches, previously prepared biological reports for the Project Site and surrounding areas, and reconnaissance-level field surveys, it was determined the Project Site supports potential suitable habitat (moderate) for one special-status plant species – Sanford's arrowhead (*Sagittaria sanfordii*). This species was not identified on the "Woodland, California" 7.5-minute quadrangle or eight surrounding quadrangles; however, due to its wide distribution and occurrence in marshlands and irrigation ditches, Sanford's arrowhead was considered for further evaluation at the site. Detailed descriptions of this species and its potential to occur on the Project Site are provided in Appendix B.

Several other special-status plant species were identified in the database searches for the selected quadrangles. These species include Ferris' milkvetch (*Astragalus tener* var. *ferrisiae*), alkali milk vetch (*Astragalus tener* var. *tener*), heartscale (*Atriplex cordulata*), brittlescale (*Atriplex depressa*), San Joaquin spearscale (*Atriplex joaquiniana*), round-leaved filaree (*California microphylla*), Palmate Salty bird's-beak (*Chloropyron palmatum*), woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*), dwarf peppergrass (*Lepidium latipes*), Baker's navarretia (*Navarretia leucocephala* subsp. *bakeri*), and saline clover (*Trifolium hydrophilum*). These species did not have moderate or high potential to occur due to the lack of specific habitat requirements on the Project Site, such as foothill grassland, vernal pools, or saline/alkaline soils.

4.3 Field Survey Methods

Field surveys for special-status plants were conducted over a 5-year period from March 2012 through March 2016 in accordance with the CNPS Botanical Survey Guidelines (CNPS 2001), the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants

(USFWS 1996), and the Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009).

4.4 Reference Populations

Prior to and during the timeframe when surveys of the Project Site were conducted, two reference populations were visited. Reference populations were used to evaluate the condition of specific phenological traits needed to identify plants in the field, such as flowering and fruiting times. Teichert's biologist B. Baba visited various known populations of Sanford's arrowhead within the regional area between June 2012 and August 2015. These sites included Teichert's Aspen VIII property in eastern Sacramento County and a channel island in the Sacramento-San Joaquin Delta in western Sacramento County. Visiting additional populations and reference sites was not feasible because of the uncertain status of many previously known locations, the lack of precise information on the location and ownership of local populations, or the lack of access to populations on private and preserved lands.

4.5 On-site Field Surveys

Surveys for Sanford's arrowhead were conducted by Teichert biologist B. Baba and occurred on June 18th and August 6th of 2012, July 18th of 2013, August 19th of 2014, June 25th and August 5th of 2015, and February 18th and July 21st of 2016. These dates were chosen to encompass the range of flowering and identification periods for the species. Over the course of the 5-year survey period B. Baba visited and thoroughly inspected vegetation along irrigation canals and other perennially wet areas. The survey study area was extended outside the Project Site boundary to ensure all areas within 100-feet of the proposed mining disturbance footprint were covered (Figure 5).

All habitats present on the Project Site were also surveyed thoroughly in order to properly inventory and document any potential occurrences of other special-status plant species. Much of the area consisted of actively farmed fields and thus provided limited or no suitable habitat for other special-status plants. Nevertheless, all plant species observed during the survey period were recorded in the field and presented in Appendix C. Nomenclature used follows the Jepson Manual: Vascular Plants of California, 2nd ed. (Baldwin et. al. 2012).

5 PLANT SURVEY RESULTS

A total of 119 taxa of vascular plants were identified on the Project Site (Appendix C). Of these taxa, 40 are native, 72 are naturalized, 6 are cultivated for agriculture, and one is an ornamental (oleander) planted for landscaping. A total of 5 species are considered noxious or invasive weeds in California (Cal-IPC 2016; CDFA 2016).

Sanford's arrowhead was not found on the Project Site. No other federal or state-listed plant taxa were observed. Several elderberry (*Sambucus nigra* subsp. *caerulea*) shrubs, the specific host plant for the federally-listed *Threatened* valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), were

observed just north of the proposed limits of disturbance (Figure 7). These shrubs occur outside the 50-meter wide disturbance buffer and, therefore, may be considered avoided by the Project (USFWS 2017).

6 SUMMARY

The Teichert Shifler Project Site is currently used for agriculture (i.e., row crops) and is continuously disturbed. Vegetation along canals and ditches are also frequently managed for agricultural purposes. Nevertheless, multiple surveys have been conducted during the appropriate blooming period for Sanford's arrowhead. The results of these surveys conclude that the Project Site does not or is unlikely to support any special-status plants, including Sanford's arrowhead. The results of protocol-level special-status plant species surveys are typically considered to be valid by the resource agencies for a period of 5 years, given that circumstances on the Project Site can be assumed to remain largely unchanged during this time period.

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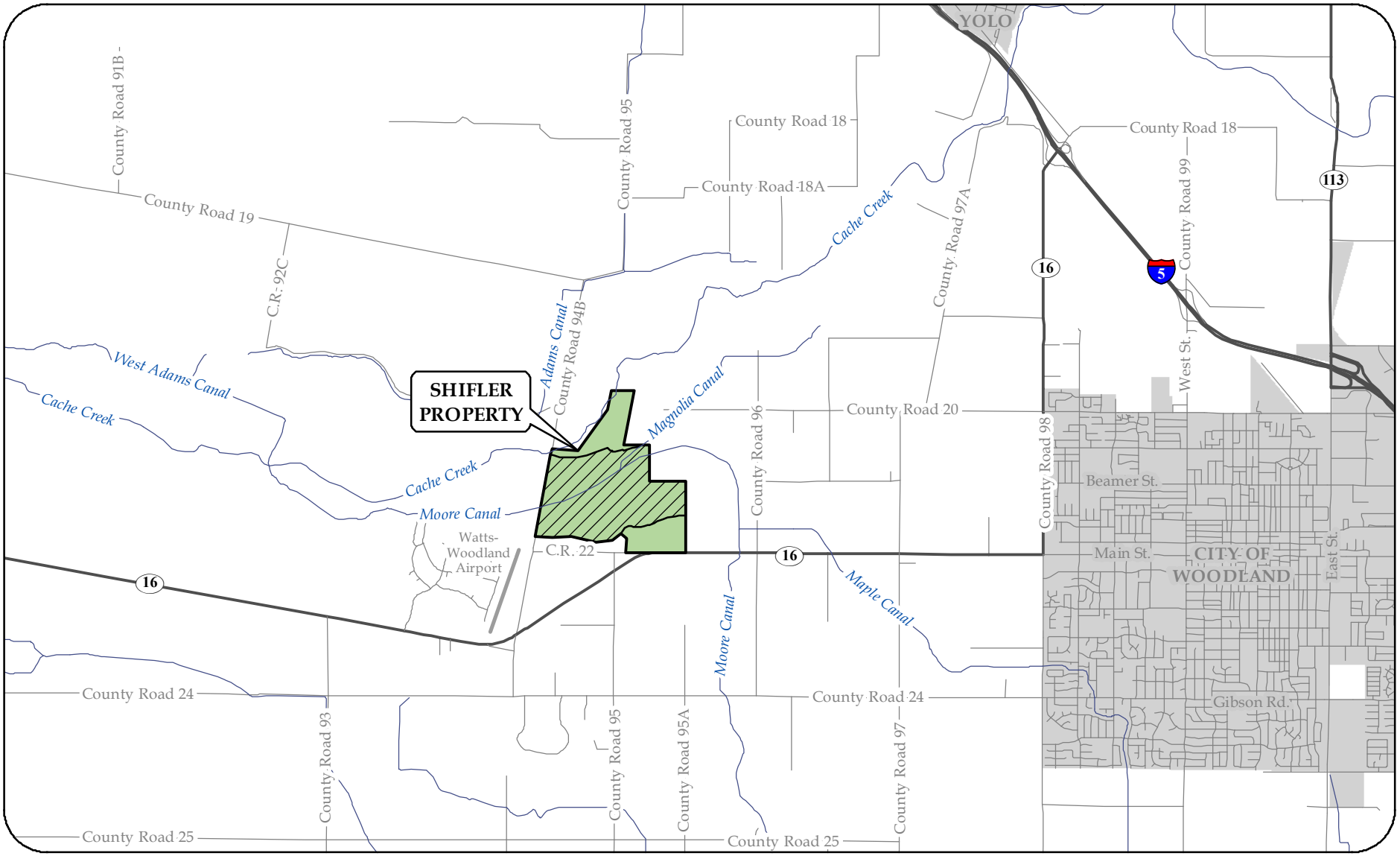
LIST OF FIGURES



TEICHERT MATERIALS

LEGEND:

- Project Site
- Shifler Property Boundary

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

0 0.5 1 Miles

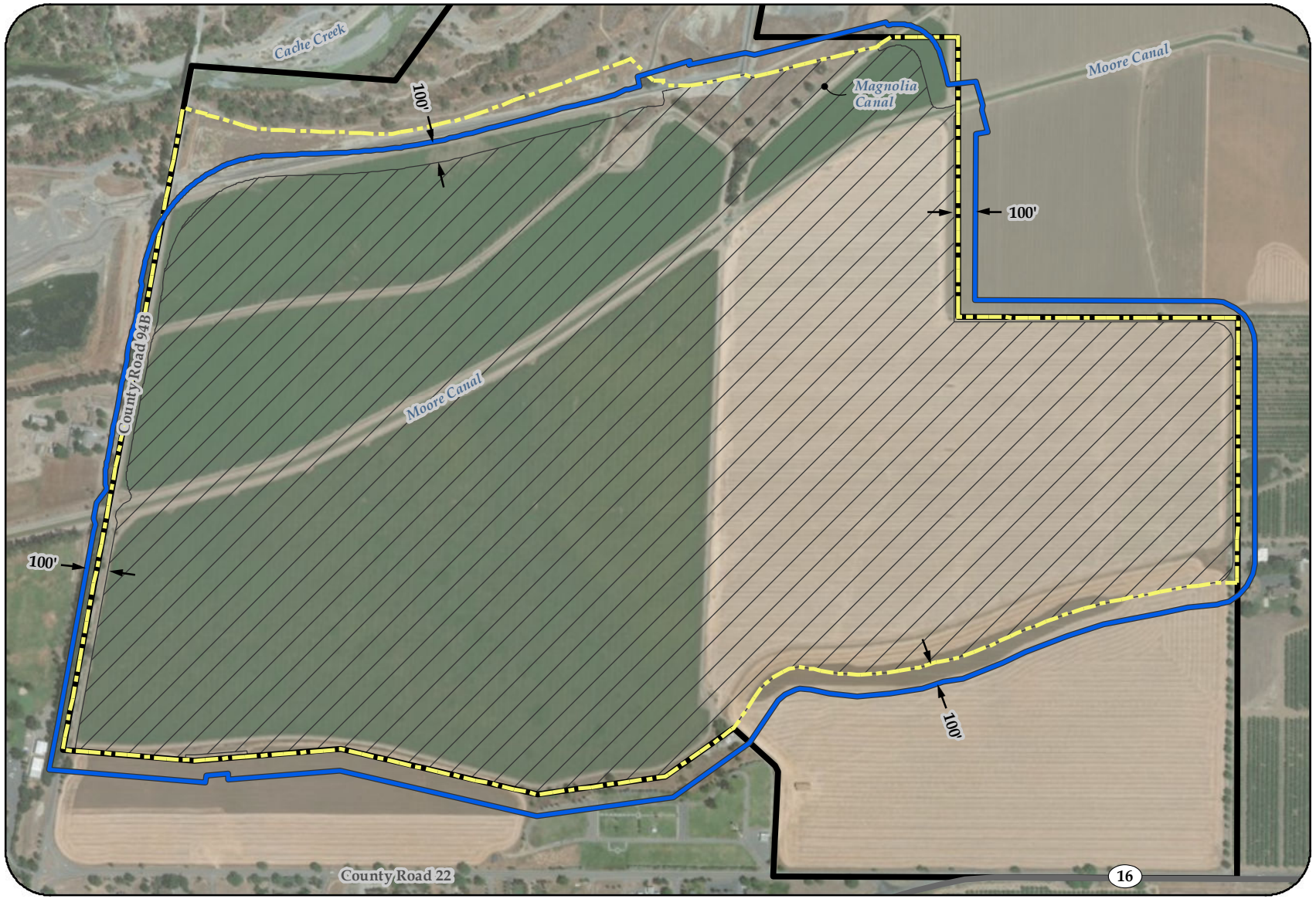
FIGURE 1

PROJECT SITE AND VICINITY

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 04/17/2018 SHF_RarePlant_Fig1_Vicinity_201804.mxd



TEICHERT MATERIALS

LEGEND:

- Study Area
- Project Site
- Shifler Property Boundary
- Limits of Disturbance

SOURCE:

- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 350 700 Feet

DISCLAIMER:

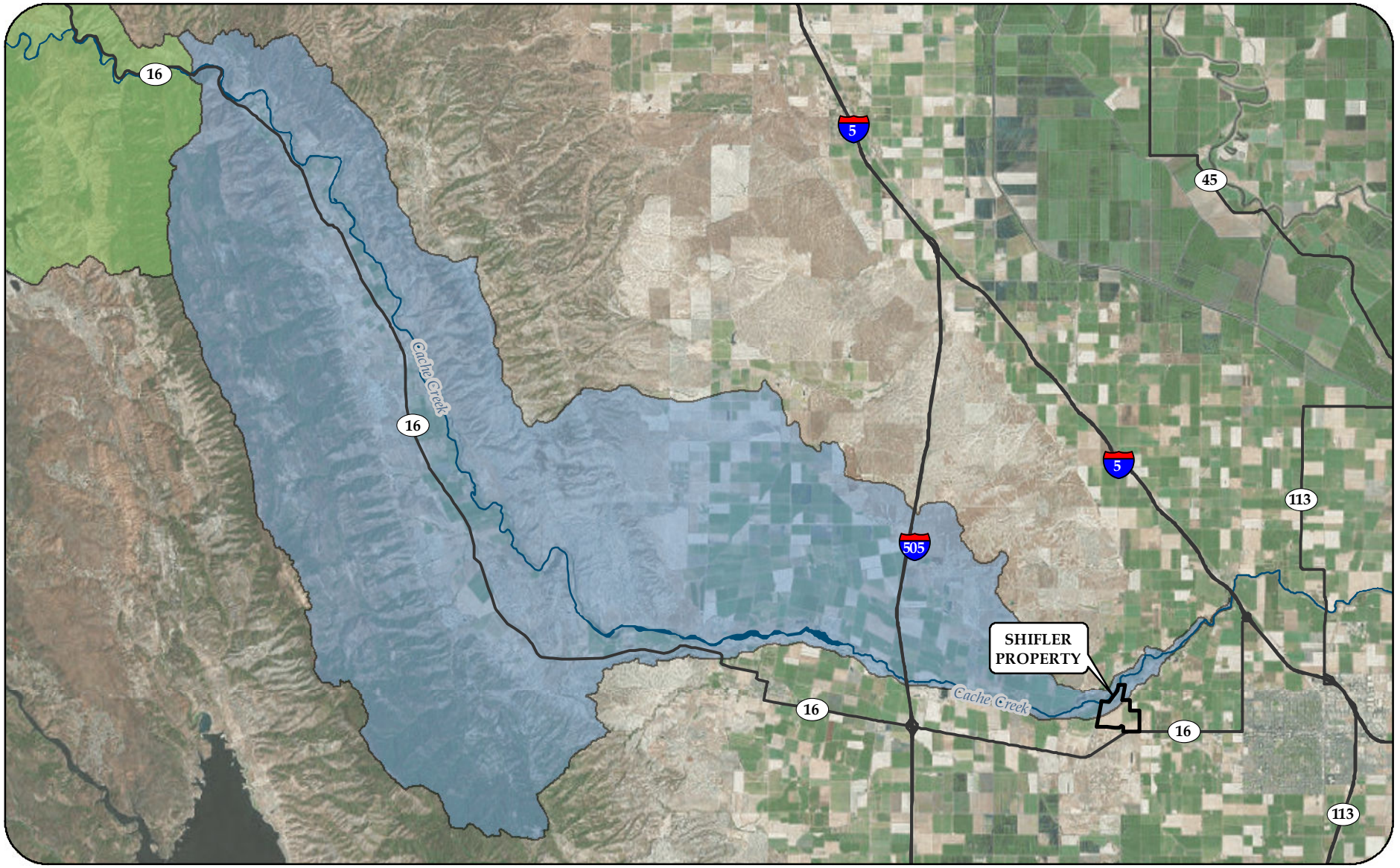
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 2

PROJECT SITE AND LIMITS OF DISTURBANCE

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

C:\Cornejo\4/17/2018 SHF_RarePlant_Fig2_Site_201804.mxd



TEICHERT MATERIALS

LEGEND:

- Cache Creek
- Upper Cache Creek Watershed
- Lower Cache Creek Watershed
- Shifler Property Boundary

SOURCE:

- Watersheds Provided by Calwater version 2.2.1 (May 2004)
- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 1.75 3.5 Miles

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

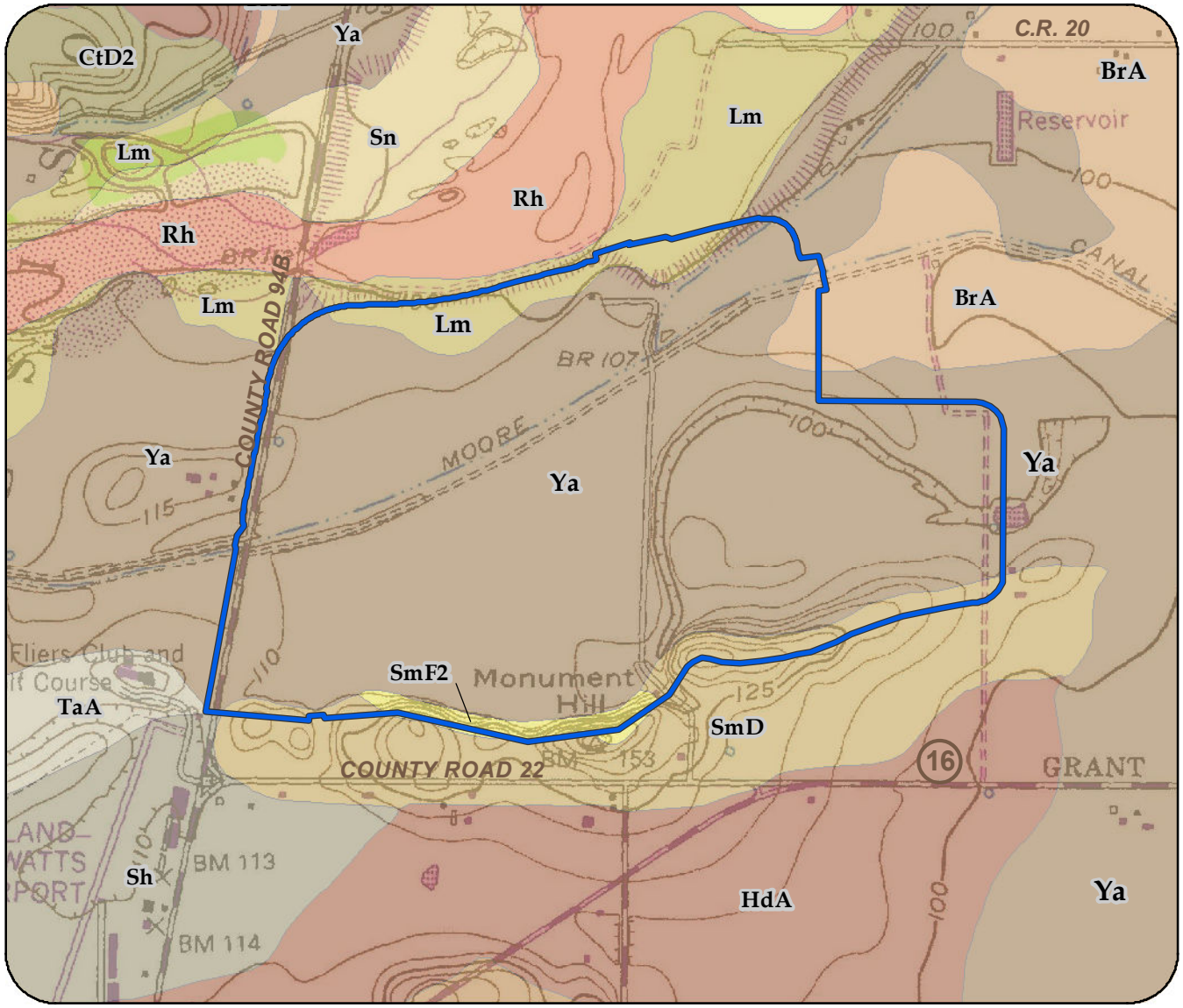
FIGURE 3

CACHE CREEK WATERSHED MAP

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_RarePlant_Fig3_Watershed_201804.mxd



NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES:

- BrA- Brentwood silty clay loam, 0 to 2 percent slopes
- CtD2- Corning gravelly loam, 0 to 12 percent slopes, MLRA 17
- HdA- Hillgate loam, moderately deep, 0 to 2 percent slopes
- Lm- Loamy alluvial land
- Rh- Riverwash
- Sh- San Ysidro loam, 0 to 5 percent slopes, dry, MLRA 17
- SmD- Sehorn-Balcom complex, 2 to 15 percent slopes
- SmF2- Sehorn-Balcom complex, 30 to 50 percent slopes, eroded
- Sn- Soboba gravelly sandy loam
- TaA- Tehama loam, 0 to 2 percent slopes, loamy substratum, MLRA 17
- Ya- Yolo silt loam, 0 to 2 percent slopes, MLRA 17
- Study Area

TEICHERT MATERIALS

SOURCE:

Soil Survey Provided by NRCS
(Version 13, Sept. 13, 2017)

USGS 7.5' Quad: Woodland

0 600 1,200 Feet

DISCLAIMER:

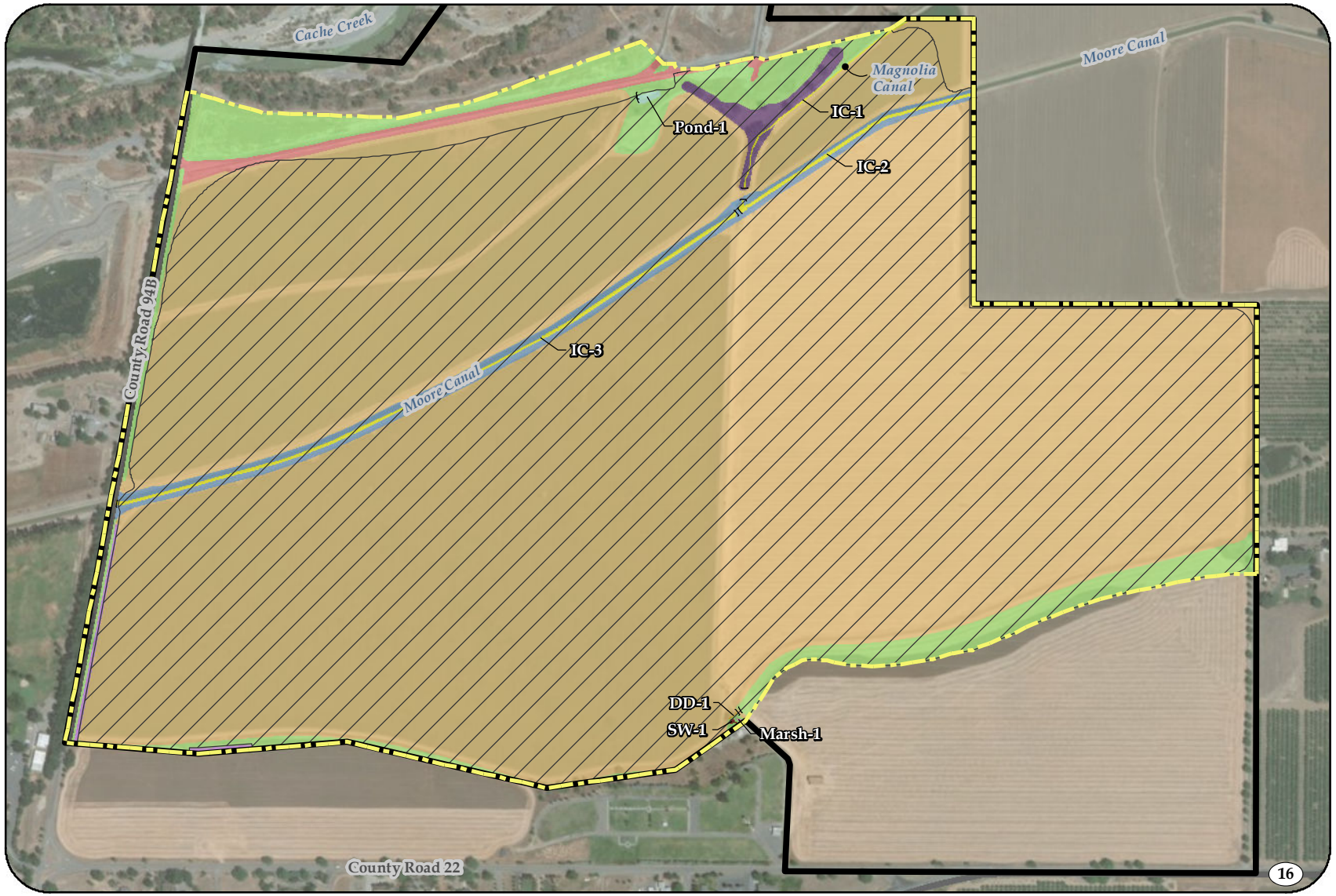
The data was mapped for planning purposes only.
No liability is assumed for the accuracy of the data shown.

FIGURE 4

NATURAL RESOURCES CONSERVATION SERVICE SOIL TYPES

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_RarePlant_Fig4_Soils_201804.mxd



TEICHERT MATERIALS

LEGEND:

- Limits of Disturbance
- Culvert

WETLANDS:

- Seasonal Wetland
- Seasonal Marsh

OTHER WATERS:

- Pond
- Irrigation Canal
- Drainage Ditch
- Agriculture
- Annual Grassland/ Ruderal
- Canal/ Maintenance Road
- Conveyor/ Gravel Road
- Existing Landscaping
- Oak Woodland
- Paved Road
- Project Site
- Shifler Property Boundary

0 350 700 Feet

SOURCE:

- Existing Features Provided by Teichert (April 2016)
- Wetland Features Provided by ECORP (Sept. 2010)
- Aerial Provided by ESRI Basemaps (DG: July 8, 2016)

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

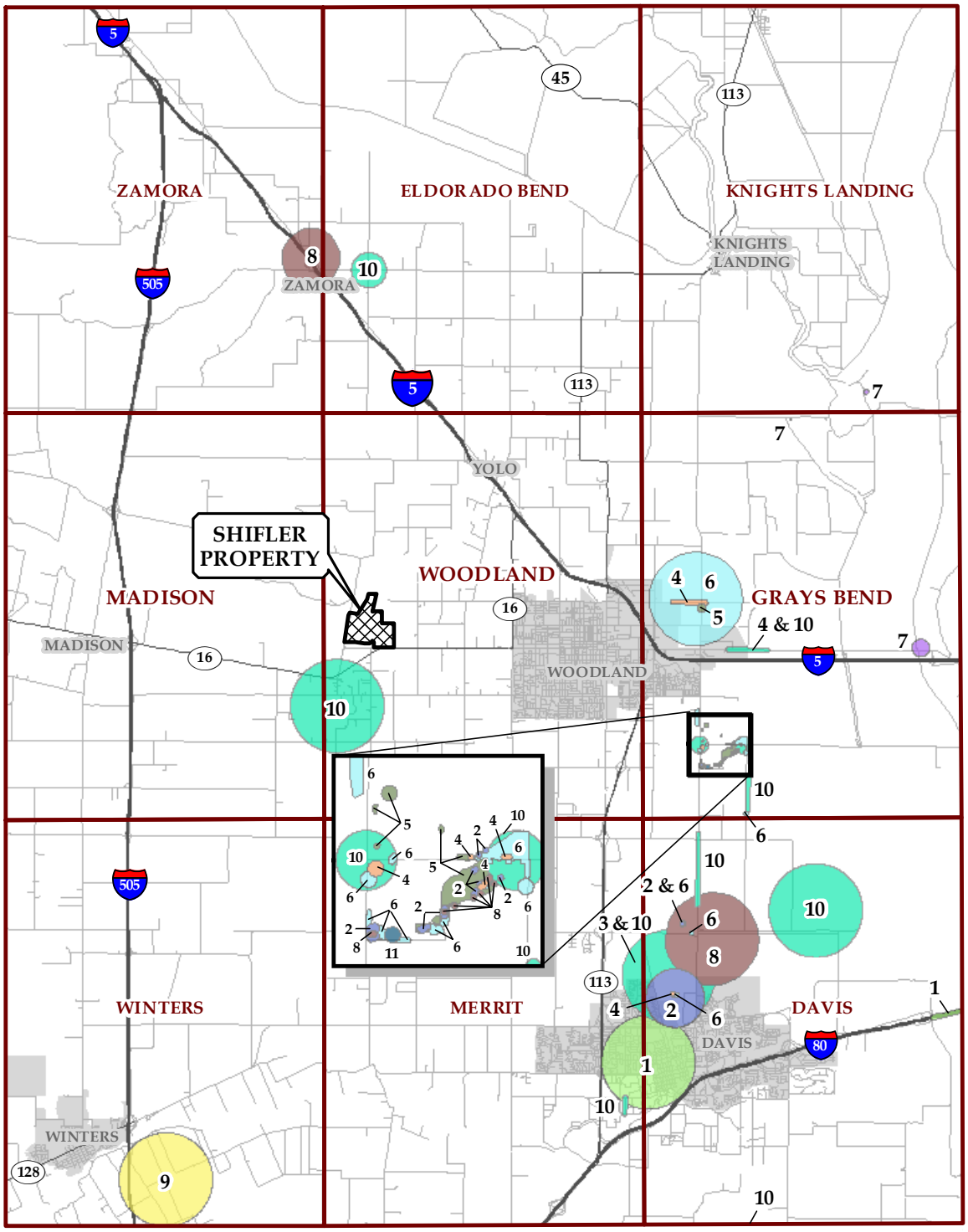
FIGURE 5

HABITATS AND WETLANDS

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_RarePlant_Fig5_Bio_201804.mxd



CNDDB SPECIAL STATUS PLANTS:

- 1- Astragalus tener var. ferrisiae
- 2- Astragalus tener var. tener
- 3- Atriplex cordulata var. cordulata
- 4- Atriplex depressa
- 5- Chloropyron palmatum
- 6 - Extriplex joaquinana
- 7 - Hibiscus lasiocarpos var. occidentalis
- 8 - Lepidium latipes var. heckardii
- 9 - Navarretia leucocephala ssp. bakeri
- 10 - Puccinellia simplex
- 11- Trifolium hydrophilum

TEICHERT MATERIALS

LEGEND:

- Shifler Property Boundary
- 7.5' USGS Quad Boundaries

0 6,000 12,000 Feet

SOURCE:
CNDDB Provided by CDFW (April 2018)

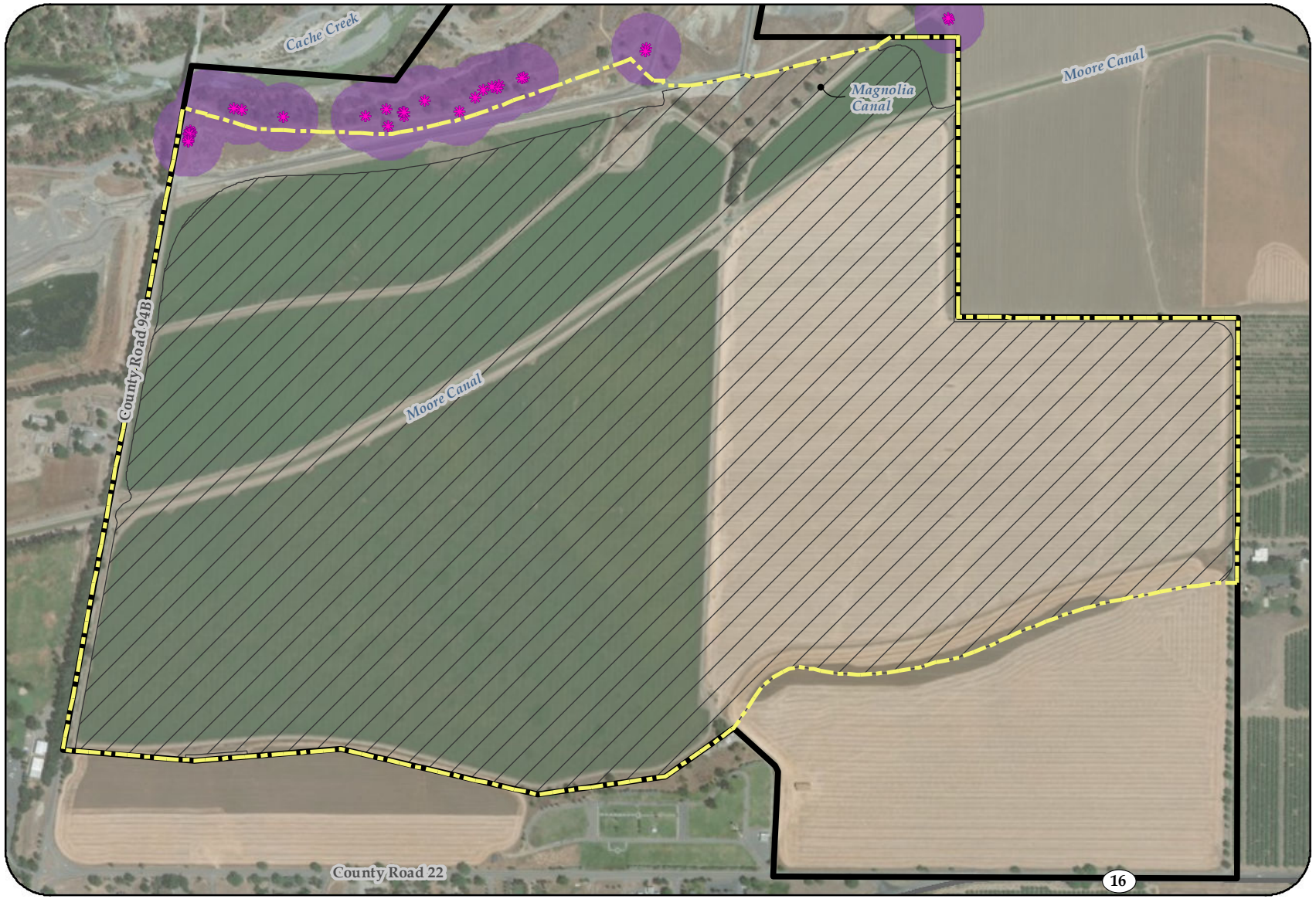
DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 6

CNDDB OCCURRENCES OF SPECIAL- STATUS PLANT SPECIES

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

C. Cornejo Rev by T. Yee 4/9/2018 SHF_RarePlant_Fig6_CNDDB_20180404.mxd



TEICHERT MATERIALS

LEGEND:

- Elderberry Location
- 50 meter Buffer of Elderberry Locations
- Limits of Disturbance
- Project Site
- Shifler Property Boundary

NOTE:

Limits of disturbance is more than 50 meters away from any elderberry location.

SOURCE:

- Elderberry Locations GPS by Teichert (March 2016)
- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 350 700 Feet

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 7

LOCATION OF EXISTING ELDERBERRY

SHIFLER PROPERTY STUDY AREA
RARE PLANT SURVEY REPORT
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 4/17/2018 SHF_RarePlant_Fig7_Elderberry_201804.mxd

TEICHERT AGGREGATES

SHIFLER PROPERTY
WOODLAND, YOLO COUNTY

Flora Inventory

Spring/Summer 2012-16

ANGIOSPERMS, EUDICOTS

ADOXACEAE (MUSKROOT FAMILY)

Sambucus nigra subsp. *caerulea*	Blue elderberry

AMARANTHACEAE (AMARANTH FAMILY)

*Amaranthus albus**	Tumbleweed
Amaranthus blitoides	Procumbent pigweed
*Amaranthus retroflexus**	Redroot pigweed

ANACARDIACEAE (SUMAC OR CASHEW FAMILY)

Toxicodendron diversilobum	Western poison oak

APIACEAE (CARROT FAMILY)

*Anthriscus caucalis**	Bur-chervil
*Conium maculatum**	Poison hemlock

APOCYNACEAE (DOGBANE FAMILY)

Asclepias fascicularis	Narrow-leaf milkweed
*Nerium oleander**	Common oleander

ASTERACEAE (SUNFLOWER FAMILY)

*Anthemis cotula**	Dog-fennel
Baccharis pilularis subsp. *consanguinea*	Coyote brush
Carduus pycnocephalus subsp. *pycnocephalus**	Italian thistle
*Centaurea solstitialis**	Yellow star-thistle
*Carthamus tinctorius**	Safflower
Helianthus annuus	Common sunflower
*Helminthotheca echioides**	Bristly ox-tongue
Heterotheca grandiflora	Telegraph weed
*Hypochaeris glabra**	Smooth cat's-ear
*Lactuca serriola**	Prickly lettuce
*Matricaria discoidea**	Pineapple weed
*Pseudognaphalium luteoalbum**	Common cudweed
Psilocarphus brevissimus var. *brevissimus*	Dwarf woollyheads
*Senecio vulgaris**	Common groundsel
*Silybum marianum**	Milk thistle
Sonchus asper subsp. *asper**	Prickly sow thistle
*Sonchus oleraceus**	Common sow thistle
Xanthium spinosum	Spiny cocklebur
Xanthium strumarium	Rough cocklebur

BORAGINACEAE (BORAGE FAMILY)

Amsinckia intermedia	Common fiddleneck
*Heliotropium europaeum**	European heliotrope
Plagiobothrys stipitatus var. *micranthus*	Common vernal pool popcornflower

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

BRASSICACEAE (MUSTARD FAMILY)	
*Brassica napus**	Swede rape, Rapeseed, Canola
*Capsella bursa-pastoris**	Shepherd's purse
Cardamine oligosperma	Western bittercress
*Hirschfeldia incana**	Perennial mustard
*Lepidium latifolium**	Perennial pepperweed
Lepidium strictum	Upright peppergrass
*Raphanus sativus**	Wild radish
*Sinapis arvensis**	Charlock
*Sisymbrium orientale**	Oriental hedge mustard, Indian hedge mustard
CARYOPHYLLACEAE (PINK FAMILY)	
*Cerastium glomeratum**	Sticky mouse-ear chickweed
CHENOPODIACEAE (GOOSEFOOT FAMILY)	
*Chenopodium album**	Lamb's quarters
*Salsola tragus**	Russian thistle
CONVOLVULACEAE (MORNING-GLORY FAMILY)	
*Convolvulus arvensis**	Bindweed
Cuscuta campestris	Field dodder
CRASSULACEAE (SEDGE FAMILY)	
Crassula connata	Pygmy-weed
CUCURBITACEAE (GOURD FAMILY)	
*Cucumis sativus**	Cucumber
Marah fabacea	California man-root
EUPHORBIACEAE (SPURGE FAMILY)	
Chamaesyce ocellata subsp. *ocellata*	Contura Creek sandmat
Croton setigerus	Turkey-mullein, Doveweed
FABACEAE (LEGUME FAMILY)	
Lupinus succulentus	Arroyo lupine
*Medicago polymorpha**	Common burclover
*Medicago sativa**	Alfalfa
*Melilotus albus**	White sweetclover
*Melilotus indicus**	Sourclover
*Trifolium hirtum**	Rose clover
FAGACEAE (OAK FAMILY)	
Quercus agrifolia	Coast live oak
Quercus lobata	Valley oak
GERANIACEAE (GERANIUM FAMILY)	
*Erodium botrys**	Longbeak filaree, Broadleaf filaree
*Erodium cicutarium**	Redstem filaree
*Erodium moschatum**	Greenstem filaree
*Geranium dissectum**	Cut-leaved geranium
JUGLANDACEAE (WALNUT FAMILY)	
Juglans hindsii	Northern California black walnut
LAMIACEAE (MINT FAMILY)	
*Marrubium vulgare**	Horehound

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

LYTHRACEAE (LOOSESTRIFE FAMILY)	
*Lythrum hyssopifolia**	Hyssop loosestrife
MALVACEAE (MALLOW FAMILY)	
*Abutilon theophrasti**	Velvet-leaf
*Malva parviflora**	Cheeseweed, Little mallow
Malvella leprosa	Alkali-mallow, White-weed
MARTYNIACEAE (UNICORN FAMILY)	
Proboscidea louisianica subsp. *louisianica**	Devil's claw
*Proboscidea lutea**	Yellow's devil's claw
MYRSINACEAE (MYRSINE FAMILY)	
*Anagallis arvensis**	Scarlet pimpernel
ONAGRACEAE (EVENING PRIMROSE FAMILY)	
Epilobium brachycarpum	Annual willowherb
OXALIDACEAE (OXALIS FAMILY)	
*Oxalis pes-caprae**	Bermuda buttercup
PLANTAGINACEAE (PLANTAIN FAMILY)	
Veronica peregrina subsp. *xalapensis*	Purslane speedwell
POLYGONACEAE (BUCKWHEAT FAMILY)	
Polygonum aviculare subsp. *depressum**	Common knotweed
*Rumex crispus**	Curly dock
*Rumex dentatus**	Toothed dock
*Rumex stenophyllus**	Narrowleaf dock
PORTULACACEAE (PURSLANE FAMILY)	
*Portulaca oleracea**	Purslane
ROSACEAE (ROSE FAMILY)	
Rosa californica	California wild rose
*Rubus armeniacus**	Himalayan blackberry
*Prunus dulcis**	Almond
RUBIACEAE (MADDER FAMILY)	
Galium aparine	Goose grass
SALICACEAE (WILLOW FAMILY)	
Populus fremontii subsp. *fremontii*	Fremont cottonwood
Salix gooddingii	Goodding's black willow
Salix laevigata	Red willow
SIMAROUBACEAE (QUASSIA OR SIMAROUBA FAMILY)	
*Ailanthus altissima**	Tree of heaven
SOLANACEAE (NIGHTSHADE FAMILY)	
Datura wrightii	Sacred datrura, Western jimson weed
*Nicotiana glauca**	Tree tobacco
Solanum americanum	American nightshade, Glossy nightshade
*Solanum lycopersicum**	Tomato
ZYGOPHYLLACEAE (CALTROP FAMILY)	
*Tribulus terrestris**	Puncture vine

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

ANGIOSPERMS, MONOCOTS

ALLIACEAE (ONION OR GARLIC FAMILY)	
*Allium neopolitanum**	White garlic
CYPERACEAE (SEDGE FAMILY)	
Cyperus eragrostis	Tall flatsedge
Cyperus esculentus var. *leptostachyus*	Yellow nutsedge, Chufa sedge
POACEAE (GRASS FAMILY)	
*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
*Bromus diandrus**	Ripgut grass
*Bromus hordeaceus**	Soft chess
Bromus madritensis subsp. *rubens**	Red brome
*Cynodon dactylon**	Bermuda grass
Distichlis spicata	Salt grass
*Echinochloa crus-galli**	Common barnyard grass
Elymus triticoides	Creeping wild-rye
*Festuca myuros**	Six-weeks fescue, Rattail fescue
*Festuca perennis**	Rye grass
Hordeum murinum subsp. *leporinum**	Hare wall barley
Leptochloa fusca subsp. *fascicularis*	Bearded sprangletop
*Paspalum dilatatum**	Dallis grass
*Paspalum distichum**	Knot grass
*Panicum hillmanii**	Hillman's panic grass
*Phalaris minor**	Little-seeded canary grass
*Phalaris paradoxa**	Hood canary grass
*Poa annua**	Annual blue grass
*Polypogon maritimus**	Mediterranean beard grass
*Polypogon monspeliensis**	Annual beard grass, Rabbitfoot grass
*Sorghum halepense**	Johnson grass
*Triticum aestivum**	Wheat
TYPHACEAE (CATTAIL FAMILY)	
Typha domingensis	Southern cattail

* Non-native plants of California (Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepsom manual: vascular plants of California, second edition. University of California Press, Berkeley.)

ATTACHMENT C

Teichert – Shifler Property
Oak Tree Survey Report

OAK TREE SURVEY REPORT

Shifler Property

Teichert – Yolo County

Prepared By:

Teichert Materials
Contact: Barry Baba
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Prepared For:

Yolo County
Planning Division
292 West Beamer Street
Woodland, CA 95696

Date

May 2018

TEICHERT

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Shifler Property, Yolo County

May 2018

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1 INTRODUCTION

This Oak Tree Survey Report has been prepared for Teichert Aggregates' (Teichert's) proposed Shifler mining project (Project Site). The Project Site is located approximately 3 miles west of the City of Woodland in unincorporated Yolo County, immediately south of Cache Creek, north of State Highway 16, and east of County Road 94B (Figure 1). Teichert proposes to mine/disturb approximately 277 acres of the approximately 319-acre property. In addition to mining, Teichert intends to relocate and improve an existing canal (Moore Canal). The survey was conducted to document the location and size of all native oak trees that could potentially be affected as a result of these proposed mining and construction activities. This report represents a complete summary of the identification and quantitative description of all California native oak trees occurring within and adjacent to the current boundaries of the Project Site.

1.1 Existing Conditions

The Project Site is comprised almost entirely of active agricultural lands. Crops produced from the site include a variety of row and field agricultural products, including tomatoes, sunflower, safflower, cucumbers, and winter wheat. A concrete-lined irrigation canal (Moore Canal) traverses the Project Site from west to east, and an unlined irrigation ditch (Magnolia Canal) connects to the Moore Canal in the north-central portion of the property and conveys water northward from the site (Figure 1). Additional features include a conveyor belt in the northwestern portion of the site and several agricultural access roads that border three large fields. Ruderal vegetation is present along the conveyor belt, roadsides, and the Magnolia Canal. Surrounding habitat includes the Cache Creek channel and associated riparian corridor to the north, and continued agricultural fields to the south and east. Several large trees exist as scattered individuals along the western and northern Property boundaries, and a small cluster of oaks occur along the banks of the Magnolia Canal. The site is bounded by County Road 94B to the west, the Monument Hill Cemetery to the south, the Cache Creek channel to the north, and orchards to the east. Surrounding land uses include the Watts-Woodland Airport, Yolo Fliers Golf and Country Club, Cache Creek Nature Preserve, and Teichert Aggregates' Woodland Plant facility.

2 REGULATORY CONTEXT

Currently, Yolo County does not have an established tree preservation ordinance or policy. However, efforts have been made to prioritize conservation and minimize impacts to vegetation. In 2007, the Yolo County Board of Supervisors adopted the *Yolo County Oak Woodland Conservation and Enhancement Plan*, which provides a program to support and assist willing landowners, public agencies, nonprofit organizations, and others with voluntary oak woodlands conservation and enhancement opportunities. Furthermore, the Yolo County General Plan does recommend site development standards to prevent or minimize unnecessary damage to vegetation. In addition, the Yolo County Open Space Element requires no net loss of riparian and wetland habitat. If avoidance is not possible, impacts and mitigation measures shall be evaluated to minimize the loss of trees or riparian habitat.

3 OAK TREE SURVEY

An initial oak tree survey was completed in June 2012 by Teichert biologist B. Baba as part of a biological assessment of the site. A follow-up survey was conducted on 18 February 2016 by Teichert biologist J. Greer (International Society of Arboriculture Certified Arborist #WE-10104A) in order to reassess potential project impacts due to minor changes in the proposed mining boundary, as well as to account for possible tree growth since the initial survey. The survey area generally included the project boundary and areas within 150 feet of that boundary (Figure 2). Trees in adjacent private properties were determined to be well outside of potential impacts and were thus not inventoried.

3.1 Methodology

An aerial photo of the site was used to determine potential tree locations and to develop field survey maps. Trees were then surveyed on foot by J. Greer to verify and map all trees located within the survey area. All native oak trees with trunks equal to or greater than six inches in diameter were then inventoried and mapped using a Trimble® Juno global positioning system (GPS) unit with sub-meter accuracy. All recorded trees were closely examined to determine species type and diameter at breast height (DBH)[1]. In addition, dripline radius was assessed based upon the measurement from the trunk to the end of the longest lateral limb, which defines the root protection zone of the tree.

Data collected at the time of the survey for each tree include: a unique identifying number, species identification, coordinate-based location, trunk DBH measurement, visual estimate of dripline radius, and visual assessment for health and structural condition using a 0-4 scale, as defined in Table 1. Vigor consists of a combined assessment of the health and structure of a tree. The health rating (on a scale of 0 – 4) component considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency, and/or insect infestation. The structural rating component reflects the trunk and branch configuration; canopy balance; the presence of included bark and other structural defects such as decay; and the potential for structural failure.

Table 1. Shifler Oak Tree Survey - Tree Vigor Rating System

Vigor Rating	Tree Health	Tree Structure
4	Healthy tree free of signs and symptoms of disease. Leaf size, color, and density are typical for the species; buds are normal size, viable and abundant; current and past growth increments are better than average.	No wounds, cavities, decay, or indication of hollowness evident in the root crown, trunk, or primary and secondary limbs; no anchor roots exposed; no dead primary or secondary limbs present; there have been no major limb failures; limbs are not overburdened; branching structure appropriate for species.

[1] Defined as the trunk diameter at 4.5 feet above grade. Occasional deviations from this height occurred for trees with branching at this level, or with unusual structural configurations (e.g., horizontal trunks). On multi-trunked trees (trees with multiple vertical trunks in contact at or near ground level) the DBH recorded equaled the aggregate diameter at 4.5 feet above grade for each of the trunks that were measured.

Vigor Rating	Tree Health	Tree Structure
3	Tree with moderate vigor, with very little evidence of stress or disease. Some thinning of crown and somewhat poor leaf color; buds are normal size and viable; current and past growth increments are generally average.	Average amount of deadwood/dieback with respect to the tree's size and growing environment; there have been no major limb failures; limbs are not overburdened; branching structure is appropriate for species; any callusing is vigorous; any decay is limited to small dead branches/stubs.
2	Tree in decline, with moderate evidence of stress, disease, nutrient deficiency, and/or insect infestation; epicormic growth evident; current and past growth increments below average; buds small and few; tree may be slow to callus around old wounds.	Dieback of medium to large branches; limbs slightly overburdened; branching structure and/or canopy balance moderately altered by the tree's growing environment; small to moderate wounds, cavities, decay, and indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; some anchor roots may be exposed.
1	Tree in severe decline; most of the foliage is from epicormic growth; major evidence of stress, disease, nutrient deficiency and/or insect infestation; poor leaf color; buds unviable.	Dieback of scaffold branches and/or trunk; significant wounds, cavities, decay, and/or indication of hollowness evident in the root crown, trunk, and/or primary and secondary limbs; anchor roots exposed; limbs may be severely overburdened.
0	Tree is dead; no living tissue evident.	Extensive dieback evident, with branches completely dry and breaking easily; trunk and major limbs hollow; tree has lost all anchorage.

3.2 Results

Most oaks associated with the 2016 survey were identified as valley oaks (*Quercus lobata*), except for three coast live oaks (*Quercus agrifolia*) along County Road 94B. Figure 2 shows the location of each oak identified within the survey area, and Appendix A summarizes data collected for all oaks that could potentially be affected (directly or indirectly) by the proposed mining project.

A total of 52 native oaks (DBH equal to or greater than 6 inches) were identified within the survey area. The majority of trees were located along the banks of the Magnolia Canal. The concrete-lined Moore Canal, in contrast, was found to be virtually devoid of vegetation. Remaining mature oaks were found just north of the Project Site boundaries near the Cache Creek riparian corridor, or along the frontage to County Road 94B. Several smaller valley oak trees measuring less than 6 inches DBH (saplings) were observed in the understory of existing oaks along Magnolia Canal or within riparian vegetation along the Cache Creek levee, but were not recorded. Other vegetation in this area included cottonwood trees (*Populus fremontii*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), Himalayan blackberry (*Rubus armeniacus*), poison oak (*Toxicodendron diversilobum*), tree of heaven (*Ailanthus altissima*), and escaped domestic almond (*Prunus dulcis*).

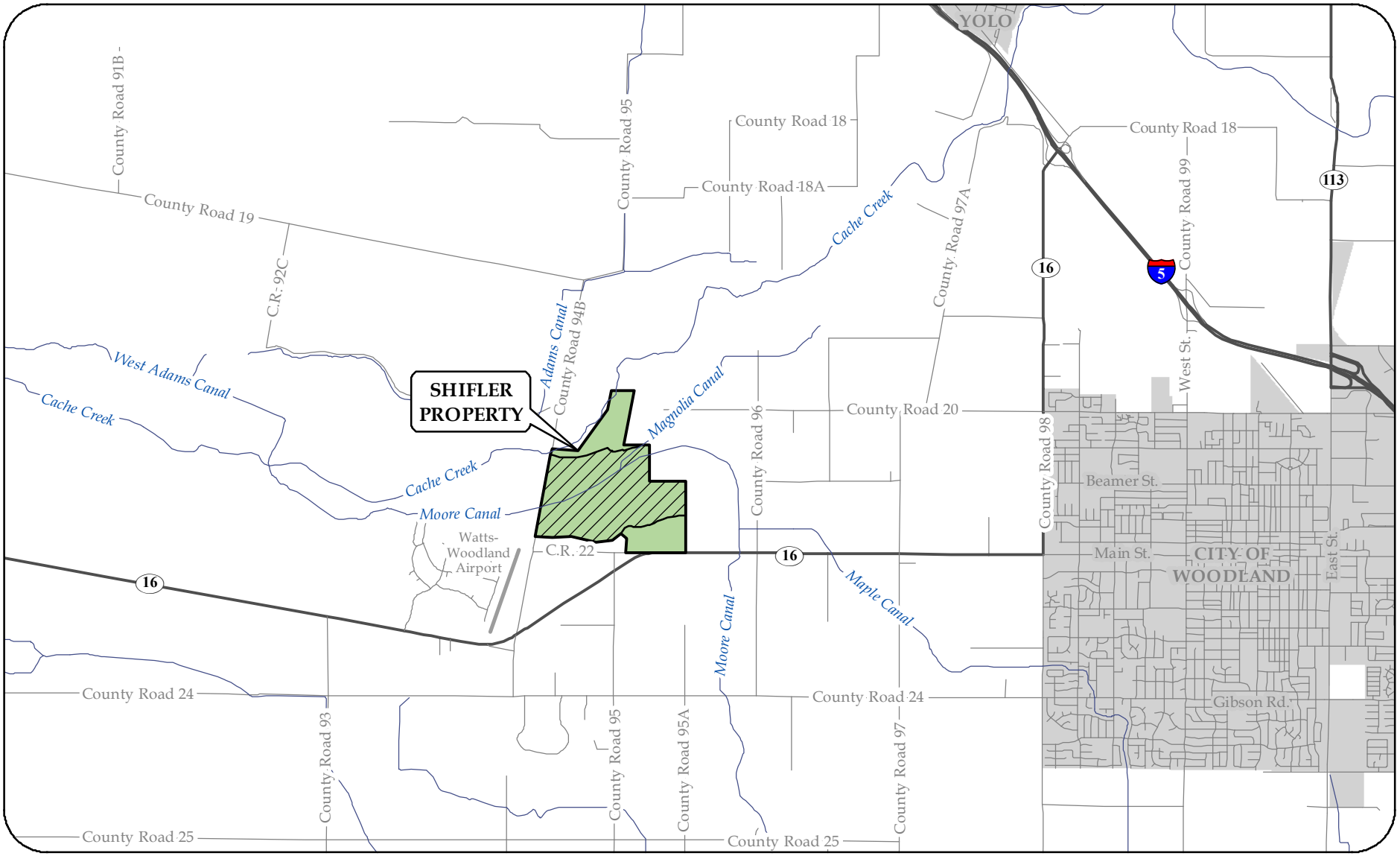
Most oak trees were determined to be mature, mid-sized, and in fair to good condition. A number of individuals were multi-trunked, contributing to sizable aggregate diameter measurements. Only one tree was recorded as a dead snag (#27). Due to the clustered nature of trees along Magnolia Canal, many exhibited poor structure as a result of competition for sunlight. Six surveyed oak trees exist outside of the site's boundaries (four to the north and two to the southwest), and thus have no potential impact ("not impacted"). All others may be directly or indirectly (i.e., via activities within the

dripline) impacted either by mining or relocation of the Moore Canal along the western and northern boundaries of the site.

4 SUMMARY

The majority of oak trees surveyed for the Shifler Project Site are located along the northern boundary of the property and constitute approximately 1.7 acres of oak woodland. There are also a couple of large, isolated oaks along the western perimeter of the Project Site. Of the 52 oak trees surveyed, 46 are expected to be directly or indirectly impacted as a result of mining activities and the proposed relocation of Moore Canal. The remaining 6 surveyed oaks exist just outside of the Project Site, either within the Cache Creek riparian corridor (trees #41-42 and #48) or along County Road 94B (trees #50-52), and will be avoided.

LIST OF FIGURES



TEICHERT MATERIALS

LEGEND:

- Project Site
- Shifler Property Boundary

DISCLAIMER:

The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

0 0.5 1 Miles

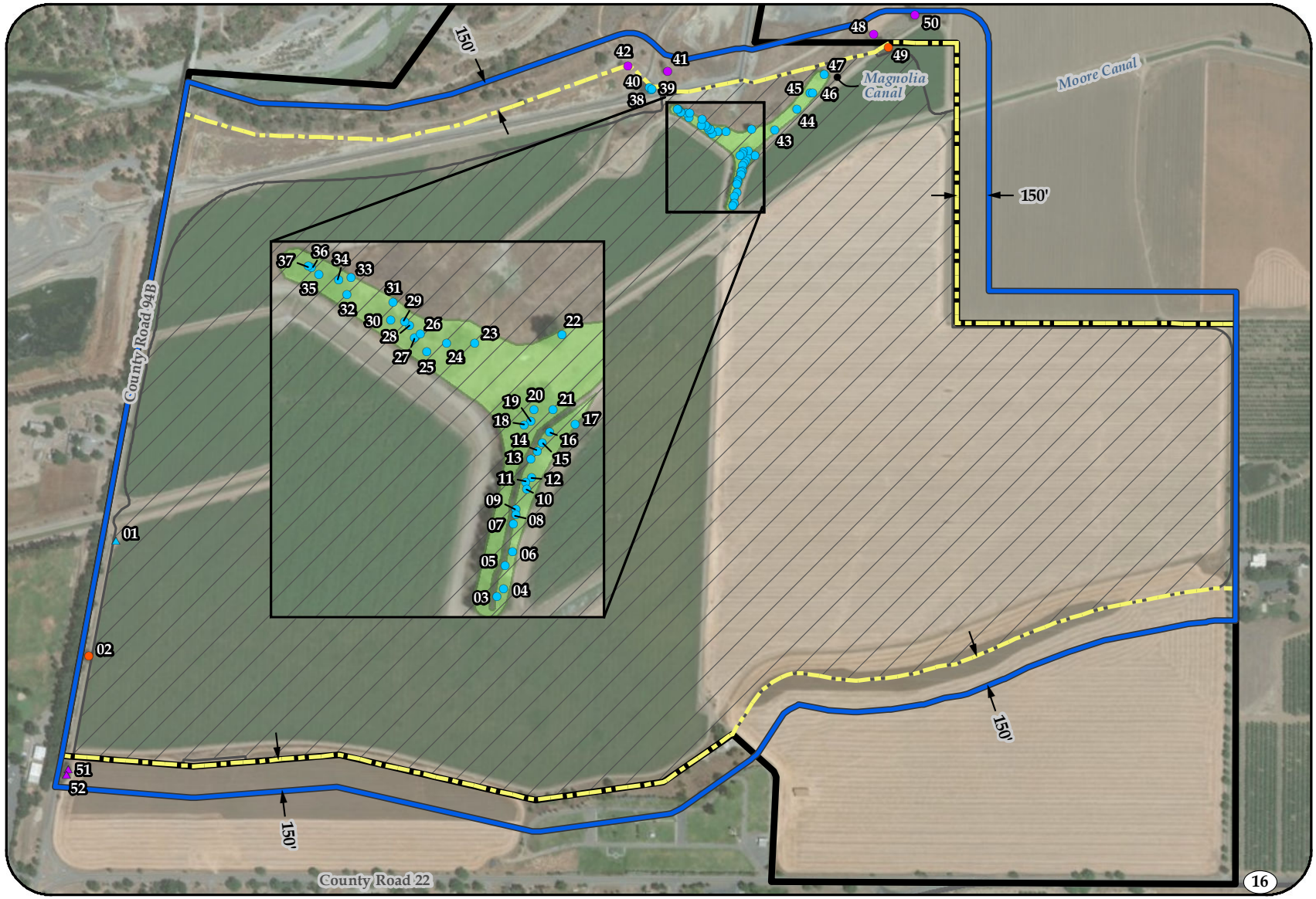
FIGURE 1

PROJECT SITE VICINITY

SHIFLER PROPERTY
OAK SURVEY
TEICHERT MATERIALS

YOLO COUNTY, CALIFORNIA

C. Cornejo 04/17/2018 SHF_OakSurvey_Fig1_SiteMap_201804.mxd



TEICHERT MATERIALS

LEGEND:

Coast Live Oak
- Directly Impacted: 1 Tree (15 in.)
- Not Impacted: 2 Trees (76 in.)

Valley Oaks
- Directly Impacted: 43 Trees (976 in.)
- Indirectly Impacted: 2 Trees (94 in.)
- Not Impacted: 4 Trees (121 in.)

- Survey Area
- Oak Woodland: ± 1.7 Acres
- Limits of Disturbance
- Project Site
- Shifler Property Boundary

SOURCE:
- Oak Locations GPS by Teichert (March 2016)
- Aerial Photography Provided by ESRI Basemaps & Affiliates (DigitalGlobe: July 08, 2016)

0 350 700 Feet

DISCLAIMER:
The data was mapped for planning purposes only. No liability is assumed for the accuracy of the data shown.

FIGURE 2
LOCATION/IMPACT OF EXISTING NATIVE OAKS
SHIFLER PROPERTY
OAK SURVEY
TEICHERT MATERIALS
YOLO COUNTY, CALIFORNIA

C. Cornejo 5/24/2018 SHF_OakSurvey_Fig2_Impacts_201805.mxd

APPENDIX A

Oak Tree Survey Results

Shifler Property – Yolo County

Table A-1. Shifler Property – Oak Tree Survey Results (2016)

Tree Identification Number	Common Name	Scientific Name	Number of Stems	DBH (inches)	Stem DBH (inches) (multi-stemmed trees)	Canopy Radius	Structure	Health	Impact
01	Coast Live Oak	*Quercus agrifolia*	3	14.9	6.2, 6.3, 2.4	10	Good	4	Direct Impact
02	Valley Oak	*Quercus lobata*	1	49.5	N/A	30	Good	4	Indirect Impact
03	Valley Oak	*Quercus lobata*	1	25.7	N/A	30	Fair	4	Direct Impact
04	Valley Oak	*Quercus lobata*	1	16.6	N/A	20	Good	4	Direct Impact
05	Valley Oak	*Quercus lobata*	3	50.9	9.5, 21.4, 20.0	35	Fair	3	Direct Impact
06	Valley Oak	*Quercus lobata*	1	31.0	N/A	35	Fair	3	Direct Impact
07	Valley Oak	*Quercus lobata*	3	41.0	20, 16, 25	35	Good	4	Direct Impact
08	Valley Oak	*Quercus lobata*	1	7.2	N/A	15	Poor	1	Direct Impact
09	Valley Oak	*Quercus lobata*	1	18.5	N/A	20	Good	4	Direct Impact
10	Valley Oak	*Quercus lobata*	3	50.2	16.0, 20.5, 17.7	35	Good	4	Direct Impact
11	Valley Oak	*Quercus lobata*	1	13.2	N/A	25	Poor	2	Direct Impact
12	Valley Oak	*Quercus lobata*	2	21.0	10.0, 11.0	20	Fair	3	Direct Impact
13	Valley Oak	*Quercus lobata*	1	20.6	N/A	30	Good	4	Direct Impact
14	Valley Oak	*Quercus lobata*	1	12.6	N/A	12	Poor	3	Direct Impact
15	Valley Oak	*Quercus lobata*	2	35.8	21.4, 14.4	20	Fair	3	Direct Impact
16	Valley Oak	*Quercus lobata*	2	42.7	19.2, 23.5	30	Good	3	Direct Impact
17	Valley Oak	*Quercus lobata*	1	24.7	N/A	20	Good	4	Direct Impact
18	Valley Oak	*Quercus lobata*	1	32.9	N/A	25	Good	4	Direct Impact
19	Valley Oak	*Quercus lobata*	1	9.3	N/A	14	Fair	2	Direct Impact
20	Valley Oak	*Quercus lobata*	1	14.2	N/A	20	Fair	2	Direct Impact
21	Valley Oak	*Quercus lobata*	1	25.3	N/A	22	Good	4	Direct Impact
22	Valley Oak	*Quercus lobata*	1	20.4	N/A	18	Fair	3	Direct Impact
23	Valley Oak	*Quercus lobata*	1	24.1	N/A	20	Good	4	Direct Impact
24	Valley Oak	*Quercus lobata*	1	16.7	N/A	18	Fair	2	Direct Impact
25	Valley Oak	*Quercus lobata*	2	25.9	12.1, 13.8	18	Fair	3	Direct Impact
26	Valley Oak	*Quercus lobata*	3	39.9	22.0, 8.8, 9.1	20	Poor	1	Direct Impact

Tree Identification Number	Common Name	Scientific Name	Number of Stems	DBH (inches)	Stem DBH (inches) (multi-stemmed trees)	Canopy Radius	Structure	Health	Impact
27	Valley Oak	*Quercus lobata*	1	12.1	N/A	22	Other	0	Direct Impact
28	Valley Oak	*Quercus lobata*	1	16.0	N/A	15	Good	4	Direct Impact
29	Valley Oak	*Quercus lobata*	1	10.5	N/A	17	Poor	2	Direct Impact
30	Valley Oak	*Quercus lobata*	3	12.0	5.5, 3.0, 3.5	6	Poor	1	Direct Impact
31	Valley Oak	*Quercus lobata*	2	11.4	6.1, 5.3	10	Poor	1	Direct Impact
32	Valley Oak	*Quercus lobata*	3	29.0	14.5, 11.0, 4.5	18	Fair	3	Direct Impact
33	Valley Oak	*Quercus lobata*	3	12.3	3.0, 4.5, 4.8	12	Poor	1	Direct Impact
34	Valley Oak	*Quercus lobata*	1	23.9	N/A	20	Fair	4	Direct Impact
35	Valley Oak	*Quercus lobata*	1	9.9	N/A	20	Poor	2	Direct Impact
36	Valley Oak	*Quercus lobata*	1	13.0	N/A	16	Good	4	Direct Impact
37	Valley Oak	*Quercus lobata*	1	15.5	N/A	18	Good	4	Direct Impact
38	Valley Oak	*Quercus lobata*	2	41.2	19.5, 21.7	35	Fair	4	Direct Impact
39	Valley Oak	*Quercus lobata*	1	15.5	N/A	20	Poor	1	Direct Impact
40	Valley Oak	*Quercus lobata*	1	24.9	N/A	18	Good	4	Direct Impact
41	Valley Oak	*Quercus lobata*	2	22.3	15.7, 6.6	25	Fair	4	Not Impacted
42	Valley Oak	*Quercus lobata*	3	16.6	6.5, 2.2, 7.9	12	Fair	3	Not Impacted
43	Valley Oak	*Quercus lobata*	1	20.4	N/A	18	Good	4	Direct Impact
44	Valley Oak	*Quercus lobata*	1	25.0	N/A	16	Good	4	Direct Impact
45	Valley Oak	*Quercus lobata*	1	18.7	N/A	18	Good	3	Direct Impact
46	Valley Oak	*Quercus lobata*	1	7.0	N/A	4	Good	3	Direct Impact
47	Valley Oak	*Quercus lobata*	1	37.7	N/A	30	Poor	2	Direct Impact
48	Valley Oak	*Quercus lobata*	1	35.0	N/A	15	Poor	1	Not Impacted
49	Valley Oak	*Quercus lobata*	1	44.0	N/A	30	Fair	3	Indirect Impact
50	Valley Oak	*Quercus lobata*	1	47.5	N/A	45	Good	3	Not Impacted
51	Coast Live Oak	*Quercus agrifolia*	3	44.4	19.5, 12.3, 12.6	30	Good	4	Not Impacted
52	Coast Live Oak	*Quercus agrifolia*	2	31.8	10.8, 21.0	20	Good	4	Not Impacted

ATTACHMENT D

Teichert – Shifler Biological Resources Assessment
Yolo County Oak Woodland Conservation and Enhancement Plan Checklist Completed for the Shifler Project

Oak Woodland Checklist

	Ranking			Data*		Notes
Resource Values	High	Moderate	Low	Source	Quality	
Stand Composition Integrity, and Functionality						
Oak species present			X	Surveys, Aerial Imagery	High	Source, quality same for all entries
Representation of oak species at site			X			
Tree cover and density			X			
Stand size, shape, and connectivity			X			
Stand structure and sustainability			X			
Contribution to population genetics			X			
Habitat for Plant and Wildlife Species						
Special status species			X			
Locally rare or uncommon species or associations			X			
Overall native biodiversity			X			
Contribution to maintaining native plant and animal populations			X			
Special habitat features and areas			X			
Special habitat features			X			
Invasive species presence and abundance		X				
Landscape Function						
Erosion protection			X			
Water quality protection			X			
Contribution to flood protection			X			
Location relative to other woodlands and habitats			X			
Human Interactions						
Historic and cultural significance			X			
Public recreation			X			
Buffering between incompatible land uses			X			
Visual impact			X			
Risk Factors			X			
Management Constraints			X			
Other values not noted above (specify)						

*Indicate the source (aerial photo, GIS layer, site survey, CNDDB, etc) of data used to assign ranking and data quality (good/fair/poor).

ATTACHMENT E

Teichert – Shifler Biological Resources Assessment
Chapter 4 of the Yolo Habitat Conservation Plan and Natural Community Conservation Plan

Chapter 4
Application Process and Conditions on Covered Activities

4.1 Introduction

This chapter describes the process for the City of Woodland, City of Winters, City of Davis, City of West Sacramento, Yolo County, and the Yolo Habitat Conservancy (Conservancy) (collectively referred to as Permittees) to apply for coverage of individual projects and ongoing operations and maintenance activities included as covered activities in the Yolo HCP/NCCP. This chapter also describes the conditions through which covered activities will avoid and minimize take of covered species. These conditions are referred to in this plan as avoidance and minimization measures or AMMs. The application process and discussion of AMMs are included in this chapter together to provide a single location in the document where project proponents can find descriptions of all relevant requirements related to project design and implementation, with the exception of fees. HCP/NCCP fees are described in Chapter 8, *Costs and Funding*. The Conservancy will prepare an implementation handbook to provide additional detail regarding the application process and implementation.

Section 4.2, *Receiving Take Authorization under the Yolo HCP/NCCP*, describes the process for applying to the Permittees for coverage under the Yolo HCP/NCCP. Section 4.2.1, *Authorization Process*, describes the authorization process under each of three categories: public projects proposed by the Permittees, private projects under the discretionary authority of Permittees, and Special Participating Entities. Section 4.2.2, *HCP/NCCP Application Package*, describes the required contents of the application package.

Section 4.3, *Avoidance and Minimization Measures*, describes conditions that project proponents must adopt to receive coverage under the Yolo HCP/NCCP. These avoidance and minimization measures specify how project proponents will avoid and minimize take of covered species during implementation of covered activities and are referred to herein as AMMs. Section 4.3.1, *General Project Design*, describes AMMs that apply to the design of all development projects. Section 4.3.2, *General Construction and Operations and Maintenance*, describes AMMs that apply to all construction and operations and maintenance activities. Section 4.3.3, *Sensitive Natural Communities*, describes AMMs that are specific to rare or sensitive natural communities, such as the rare alkali prairie natural community and other natural communities associated with wetlands, and therefore warrant specific avoidance and minimization measures. Section 4.3.4, *Covered Species*, describes AMMs that are specific to each covered species. Section 4.3.5,*. Avoidance and Minimization Measures within the Reserve System*, describes AMMs that apply to activities that occur in the reserve system. Section 4.4, *Qualified Biologist*, describes the process and conditions for a biologist to obtain approval as a qualified biologist. Section 4.5, *Exemptions from Avoidance and Minimization Measures,* describes the types of covered activities that may be exempt from AMMs. Section 4.6, *Revisions to Avoidance and Minimization Measures,* describes the process for revisions to Yolo HCP/NCCP AMMs.

4.2 Receiving Take Authorization under the Yolo HCP/NCCP

4.2.1 Authorization Process

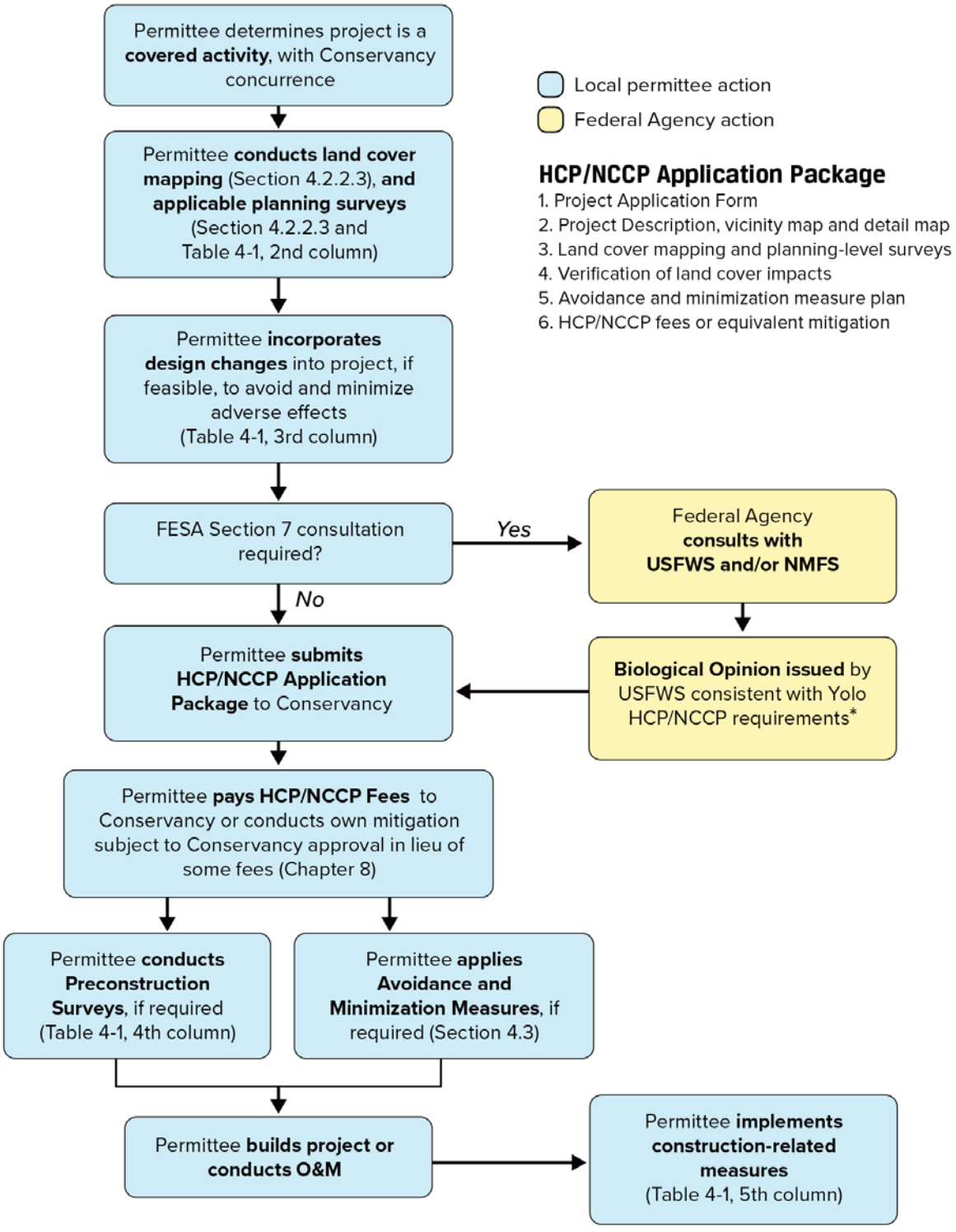
The Yolo HCP/NCCP incidental take permits (Permits) provide the Permittees with take authorization for implementing covered activities and allow the Permittees to extend this take authorization to project proponents when implementing covered activities. Permittees can extend take authorization through the local development approval process as long as the covered activities comply with the applicable AMMs in this chapter. As described in Chapter 3, *Covered Activities*, Permittees will provide take authorization under the Yolo HCP/NCCP for covered activities in the following three categories: public projects proposed by the Permittees (Section 4.2.1.1), private projects under the discretionary authority of the Permittees (Section 4.2.1.2), and projects by non-Permittees in the Plan Area that are approved for inclusion by the Conservancy as Special Participating Entities (Section 4.2.1.3). The incidental take authorization process for each of these situations is explained below.

The Conservancy will develop the process through which applicants apply for permits in coordination with the member agencies, including procedures for interaction between member agencies and the Conservancy to determine coverage. The Conservancy will develop implementation materials, including an implementation handbook. The handbook will describe the process through which applicants apply for permits in coordination with the member agencies and provide examples of how the process works. This process could include review of applications before they are complete and participating in a local Development Review Committee to make the requirements of the Conservancy process known early enough to influence process design.

4.2.1.1 Public Projects Proposed by Permittees

The Permits authorize incidental take associated with public projects proposed by Permittees and covered by the Yolo HCP/NCCP. Permittees must comply with the AMMs described in this chapter for each project and receive Conservancy approval in the form of an email or letter. The Permittees must document compliance and provide a copy of this documentation to the Conservancy for tracking and reporting purposes (e.g., to track the amount of take coverage the Conservancy has granted). Permittees must pay HCP/NCCP fees to the Conservancy or provide in lieu mitigation as described in Chapters 7 and 8, subject to Conservancy approval. The Conservancy will develop a form to assist the Permittees, as well as project proponents, when implementing covered activities with this documentation. Permittees may consult Conservancy staff members for technical assistance to ensure accurate completion of the required documentation. The process through which public projects can receive take authorization under this HCP/NCCP is shown in Figure 4-1.

Figure 4-1. Process for Project Compliance with HCP/NCCP for Public Projects (by Permittees)



* Other permits may require different mitigation than required by the Yolo HCP/NCCP.

4.2.1.2 Private Projects under the Discretionary Authority of Permittees

Project proponents will submit an HCP/NCCP application package (as described in Section 4.2.2, *HCP/NCCP Application Package*) to the relevant Permittee when implementing private projects that require discretionary land use approval from a Permittee. The Permittee will undertake review of take authorization applications concurrent with California Environmental Quality Act (CEQA) environmental review. This review will include consideration of CEQA exemptions and whether a project is covered by a prior programmatic or earlier CEQA document. To facilitate this approach, the Permittee should require project proponents to submit initial HCP/NCCP application package information as part of the land use approval application and CEQA process.

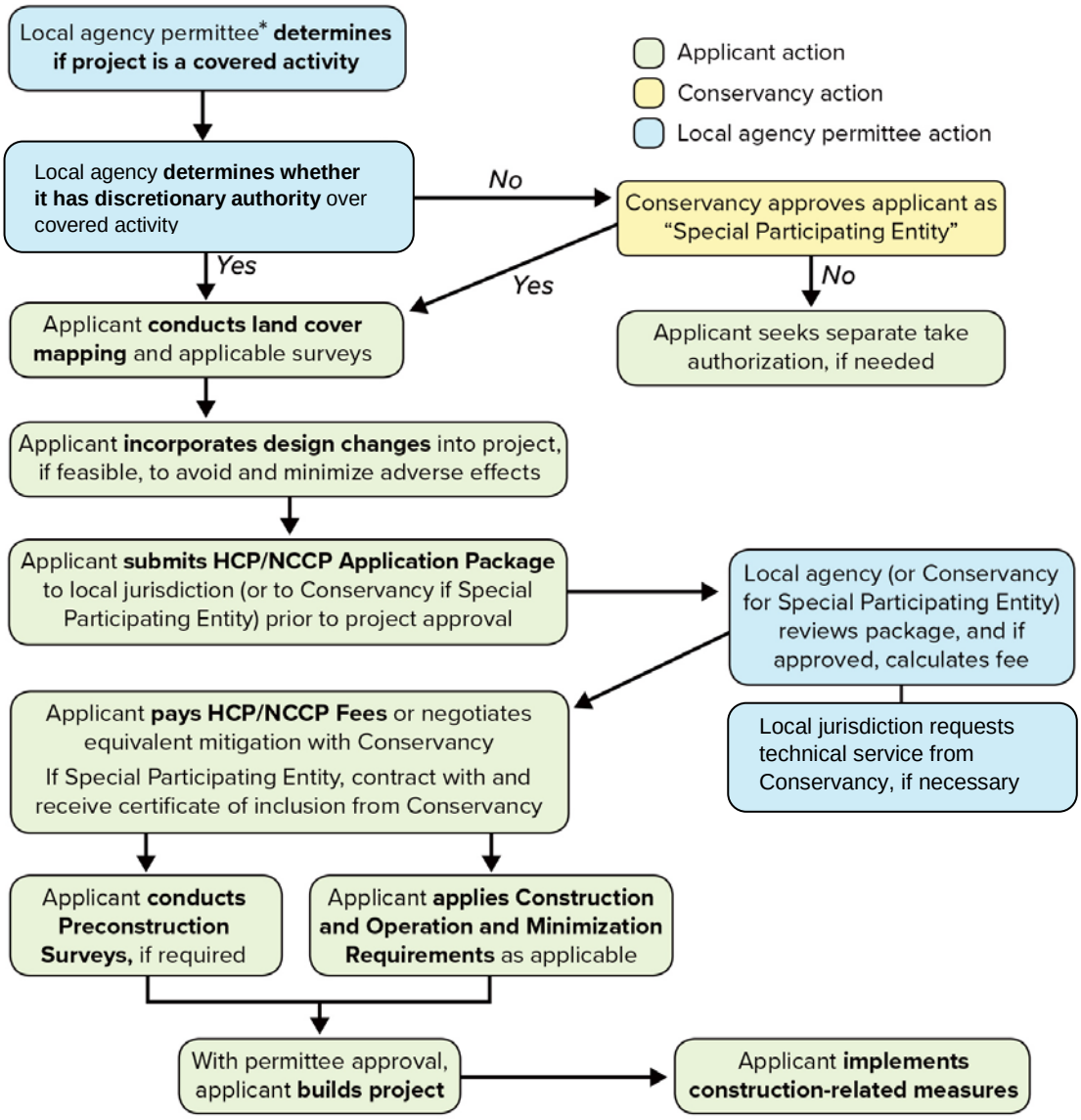
The submittal of the initial HCP/NCCP application package information during the land use approval/CEQA process allows for early identification of the various requirements of the HCP/NCCP that will be applicable to the proposed project. This approach also provides time for the project proponent to consider modifications to the project to minimize biological impacts and identify alternatives for CEQA analysis, if necessary. It also will allow the project analysis and CEQA review to incorporate and consider applicable AMM requirements from the HCP/NCCP. Based on a review of this initial information, the Permittee will develop and apply project conditions of approval that specify the HCP/NCCP AMMs and fee requirements.

The Conservancy will develop a checklist for evaluating HCP/NCCP applications from Permittees before the first ordinance for implementing this HCP/NCCP takes effect. During CEQA review of the project, the Permittee will review the HCP/NCCP application package for completeness, in accordance with the checklist. The determination regarding the completeness of the application package rests with the Permittee. Permittees may request technical assistance from Conservancy staff members. If an application package is not complete, the Permittee will provide the project proponent with a letter that explains why it is incomplete. The project proponent will then provide the missing information to the Permittee. Once the application package is complete, the Permittee will calculate the required fees, as described in Chapter 8, *Costs and Funding*, consistent with the local ordinance for implementing this HCP/NCCP.

The Permittee will specify all AMMs and fees as conditions of project approval, or as specified in the local ordinances for implementing this HCP/NCCP. The project proponent will pay fees prior to any project-related ground disturbance. If the project proponent requests to contribute land in lieu of fees or requests conditions that deviate from the AMMs, such requests must be reviewed and approved by the Conservancy, USFWS, and CDFW, as described in Section 4.2.2.6, *Item 6, HCP/NCCP Fees or Equivalent Mitigation*.

The process for receiving take authorization for private projects is shown in Figure 4-2. The HCP/NCCP review process will be integrated into the established land development permit processes of the member agencies.

Figure 4-2. Process for Project Approval under Yolo HCP/NCCP for Private Projects Covered by Plan and Special Participating Entities



HCP/NCCP Application Package

1. Project Application Form
2. Project Description, vicinity map and detail map
3. Land cover mapping and planning-level surveys
4. Verification of land cover impacts
5. Avoidance and minimization measure plan
6. HCP/NCCP fees or equivalent mitigation

Special Participating Entities

Special Participating Entities are agencies or individuals not subject to the jurisdiction of the local agency permittees that conduct projects within the Plan Area that may affect listed species and require take authorization from U.S. Fish and Wildlife Service or California Department of Fish and Wildlife. Such organizations may include school districts, water districts, transportation agencies, local park districts, other utility districts, or individuals with activities that may result in take but that do not require a discretionary permit.

*Local agency permittees are the County of Yolo and the Cities of Davis, West Sacramento, Winters and Woodland.

4.2.1.3 Projects Proposed by Special Participating Entities

Special Participating Entities (SPEs) are involved with proposed projects or activities that are not subject to the land use authority of the Permittees under the CEQA process and therefore cannot receive coverage under this HCP/NCCP through the process described above. SPEs may include utilities or special districts that own land or provide public services. Proponents of private activities (e.g., ministerial activities, such as single-family building permits and most agricultural activities) that do not require discretionary approval from the Permittees may request coverage as an SPE. This includes activities that involve farm dwellings. These entities may choose to request coverage under this HCP/NCCP as SPEs to obtain take authorization for their projects or activities. If the entity qualifies as an SPE, the Conservancy may issue take coverage through a Certificate of Inclusion at the Conservancy's discretion. The Conservancy will base the determination of eligibility for SPE status on the factors described in Section 7.2.5, *Special Participating Entities*, including whether the SPE can meet HCP/NCCP conditions or whether the amount of take requested (i.e., acres of natural community or covered species habitat loss) is available for the project. The project also must not unduly reduce the take authorization of the Permittees.

To grant take authorization to an SPE, the Conservancy must establish a legally enforceable contractual relationship with the SPE. The SPE will submit a complete application package for the proposed activity directly to the Conservancy, with notification to the jurisdiction in which the project will occur. This application package will contain the components described in Section 4.2.2, *HCP/NCCP Application Package*, and an explanation as to how the proposed activity meets the eligibility requirements for SPE status, as provided in Chapter 7, *Plan Implementation*.

If the SPE meets HCP/NCCP requirements and take allowance is available, the Conservancy will execute a contract with the SPE, binding it to the relevant terms of the Permits, implementing agreement, and HCP/NCCP.[1] Upon approval of the contract by the Conservancy Board, execution of the contract with the SPE, payment of the fee specified in the contract, and completion of any other steps required by the contract, the Conservancy will issue a Certificate of Inclusion to the SPE. The Certificate of Inclusion will include an attached map depicting the area, parcel number, acreage, and owner of lands to which the take authorization(s) would apply.

The Conservancy will provide a template of the Certificate of Inclusion to the wildlife agencies for review and approval during plan implementation before the Conservancy approves the first SPE project. The Conservancy will track the amount of take authorization extended to SPEs against the total allowable take authorized under the Yolo HCP/NCCP. Requirements related to SPEs are further described in Section 7.2.5, *Special Participating Entities.*

4.2.2 HCP/NCCP Application Package

All public and private project proponents covered by the Yolo HCP/NCCP must complete an HCP/NCCP application package. Proponents of private projects under the discretion of Permittees must submit the application to the relevant Permittee for review and approval to receive coverage under this HCP/NCCP. The project proponent is responsible for preparing the application package and conducting any necessary field surveys, if required. SPEs submit their application package to the Conservancy for review and approval to receive coverage under this HCP/NCCP.

[1] In the event of failure to uphold the terms of the Permit, implementing agreement, and HCP/NCCP, the contract shall give the Conservancy the ability to force action by the Special Participating Entity through legal means.

The application package must contain the items listed below, if applicable. Each is described in detail in this section.

- *Item 1:* Project application form.
- *Item 2:* Project description, vicinity map, and detail map.
- *Item 3:* Land cover mapping and planning-level surveys.
- *Item 4:* Verification of land cover impacts.
- *Item 5:* Avoidance and minimization measure plan.
- *Item 6:* HCP/NCCP fees or equivalent mitigation.

The Conservancy will provide templates for all application components to each Permittee prior to the first authorization for coverage under the Yolo HCP/NCCP. The Conservancy also will post these templates on the Conservancy's website for use by Permittees, SPEs, and private project proponents and their consultants. Use of the templates will streamline the Permittee review and approval process. The Permittees may adjust the required components of the application package over time, consistent with the requirements of the Yolo HCP/NCCP. Permittees may charge a fee to recover the costs of accepting, reviewing, and processing these application packages (see Chapter 8, *Costs and Funding*, for details).

4.2.2.1 Item 1: Project Application Form

The project application form[2] will contain basic information about the project. The Conservancy will provide required forms through the websites of the Permittees and the Conservancy.

4.2.2.2 Item 2: Project Description, Vicinity Map, and Detail Map

The application package will include a brief project description, vicinity map, and detail map. The project description will include the location, assessor's parcel number(s), construction activity or maintenance methods, a description of the nature of the impacts (permanent or temporary), and timing (including duration) of the project or activity. The project description will document that the project is a covered activity (Chapter 3, *Covered Activities*). The vicinity map will document that the project site is in the Plan Area and include any streams or water bodies that fall within the project area. The detail map will show the fee area, also known as the *area of impact*. This is the area the Conservancy will use to determine fees, as described in Chapter 8, Section 8.4.1.2, *Land Cover Fee*. The Conservancy will provide further guidance in the implementation handbook for identification of the area of impact. The detailed map must also show any relevant landforms, roads, water bodies, and existing and proposed structures that will be affected by the proposed project.

[2] The Conservancy will develop this form prior to allowing permittees to use the Permits.

4.2.2.3 Item 3: Land Cover Mapping and Planning-Level Surveys

The project proponent will retain a qualified biologist[3] to conduct planning-level surveys and identify natural communities and important elements of covered species habitat in the area of impact. Planning-level surveys provide information on the natural communities and covered species present at a project site to comply with the AMMs (Section 4.3, *Avoidance and Minimization Measures*) and document key resources for tracking and reporting purposes. These surveys are required for all covered activities that result in ground disturbance or other effects that could result in take of covered species or natural communities. The biologist will use survey protocols specified in Section 4.3.

Prior to conducting surveys at the site, the biologist will review existing information, including aerial photographs, the Yolo HCP/NCCP database, the most recent California Natural Diversity Database (CNDDB) records, and any other relevant sources of information. This literature and data review is intended to identify natural communities and covered species habitat or populations that are potentially present on the project site and that require specific project AMMs (Section 4.3, *Avoidance and Minimization Measures*). Based on the results of the initial information review, the biologist will conduct site-specific surveys, as identified in the required AMMs, to inform project design and incorporate site-specific avoidance and minimization actions. The project proponent will produce a land cover map based on these planning-level surveys, as described below.

Project proponents must include planning-level survey reports in the application package. These reports will include the following:

- Maps, description, and acreage of the land cover types present in the area of impact (defined in Section 8.4.1.2, *Land Cover Fee*).
- Maps of locations of suitable habitat and/or habitat features for covered species, as defined in the covered species accounts (Appendix A).
- Maps of covered species occurrences based on the Yolo HCP/NCCP database, the CNDDB database, and other available information.
- Results of required planning-level surveys (Section 4.3, *Avoidance and Minimization Measures*).

Each planning-level survey will be valid for up to three years after the survey is conducted. If more than three years lapse between the planning-level surveys and project authorization under the Yolo HCP/NCCP, the Conservancy will require the project proponent to update the planning-level survey to reflect current project site avoidance and minimization measures. The Conservancy may choose to offer some or all of these services for a fee.

The project proponent will incorporate the required AMMs into the project design. Identification of occupied habitat or rare natural communities (e.g., alkali prairie) may result in the need to modify project design, as described in Section 4.3.

4.2.2.4 Item 4: Verification of Land Cover Impacts

Based on the maps created during planning-level surveys, as described in Section 4.2.2.3, *Item 3: Land Cover Mapping and Planning-Level Surveys*, the project proponent must provide the acres of effect (and linear feet of impacts for stream channels) in the area of impact (defined in Section

[3] Land cover mapping may be conducted by either a qualified biologist or another person familiar with identifying the land cover types in the Plan Area. *Qualified biologist* is defined in Section 4.4, *Qualified Biologists.*

8.4.1.2, *Land Cover Fee*) by land cover type (Table 2-1, *Natural Communities and Other Land Cover Types*). The Conservancy will use these calculations to track natural community and covered species habitat loss under this HCP/NCCP by land cover type. The tracking must be based on actual loss of each land cover type. See Section 7.5.11, *Compliance Tracking*, for appropriate data sources for effect calculations. Permittee planning staff members or the Conservancy will verify that a qualified biologist completed the land cover mapping and calculations. Permittee planning staff members will verify land cover data determinations provided by all project proponents within the Permittee's jurisdiction, and the Conservancy will verify all land cover data determinations provided by SPEs (see Chapter 8, Section 8.4.1.2, *Land Cover Fee*, for a description of area of impact). The Permittee and the Conservancy will verify land cover data determinations at the time applications are submitted because of the potential for land cover to change over time.

4.2.2.4.1 Operations and Maintenance Activities by Permittees

Land cover mapping is not required for operations and maintenance activities conducted by Permittees.[4] Permittees will rely on the most recent land cover map developed by the Conservancy to quantify land cover loss. Permittees must still implement all applicable AMMs. As such, projects with operations and maintenance activities covered by the Yolo HCP/NCCP will require planning-level surveys to determine applicable AMMs, as described in Section 4.3.3, *Sensitive Natural Communities.*

4.2.2.5 Item 5: Avoidance and Minimization Measure Plan

Based on the results of steps 1 and 3, above, the project proponent will identify applicable AMMs and include these in an AMM plan, which will be submitted with the application package. The project proponent will include monitoring requirements in the AMM plan and surveys provided by a qualified biologists, as needed, based on requirements described in Section 4.3, *Avoidance and Minimization Measures*.

4.2.2.6 Item 6: HCP/NCCP Fees or Equivalent Mitigation

The project proponent will estimate fees based on the information provided in the items above, using a fee calculator developed by the Conservancy and the calculation methods described in Section 8.4.1.2, *Land Cover Fee*. If the project proponent proposes to purchase credits at a USFWS- or CDFW-approved mitigation bank, the proponent must indicate this upon project approval. The Conservancy may authorize use of an approved mitigation bank or mitigation receiving site for in-county mitigation if it meets HCP/NCCP requirements, including monitoring and adaptive management requirements, and pays all appropriate fees. Out-of-county mitigation may not rely on the Yolo HCP/NCCP for take authorization. Chapter 8, *Costs and Funding*, describes the fees the Conservancy will apply to the mitigation receiving site process.

4.3 Avoidance and Minimization Measures

This section describes the AMMs (i.e., conditions on covered activities to avoid and minimize take of covered species) required by the Federal Endangered Species Act (FESA) (Section 10[a][2][A][ii])

[4] Land cover mapping is required for these activities for all private project proponents and Special Participating Entity projects.

and Natural Community Conservation Planning Act (NCCPA) (California Fish and Game Code [Fish & Game Code] Sections 2820[a][6] and 2820[f]).

The AMMs described in this chapter are designed to ensure consistency and provide standard and predictable requirements for project proponents. The Permittees will evaluate all projects[5] respective to their authorities to ensure that project proponents incorporate all applicable AMMs described in this chapter into each project prior to a Conservancy decision to extend take coverage under the Yolo HCP/NCCP. Chapter 7, *Plan Implementation*, further describes project proponent responsibilities in the application process.

Section 4.5, *Exemptions from Avoidance and Minimization Measures*, describes the types of projects that are considered exempt from the avoidance and minimization measures. Section 4.6, *Revisions to Avoidance and Minimization Measures*, describes the process for revising AMMs, as needed, based on new scientific information and any problems that might arise during HCP/NCCP implementation related to the ability to carry out successful AMMs.

All projects that discharge dredged or fill material into waters of the United States, including federal jurisdictional wetlands, are required to obtain applicable permits (e.g., Clean Water Act Sections 404 and Section 401) from the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (Regional Board). Projects that place fill, alter the bed bank or channel, or divert the flow of streams; alter portions of streams above the ordinary high-water mark; or alter streams that lack a nexus to navigable waters, wetlands, or lakes under the jurisdiction of the state are required to obtain a waste discharge permit from the Regional Board. Additionally, projects that impact the bed, bank, or channel may require a Lake and Streambed Alteration Agreement from CDFW. Any project that requires a permit from the USACE, Regional Board, or CDFW for impacts on streams and other aquatic areas may be subject to avoidance and minimization requirements, which may differ from the AMMs in this HCP/NCCP. The AMMs described in this chapter have been designed to be compatible with state and federal wetland regulation. However, the AMMs do not constitute compliance with avoidance and minimization requirements of other federal, state, and local agencies that arise from legal requirements other than the federal and state endangered species acts.

Avoidance and minimization measures are grouped into six categories. AMMs for General Project Design (Section 4.3.1) and General Construction and Operations and Maintenance (Section 4.3.2) will apply to most covered activities. AMMs for sensitive natural communities (Section 4.3.3) and covered species (Section 4.3.4) will apply only to those covered activities with those natural communities or covered species (or habitat for those covered species) that are present or likely to be present on site. The final category of AMMs apply to activities, including agricultural activities, occurring in the reserve system (Section 4.3.5).

The AMMs described in this chapter are as follows.

<u>General Project Design</u>

- AMM1, *Establish Buffers*
- AMM2, *Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces*

[5] The term *project* is used here as defined in CEQA: The whole of a discretionary action that has the potential, directly or ultimately, to result in a physical change to the environment (State CEQA Guidelines Section 15378). This includes all phases of a project that are reasonably foreseeable and all related projects that are directly linked to the project.

General Construction and Operations and Maintenance

- AMM3, *Confine and Delineate Work Area*
- AMM4, *Cover Trenches and Holes during Construction and Maintenance*
- AMM5, *Control Fugitive Dust*
- AMM6, *Conduct Worker Training*
- AMM7, *Control Night-Time Lighting of Project Construction Sites*
- AMM8, *Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas*

Sensitive Natural Communities

- AMM9, *Establish Buffers Around Sensitive Natural Communities*
- AMM10, *Avoid and Minimize Effects on Wetlands and Waters*

Covered Species

- AMM11, *Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak*
- AMM12, *Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle*
- AMM13, *Minimize Take and Adverse Effects on Habitat of California Tiger Salamander*
- AMM14, *Minimize Take and Adverse Effects on Habitat of Western Pond Turtle*
- AMM15, *Minimize Take and Adverse Effects on Habitat of Giant Garter Snake*
- AMM16, *Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite*
- AMM17, *Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo*
- AMM18, *Minimize Take and Adverse Effects on Western Burrowing Owl*
- AMM19, *Minimize Take and Adverse Effects on Least Bell's Vireo*
- AMM20, *Minimize Take and Adverse Effects on Habitat of Bank Swallow*
- AMM21, *Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird*

4.3.1 General Project Design

The measures below apply generally to all covered activities for designated sensitive natural communities and covered species. These measures involve adjusting project footprints or incorporating design measures to avoid and minimize effects on natural communities and covered species.

AMM1, Establish Buffers. Project proponents will design projects to avoid and minimize direct and indirect effects of permanent development on the sensitive natural communities specified in Table 4-1 (herein referred to as *sensitive natural communities*) and covered species habitat specified in Table 4-1 by providing buffers, as stipulated in the relevant sensitive natural community AMMs (Section 4.3.3) and covered species AMMs (Section 4.3.4). On lands owned by the project proponent, the project proponent will establish a conservation easement, consistent with Section 6.4.1.3, *Land Protection Mechanisms,* to protect the buffer permanently if that land is being offered in lieu of development fees, as described in Section 4.2.2.6, *Item 6: HCP/NCCP Fees or Equivalent Mitigation*.

The project proponent will design buffer zones adjacent to permanent residential development projects to control access by humans and pets (*AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces*).

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full buffer), the development will not encroach farther into the space between the development and the sensitive natural community.

This AMM does not apply to seasonal construction buffers for covered species, which are detailed for each species in Section 4.3.4, *Covered Species*.

A lesser buffer than is stipulated in the AMMs may be approved by the Conservancy, USFWS, and CDFW if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose (e.g., if the purpose of the project is to provide a stream crossing or replace a bridge, the project may encroach into the buffer and the natural community or species habitat to the extent that is necessary to fulfill the project purpose).

AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces. For development projects implemented adjacent to non-agricultural natural communities and covered species habitats, project proponents will incorporate urban-habitat interface elements into project design to minimize the following indirect effects of the development on adjacent habitat areas:

- Noise and visual disturbances that diminish the ability of covered and other native wildlife species to use the habitat.
- Increased numbers of pets (e.g., dogs, cats) that can result in harassment and mortality of covered and other native wildlife species.
- Increased levels of direct habitat disturbances associated with increased human access to habitats (e.g., destruction of vegetation and injury or mortality of wildlife associated with use of off-road vehicles).
- Escape or planting of invasive nonnative plants.

This AMM does not apply to development where it is immediately adjacent to existing developed lands.

The project proponent will implement the following urban-habitat interface design elements and activities, as applicable, to each discretionary project:

- Place roads or other non-residential spaces, such as parks or greenbelts, rather than lots at the urban-natural community interface. The benefits of this may include a reduction in the number of incidences of pets entering the natural communities.
- Design roads, bike paths, and trails to discourage entry of humans and pets into adjacent natural communities and promote citizen policing at the natural community periphery.
- Establish barriers that discourage entry of humans and pets into natural community areas.
- Design fences to prevent pets from escaping yards into adjacent natural communities, control entry and dumping of trash into adjacent natural communities, and when appropriate, shield adjacent natural communities from visual disturbances that may interfere with normal wildlife behavioral patterns.
- Fence new public roads associated with developments to prevent unauthorized public access into habitat areas and effectively direct wildlife to specially designed crossing structures.

- Design development drainage systems and implement appropriate best management practices to avoid changes to overland flow and water quality in natural community areas, including streamcourses.
- Design development lighting to avoid projecting light into adjacent natural community areas. For lights at or near the urban-natural community interface, use low-glare lighting to minimize lighting effects on natural communities.

4.3.2 General Construction and Operations and Maintenance

The measures below apply to covered activities for all natural communities and covered species. The applicants will incorporate these measures into construction or operations and maintenance procedures to avoid and minimize effects on natural communities and covered species.

AMM3, Confine and Delineate Work Area. Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

AMM4, Cover Trenches and Holes during Construction and Maintenance. To prevent injury and mortality of giant garter snake, western pond turtle, and California tiger salamander, workers will cover open trenches and holes associated with implementation of covered activities that affect habitat for these species or design the trenches and holes with escape ramps that can be used during non-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

AMM5, Control Fugitive Dust. Workers will minimize the spread of dust from work sites to natural communities or covered species habitats on adjacent lands.

AMM6, Conduct Worker Training. All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities and covered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the FESA and NCCPA Permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

AMM7, Control Nighttime Lighting of Project Construction Sites. Workers will direct all lights for nighttime lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas. Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species or are easily restored to prior or improved ecological functions (e.g., grassland and agricultural land).

Construction staging and other temporary work areas located outside of project footprints will be sited in areas that avoid adverse effects on the following:

- Serpentine, valley oak woodland, alkali prairie, vernal pool complex, valley foothill riparian, and fresh emergent wetland land cover types.
- Occupied western burrowing owl burrows.[6]
- Nest sites for covered bird species and all raptors, including noncovered raptors, during the breeding season.

Project proponents will follow specific AMMs for sensitive natural communities (Section 4.3.3, Sensitive *Natural Communities*) and covered species (Section 4.3.4, *Covered Species*) in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint, project proponents will conduct surveys to determine if any of the biological resources listed above are present.

Within one year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

4.3.3 Sensitive Natural Communities

The following AMMs apply to sensitive natural communities. These AMMs are summarized in Table 4-1, *Avoidance and Minimization Measures for Sensitive Natural Communities and Covered Species*. AMMs for the natural communities not included below but providing covered species habitat are described in Section 4.3.4, *Covered Species*.

AMM9, Establish Buffers around Sensitive Natural Communities. The buffers for each sensitive natural community are as follows:

- *Alkali prairie and vernal pools:* The area necessary to provide the hydrologic conditions needed to support the wetlands within these natural communities (250 feet). Covered activities will avoid vernal pools or alkali seasonal wetlands by 250 feet, or other distance based on site specific topography to avoid indirect hydrologic effects.[7] A buffer of less than 250 feet around vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Other considerations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to pre-project conditions prior to the following rainy season.

[6] *Occupied* for the purpose of AMM8 means at least one burrowing owl has been observed occupying the burrow within the last three years. Occupancy of a burrow may also be indicated by owl sign at the burrow entrance, including molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site (California Department of Fish and Game 2012, Appendix L).

[7] Alkali seasonal wetlands are seasonal wetlands within the alkali prairie natural community.

- *Valley foothill riparian:* One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in *AMM1*. Transportation or utility crossings may encroach into this sensitive natural community provided effects are minimized and all other applicable AMMs are followed.
- *Lacustrine and riverine:* Outside urban planning units, 100 feet from the top of banks.[8] Within urban planning units, 25 feet from the top of the banks.
- *Fresh emergent wetland:* Fifty feet from the edge of the natural community.

AMM1, Establish Buffers, provides additional details for buffers around natural communities. Additional buffers may be necessary for covered species, as described below in Section 4.3.4, *Covered Species*.

AMM10, Avoid and Minimize Effects on Wetlands and Waters. Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Fish and Game Code Section 1602, and Regional Board regulations. Other than requirements for buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species, this HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the USACE, State Board, Regional Board, and CDFW.

[8] Defined as the area within which water is contained in a channel.

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Table 4-1. Avoidance and Minimization Measures for Sensitive Natural Communities and Covered Species

Covered Species or Sensitive Natural Community	Planning-Level Surveys[a]	Design Requirements[b]	Preconstruction Surveys[c]	Construction and Operations and Maintenance Requirements[d]
Sensitive Natural Communities				
Alkali prairie and vernal pool complex (AMM9 and AMM10)	Map natural community in and within 250 feet of project footprint.	Design project to avoid vernal pools or alkali seasonal wetlands by 250 feet, or other distance based on site specific topography to avoid indirect hydrologic effects.[9] A buffer of less than 250 feet around vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Other considerations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to pre-project conditions prior to the following rainy season.	None	See design requirements.
Valley foothill riparian (AMM9 and AMM10)	Map natural community in and within 100 feet of project footprint.	Except for projects expected to remove Valley foothill riparian (transportation, utility crossings, flood control and drainage management improvements), design project to avoid this natural community by including a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, based on the outer boundary of the tree canopy). A lesser buffer or encroachment into the natural community may be allowed if approved by the Conservancy, USFWS, and CDFW, based on the criteria listed in AMM1, and all covered species AMMs are followed.	None	See design requirements.
Lacustrine and riverine (AMM9 and AMM10)	Identify streams, rivers, lakes, and ponds in and within 25 feet of project footprint inside urban planning units, and within 100 feet of project footprint outside urban planning units.	Within urban planning units, design development (with the exception of projects expected to affect lacustrine and riverine, such as transportation, utility crossings, and flood control projects) to include a 25-foot (minimum) permanent buffer zone (setback easement) from the top of bank along both sides of all natural (i.e., not including manmade ditches and canals) perennial and intermittent (excluding ephemeral) stream corridors. Outside urban planning units, the setback will be 100 feet. Any riparian habitat within this setback buffer will be avoided and protected, consistent with *AMM8 Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas*. If an aquatic feature provides habitat for California tiger salamander, setbacks will be consistent with AMM13.	None	See design requirements.
Fresh emergent wetlands (AMM9 and AMM10)	Map natural community in and within 50 feet of project footprint.	Design project to avoid this natural community by including a 50-foot (minimum) buffer zone from the edge of the natural community (including the supporting hydrologic area), unless there is an intervening hydrologic barrier.		

[9] Alkali seasonal wetlands are seasonal wetlands within the alkali prairie natural community.

Covered Species or Sensitive Natural Community	Planning-Level Surveys[a]	Design Requirements[b]	Preconstruction Surveys[c]	Construction and Operations and Maintenance Requirements[d]
Plants				
Palmate-bracted bird's beak (AMM11)	Identify and quantify (in acres) suitable habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 250 feet of project footprint. If suitable habitat is present, conduct survey within this habitat for palmate-bracted bird's beak, consistent with CDFW guidance (California Department of Fish and Game 2009) or most current guidance. Survey period: May 31–September 30	Design project to avoid activity within 250 feet of occupied habitat, or greater distance depending on site specific topography to avoid hydrologic effects, unless a shorter distance is determined to avoid effects and approved by the Conservancy, USFWS, and CDFW.	None	See design requirements. Avoid mortality of individuals, except as needed through management activities that provide an overall benefit to the species.
Invertebrates				
Valley elderberry longhorn beetle (AMM12)	Identify and map all elderberry shrubs in and within 100 feet of project footprint with stems greater than one inch in diameter at ground level. For mapped shrubs that cannot be avoided, quantify the number of stems greater than one inch in diameter at ground level, and identify any such stems with valley elderberry longhorn beetle exit holes, consistent with USFWS (1999a) guidelines. Survey period: Year-round	Design project to avoid mapped elderberry shrubs. To avoid effects on shrubs, a setback of at least 100 feet from any elderberry shrubs with stems measuring one inch or greater in diameter at ground level is required; protective measures are required, consistent with USFWS (1999a) guidelines. All restoration projects will avoid removal of elderberry shrubs.	None	Prior to construction, the project proponent will transplant elderberry shrubs identified within project footprint that cannot be avoided and quantify affected stems, as described in greater detail in AMM12 (Section 4.3.4, *Covered Species*) and in Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle*). Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub.
Amphibians				
California tiger salamander (AMM13)	Identify and quantify (in acres) suitable aquatic and upland habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 500 feet of project footprint, and avoid this buffer area if possible. If a project outside an urban planning unit, as designed, will not avoid aquatic habitat by at least 500 feet, either conduct visual and dip-net surveys, consistent with CDFW protocol (California Department of Fish and Game 2003), or assume presence. Survey period: After rainfall, November 1 to May 15.	Design project to avoid any disturbance in California tiger salamander within designated critical habitat in the Dunnigan Creek Unit (70 FR 49380). If species is present or assumed to be present in aquatic habitat, design the project to avoid adverse effects within 500 feet of habitat outside urban planning units. If the species is present or assumed to be present, the covered activity will not remove aquatic habitat until at least four new occupied breeding pools are discovered or established and protected in the Plan Area. After the four new occupied breeding pools are protected, with concurrence of USFWS and CDFW, up to three occupied breeding pools may be affected.[10]	None.	See design requirements.
Reptiles				
Western pond turtle (AMM14)	Identify species habitat (as defined in Appendix A, *Covered Species Accounts*) within project footprint.	No design requirements are specified for western pond turtle; follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities described above for AMMs 9 and 10. These require 100-foot setbacks.	If modeled upland habitat will be impacted, a qualified biologist will assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements).	If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings .

[10] See Chapter 6, Section 6.3.4.3.3, *Species-Specific Goals and Objectives, Objective CTS1.3, for additional detail regarding this requirement.*

Covered Species or Sensitive Natural Community	Planning-Level Surveys[a]	Design Requirements[b]	Preconstruction Surveys[c]	Construction and Operations and Maintenance Requirements[d]
Giant garter snake (AMM15)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 200 feet of project footprint.	Avoid development in habitat. For avoidance, there must be no activity in or within 200 feet of aquatic habitat.	For construction, if habitat cannot be avoided, conduct clearance surveys using USFWS (1997) protocol within 24 hours prior to construction activities. If construction activities stop for a period of two weeks or more, conduct another preconstruction survey within 24 hours of resuming activity. No surveys required for operations and maintenance unless material spoils will be placed anywhere other than an existing material spoils site within giant garter snake habitat.	For construction: • Restrict construction to snakes' active season. • Dewater aquatic habitat and allow snakes to leave area prior to construction. • Confine land clearing to minimum area necessary to facilitate construction activities. • Provide environmental awareness training. • Employ best management practices. For operations and maintenance: • When possible, restrict construction to snakes' active season. • Provide environmental awareness training. • Limit channel clearing to one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year. • Confine land clearing to minimum area necessary to facility construction activities. • Place removed material in existing dredged material spoil sites. If no sites exist, place spoils only where preconstruction surveys confirm snakes are not present. • See Section 4.3.4, *Covered Species*, for further details.
Birds				
Swainson's hawk and white-tailed kite (AMM15AMM16)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 1,320 feet of project footprint. Identify suitable nest trees.	Avoid potential nesting trees, with 1,320-foot setbacks from the trees during nesting, to the extent practicable. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the course of the permit term, but not while occupied by Swainson's hawks during the nesting season.	For construction, if activity would occur within 1,320 feet of nesting habitat, conduct preconstruction surveys for active nests, consistent with Swainson's Hawk Technical Advisory Committee (2000). Survey period: March 15–August 30 For operations and maintenance, if activity involves pruning or removal of suitable nest trees, conduct preconstruction surveys for active nests, consistent with Swainson's Hawk Technical Advisory Committee (2000). Survey period: March 15–August 30	For construction, from March 15 to August 30, no activity within 1,320 feet of active nests (as identified through preconstruction surveys), unless a qualified biologist has determined that the young have fledged and the nest is no longer active or the Conservancy, USFWS, and CDFW agree to a lesser buffer distance. For operations and maintenance, if occupied nest sites are present within 1,320 feet, tree pruning and removal will be deferred until the nest is no longer being used by adults and young.

Covered Species or Sensitive Natural Community	Planning-Level Surveys[a]	Design Requirements[b]	Preconstruction Surveys[c]	Construction and Operations and Maintenance Requirements[d]
Western yellow-billed cuckoo (AMM17)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 500 feet of project footprint. If project, as designed, will not avoid habitat by 500 feet (or a lesser distance if approved by the Conservancy) and there are no breeding records for the species within one-quarter mile of the site from the previous three years, conduct planning-level surveys, consistent with USFWS protocol (Appendix L), to determine if an occupied territory is present. Survey period: June 1–August 30	For construction projects, avoid or minimize activities within 500 feet of suitable nesting habitat. If the covered activity would encroach within 500 feet of habitat and an occupied territory is identified during planning-level surveys, or there are records of the species occurring within one-quarter mile of the activity within the last three years, the project must be designed to avoid activities within 500 feet of suitable nesting habitat, unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. For operations and maintenance activities, follow the same requirements as for construction, unless activity does not remove habitat or occur during nesting season (June 1–August 30). If activity does not remove habitat or occur during the nesting season, no design requirements are necessary.	For construction, if activity within 500 feet of nesting habitat (whether or not active nests were discovered during planning-level surveys) must occur between June 1 and August 30, conduct preconstruction surveys, consistent with USFWS protocol (Appendix L), during the same season when the activity will occur. For operations and maintenance, same as above, unless activity does not remove habitat and happens outside the nesting season.	From June 1 to August 30, avoid activity within 500 feet of active nests (as identified through preconstruction surveys).
Western burrowing owl (AMM18)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 500 feet of project footprint. If the activity will occur in western burrowing habitat, a qualified biologist will conduct planning-level surveys for occupied habitat, consistent with CDFW guidelines for Phase II burrow surveys (California Department of Fish and Game 2012). Survey period: February 1–August 31 during the breeding season; December 1–January 31 during nonbreeding season	Design project to minimize activities in the vicinity of occupied burrows, consistent with Table 4-2.	If burrows cannot be avoided, consistent with Table 4-2, a qualified biologist will conduct preconstruction surveys up to 30 days prior to construction to identify active burrows in the area of impact (*area of impact* is defined in Section 8.4.1.2, *Land Cover Fee*).	Avoid all nest sites during the breeding season (February 1 to August 31) with a buffer consistent with Table 4-2, or as otherwise approved by the Conservancy and wildlife agencies. Construction may occur inside the disturbance buffer if the project proponent develops an avoidance, minimization, and monitoring plan, as described in *AMM18, Minimize Take and Adverse Effects on Habitat of Western Burrowing Owl* (Section 4.3.4, *Covered Species*). Avoid all occupied burrows outside the breeding season (February 1 to August 31) with a 250-foot buffer, unless specific criteria are met, as described in Section 4.3.4. A qualified biologist will monitor the site, as described in Section 4.3.4. Passive relocation (or active relocation upon wildlife agency approval) may be implemented, as described in Section 4.3.4.
Least Bell's vireo (AMM19)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 500 feet of project footprint. If project, as designed, will not avoid habitat by 500 feet (or a lesser distance if approved by the Conservancy, USFWS, and CDFW) and there are no breeding season (or nesting) records for the species within one-quarter mile of the site from the previous three years, conduct planning-level surveys, consistent with USFWS (2001), to determine if an occupied territory is present. Survey period: April 1–July 15	For construction projects, avoid or minimize activities within 500 feet of suitable nesting habitat. If the covered activity would encroach within 500 feet of habitat and an occupied nest is identified during planning-level surveys, or there are records of the species occurring within one-quarter mile of the activity within the last three years, the activity must be designed to avoid activities within 500 feet of suitable nesting habitat, unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. For operations and maintenance activities, follow the same requirements as for construction, unless activity does not remove habitat or occur during nesting season (April 1 to July 15). If activity does not remove habitat or occur during the nesting season, no design requirements are necessary.	For construction, if activity within 500 feet of nesting habitat (whether or not active territories were discovered during planning-level surveys) must occur between April 1 and July 15, conduct preconstruction surveys, consistent with USFWS (2012), during the same season when the activity will occur. For operations and maintenance, same as above,	From April 1 to July 15, avoid activity within 500 feet of active nests (as identified through preconstruction surveys), unless a lesser distance is approved by the Conservancy, USFWS, and CDFW.

Covered Species or Sensitive Natural Community	Planning-Level Surveys[a]	Design Requirements[b]	Preconstruction Surveys[c]	Construction and Operations and Maintenance Requirements[d]
			unless activity does not remove habitat and happens outside the nesting season.	
Bank swallow (AMM20)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 500 feet of project footprint. If project cannot avoid nesting habitat by 500 feet, conduct visual surveys to determine if an active colony is present. CDFW will be notified of any active colony located during surveys. Survey period: March 1–August 15 If project, as designed, will not avoid nesting habitat by 500 feet, check records maintained by Conservancy and CDFW to determine if bank swallow nesting colonies have been active within the previous five years. Operations and maintenance activities with temporary effects or other temporary activities that do not remove or modify nesting habitat and do not occur during the nesting season (March 1 to August 15) do not need to conduct nest surveys and do not need to implement additional avoidance measures for this species.	If active colony is present or has been present within the last five years, design project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved, based on site-specific conditions, by the Conservancy, USFWS, and CDFW. If colony is not present or has not been present within the last five years, a 500-foot buffer is not necessary.	None	From March 1 to August 15, no activity within 500 feet of nesting colony that has been active within the last five years (as identified through planning-level surveys and record search), unless approved by the Conservancy, USFWS and CDFW. From July 31 to April 14, a buffer distance of less than 200 feet may be applied if approved by the Conservancy, USFWS, and CDFW.
Tricolored blackbird (AMM21)	Identify and quantify (in acres) species habitat (as defined in Appendix A, *Covered Species Accounts*) in and within 1,300 feet of project footprint. If project, as designed, will not avoid nesting habitat by 1,300 feet, conduct planning-level surveys, consistent with Kelsey (2008), to determine if an active colony is present. Survey period: March 1–July 30 If project, as designed, will not avoid nesting habitat by 1,300 feet, check records maintained by Conservancy to determine if there have been active tricolored blackbird nesting colonies within the previous five years.	If active colony is present or has been present within the last five years, design project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved, based on site-specific conditions, by the Conservancy, USFWS, and CDFW.	None	From March 1 to July 30, no activity within 1,300 feet of nesting colony that has been active within the last five years (as identified through planning-level surveys and record search).

[a] Planning-level surveys are described in Section 4.2.2.3, *Item 3: Land Cover Mapping and Planning-Level Surveys.*

[b] This column includes only sensitive natural community or species-specific design requirements, as summarized from Sections 4.3.3, *Sensitive Natural Communities,* and 4.3.4, *Covered Species*. Additional design requirements are described in Section 4.3.1, *General Project Design.*

[c] Although planning-level surveys are conducted well in advance of initiating the project and used to inform project design, preconstruction surveys are conducted immediately prior to initiating the project, within time windows specified for each relevant covered species, to determine necessary construction-related avoidance and minimization measures (e.g., setbacks from an active Swainson's hawk nest until the young have fledged).

[d] This column includes only sensitive natural community or species-specific design requirements, as summarized from Sections 4.3.3, *Sensitive Natural Communities,* and 4.3.4, *Covered Species*. Additional construction and operations and maintenance requirements are described in Section 4.3.2, *General Construction and Operations and Maintenance.*

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4.3.4 Covered Species

The AMMs described in this section pertain specifically to covered species. These AMMs may change over time, depending on the most current guidelines developed by CDFW and USFWS and based on the best available data. In addition to the avoidance and minimization measures described below, the Conservancy will ensure that take levels do not exceed the take limits described in Table 5-2(a), *Habitat-Based Take Limits, by Covered Species* and Table 5-2(b), *Forms of Take and Take Limits, by Covered Species.*

AMM11, Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak. Palmate-bracted bird's-beak is covered by the Yolo HCP/NCCP only for the removal of suitable habitat and not for the removal of palmate-bracted bird's beak plants. This AMM ensures compliance with this provision. To determine if palmate-bracted bird's-beak is present and could be affected, the project proponent will conduct a planning-level survey for this species for any covered activities to be conducted within 250 feet of suitable habitat (as defined in Appendix A, *Covered Species Accounts*). The survey will be conducted during the period from May 31 to September 30 and will be consistent with *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009).

The project proponent will avoid occupied habitat where palmate-bracted bird's beak has been located within any of the last 15 years (seed viability could be as little as three years and as much as six years, as described in Appendix A, Section A.1.2, *Species Description and Life History*). The project proponent also will avoid any new occurrences of this species identified during planning-level surveys. Avoidance will require a 250-foot setback from the occupied habitat, or greater distance depending on site-specific topography to avoid hydrologic effects. A shorter buffer distance may apply if is determined to avoid effects and is approved by the Conservancy, USFWS, and CDFW. Mortality of palmate-bracted bird's beak individuals will be avoided, except as needed through management activities that provide an overall benefit to the species.

AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle. The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than one inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle fully, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrubs with stems greater than one inch in diameter at ground level. *AMM1, Establish Buffers,* above, describes circumstances in which a lesser buffer may be applied. For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, the qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and the presence or absence of exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle*. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the

shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.

The project proponent will transplant the shrubs into a location in the HCP/NCCP reserve system that has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.

Transplanting will follow the following measures:

1. Monitor: A qualified biologist will be on-site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.
2. Timing: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first two weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.
3. Transplantation procedure:
    a. Cut the plant back three to six feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring one inch or greater in diameter. Remove leaves that remain on the plants.
    b. Relocate plant to approved location in the reserve system, and replant as described in Section 6.4.2.4.1, *Valley Elderberry Longhorn Beetle.*

AMM13, Minimize Take and Adverse Effects on Habitat of California Tiger Salamander. The project proponent will retain a qualified biologist to identify any suitable aquatic and upland habitats for California salamander (as defined in Appendix A, *Covered Species Accounts*) present in and within 500 feet of the project footprint during planning-level surveys. The qualified biologist will also assess whether critical habitat could be affected by the covered activity.

Except for habitat management and enhancement, all covered activities will provide a 500-foot setback from aquatic California tiger salamander habitat. If a covered activity is outside the Dunnigan Creek Unit of California tiger salamander critical habitat and, as designed, will not avoid aquatic habitat by at least 500 feet, the project proponent will either conduct visual and dip-net surveys, consistent with CDFW protocol, during the period for November 1 to May 15 (California Department of Fish and Game 2003) or assume presence. If the species is present or assumed to be present, the covered activity will not remove aquatic habitat until at least four new occupied breeding pools are discovered or established in the Plan Area and protected in the Plan Area. After the four new occupied breeding pools are protected, and with concurrence of USFWS and CDFW, up to three breeding pools may be affected. The breeding habitat may not be removed if USFWS and CDFW determine that the covered activity would remove a significant occurrence of this species that could be necessary for maintaining the genetic diversity or regional distribution of the species. This AMM applies to California tiger salamander aquatic habitat and surrounding uplands, as defined by

reference to the setbacks described above; it does not apply to cultivated agricultural lands (i.e., agricultural lands other than grazing lands) or other low-value upland habitat for California tiger salamander.

AMM14, Minimize Take and Adverse Effects on Habitat of Western Pond Turtle. There are no specific design requirements for western pond turtle habitat, however, project proponents must follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities described in AMMs 9 and 10, which require a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, based on the outer boundary of the tree canopy). If modeled upland habitat will be impacted, a qualified biologist must be present and will assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance, and will move out of harm's way any turtles or hatchlings found.

AMM15, Minimize Take and Adverse Effects on Habitat of Giant Garter Snake. The project proponent will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat for giant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance buffer from the outer edge of potentially occupied aquatic habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects (measures for maintenance activities are described after the following bulleted list).

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel, as approved by the Conservancy. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.

- A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the Conservancy prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the Conservancy.
- If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and USFWS and CDFW. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or, if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.
- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.

Ongoing maintenance covered activities by local water and flood control agencies typically involve removal of vegetation, debris, and sediment from water conveyance canals as well as resloping, rocking, and stabilizing the canals that serve agricultural water users. Maintenance of these conveyance facilities can typically occur only from mid-January through April when conveyance canals and ditches are not in service by the agency, although some drainages are used for storm conveyance during the winter and are wet all year. This timing is during the giant garter snake's inactive period. This is when snakes may be using underground burrows and are most vulnerable to take because they are unable to move out of harm's way. Maintenance activities, therefore, will be limited to the giant garter snake's active season (May 1 to October 1) when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction-related activities. To minimize the take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat (Appendix A, *Covered Species Accounts*) to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when resloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal because of stormwater runoff.

Modifications to this AMM may be made with the approval of the Conservancy, USFWS, and CDFW.

AMM16, Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite. The project proponent will retain a qualified biologist to conduct planning-level surveys and identify any

nesting habitat present within 1,320 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) by 1,320 feet, the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent, with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000), between March 15 and August 30, within 15 days prior to the beginning of the construction activity. The results of the survey will be submitted to the Conservancy and CDFW. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk or white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of CDFW and USFWS. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. Up to 20 Swainson's hawk nest trees (documented nesting within the last 5 years) may be removed during the permit term, but they must be removed when not occupied by Swainson's hawks.

For covered activities that involve pruning or removal of a potential Swainson's hawk or white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning or removal of the nest tree will occur during the period between March 1 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged and the nest is no longer active.

AMM17, Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo. The project proponent will retain a qualified biologist to conduct planning-level surveys and assess whether habitat for western yellow-billed cuckoo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of western yellow-billed cuckoo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding (or nesting) season records for the species within one-quarter mile of the covered activity within the previous three years, a qualified biologist will conduct planning-level surveys for active nests, consistent with USFWS protocol (Appendix N), during the period from June 1 to August 30. Operations and maintenance activities that do not occur during the breeding season (June 1 to August 30) and do not remove western yellow-billed cuckoo habitat are not required to conduct surveys or record searches; no further avoidance or minimization is necessary for such activities.

If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat, unless the Conservancy, USFWS, and CDFW approve a shorter distance.

If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not a qualified biologist detected the species during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys that are consistent with USFWS protocol (Appendix N) during the same season when the activity will occur. If the biologist finds active territories (i.e., presence of a singing male), the project proponent will avoid activity within 500 feet of suitable habitat that is contiguous with the territory from June 1 to August 30. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

AMM18, Minimize Take and Adverse Effects on Western Burrowing Owl. The project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat (as defined in Appendix A, *Covered Species Accounts*) within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines (Appendix L).

If burrowing owls are identified during the planning-level survey, the project proponent will minimize activities that will affect occupied habitat as follows. Occupied habitat is considered fully avoided if the project footprint does not impinge on a nondisturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this nondisturbance buffer could range from 150 to 1,500 feet (Table 4-2, *Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls*), depending on the time of year and the level of disturbance, based on current guidelines (California Department of Fish and Game 2012). The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of burrowing owls as follows.

- Low: Typically 71-80 dB, generally characterized by the presence of passenger vehicles, small gas-powered engines (e.g., lawn mowers, small chain saws, portable generators), and high-tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of burrowing owls would also constitute a low level of disturbance, regardless of the noise levels.
- Moderate: Typically 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.
- High: Typically 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground explosives are also included. Very few covered activities are expected to fall under this category, but some construction activities may result in this level of disturbance.

The project proponent may qualify for a reduced buffer size, based on existing vegetation, human development, and land use, if agreed upon by CDFW and USFWS (California Department of Fish and Game 2012).

Table 4-2. Recommended Restricted Activity Dates and Setback Distances by Level of Disturbance for Burrowing Owls

	Level of Disturbance (feet) from Occupied Burrows		
Time of Year	**Low**	**Medium**	**High**
April 1–August 15	600	1,500	1,500
August 16–October 15	600	600	1,500
October 16–March 31	150	300	1,500

If the project does not fully avoid direct and indirect effects on nesting sites (i.e., if the project cannot adhere to the buffers described above), the project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the covered activity. Prior to any ground disturbance related to covered activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrowing owl burrows, consistent with CDFW preconstruction survey guidelines (Appendix L, *Take Avoidance Surveys*). The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground disturbing activities will trigger subsequent surveys prior to ground disturbance.

If the biologist finds the site to be occupied[11] by western burrowing owls during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites, based on the buffer distances described above, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the project proponent develops an AMM plan that is approved by the Conservancy, CDFW, and USFWS prior to project construction, based on the following criteria:

- The Conservancy, CDFW, and USFWS approves the AMM plan provided by the project proponent.
- A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
- If the qualified biologist identifies a change in owl nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to stop all construction related activities within the non-disturbance buffers described above. The qualified biologist will report this information to the Conservancy, CDFW, and USFWS within 24 hours, and the Conservancy will require that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the

[11] Occupancy of burrowing owl habitat during preconstruction surveys is confirmed at a site when at least one burrowing owl or sign (fresh whitewash, fresh pellets, feathers, or nest ornamentation) is observed at or near a burrow entrance.

occupied burrows have moved out of the project site, and the Conservancy, CDFW, and USFWS agree.

- If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the project proponent may remove the nondisturbance buffer, only with concurrence from CDFW and USFWS. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the wildlife agencies.

If evidence of western burrowing owl is detected outside the breeding season (December 1 to January 31), the project proponent will establish a non-disturbance buffer around occupied burrows, consistent with Table 4-2, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent owls from abandoning important overwintering sites:

- A qualified biologist monitors the owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.
- If the owls are gone for at least one week, the project proponent may request approval from the Conservancy, CDFW, and USFWS for a qualified biologist to excavate and collapse usable burrows to prevent owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially occupied burrows. After all usable burrows are excavated, the buffer will be removed and construction may continue.

Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.

A qualified biologist will monitor the site, consistent with the requirements described above, to ensure that buffers are enforced and owls are not disturbed. Passive relocation (i.e., exclusion) of owls has been used in the past in the Plan Area to remove and exclude owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the Conservancy determines that passive relocation is necessary, the project proponent will develop a burrowing owl exclusion plan in consultation with CDFW biologists. The methods will be designed as described in the species monitoring guidelines (California Department of Fish and Game 2012) and consistent with the most up-to-date checklist of passive relocation techniques[12]. This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. These doors will be in place for 48 hours and monitored twice daily to ensure that the owls have left the burrow, after which time the biologist will collapse the burrow to prevent reoccupation. Burrows will be excavated using hand tools. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure, such as piping, into the burrow to prevent collapsing

[12] The Conservancy will maintain a checklist of passive relocation techniques. The wildlife agencies will approve the initial list prepared by the Conservancy, and the Conservancy will update as needed in coordination with the wildlife agencies.

until the entire burrow can be excavated and it can be determined that no owls are trapped inside the burrow. The Conservancy may allow other methods of passive or active relocation, based on best available science, if approved by the wildlife agencies. Artificial burrows will be constructed prior to exclusion and will be created less than 300 feet from the existing burrows on lands that are protected as part of the reserve system.

AMM19, Minimize Take and Adverse Effects on Least Bell's Vireo. The project proponent will retain a qualified biologist to conduct planning-level surveys and determine if habitat for least Bell's vireo (as defined in Appendix A, *Covered Species Accounts*) is present within 500 feet of covered activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of least Bell's vireo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding season records for the species within one-quarter mile of the covered activity within the previous three years, the qualified biologist will conduct planning-level surveys for active territories, consistent with USFWS (2001) guidelines, during the breeding season (April 1 to July 15). Operations and maintenance activities that do not occur during the breeding season and do not affect least Bell's vireo habitat are not required to conduct surveys or record searches, and no further avoidance or minimization is necessary for such activities.

- If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the covered activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat, unless the Conservancy, USFWS, and CDFW approve a shorter distance.
- If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not the species was detected during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys, consistent with USFWS (2001) guidelines, during the same season when the activity will occur. If active territories are found, the project proponent will avoid activity within 500 feet of the habitat from April 1 to July 15. This buffer may be reduced with approval from the Conservancy, USFWS, and CDFW.
- The project proponent will avoid disturbance of previous least Bell's vireo territories (up to three years since known nest activity) during the breeding season, unless the disturbance is to maintain public safety. Least Bell's vireo uses previous territories; disturbance during the breeding season may preclude birds from using existing unoccupied territories.
- The required buffer may be reduced in areas where barriers or topographic relief features are adequate for protecting the nest from excessive noise or other disturbance. Conservancy staff members will coordinate with the wildlife agencies and evaluate exceptions to the minimum nondisturbance buffer distance on a case-by-case basis. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.
- If occupied territories are identified, a qualified biologist will monitor construction activities in the vicinity of all active territories to ensure that covered activities do not affect nest success.

AMM20, Minimize Take and Adverse Effects on Habitat of Bank Swallow. The project proponent will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat (as defined in Appendix A, *Covered Species Accounts*) within 500 feet of the project footprint. If a 500-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy and CDFW to determine if bank swallow nesting colonies have been

active on the site within the previous five years. If there are no records of nesting bank swallows on the site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

For operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (September 1 to February 28), it is not necessary to conduct a record search, planning and preconstruction surveys, or any additional avoidance measures. If activities will occur during the nesting season, surveys will be necessary as for other covered activities, but the 500-foot survey distance and buffer distance may be reduced upon Conservancy and wildlife agency approval based on site-specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony.

If an active bank swallow colony is present or has been present within the last 5 years within the planning-level survey area, the Conservancy, USFWS and CDFW will be notified in writing within 15 working days, and the project proponent will design the project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

The reserve system management plan including bank swallow habitat will provide examples of additional measures that may apply to activities on reserve system lands to avoid and minimize effects on bank swallow.

AMM21, Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird. The project proponent will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat (as defined in Appendix A, *Covered Species Accounts*) within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the Conservancy (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

Operations and maintenance activities or other temporary activities that do not remove nesting habitat and occur outside the nesting season (March 1 to July 30) do not need to conduct planning or construction surveys or implement any additional avoidance measures.

If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, the project proponent will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the Conservancy, USFWS, and CDFW. If a shorter distance is approved, the project proponent will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

4.3.5 Avoidance and Minimization Measures within the Reserve System

Reserve system activities, including agricultural activities as described in Appendix M, *Yolo County Agricultural Practices*, have the potential to result in take of covered species. Covered species potentially affected by ongoing reserve system activities, and measures to avoid and minimize these effects, are described below. Prohibited land uses and other restrictions on reserve lands will be stipulated in the conservation easements, as described in Section 7.5.5.3.2, *Minimum Restrictions within a Yolo HCP/NCCP Conservation Easement.* Management practices on reserve lands will be developed with landowners, further described in the management plans, and approved by the wildlife agencies. The species included below are the covered species most likely to be affected by covered activities in the reserve system because they are most likely to occur on cultivated lands. Cultivated lands consist of working landscapes on which agricultural activities take place on a regular basis. The potential scenarios described below for which take could occur are not exhaustive, however, and site-specific conditions could warrant different or additional measures to avoid and minimize take of the covered species found on cultivated lands that will count toward conservation commitments. The Conservancy will describe these avoidance and minimization measures as applicable in site-specific conservation easements or management plans that the wildlife agencies will approve. For bank swallow, agricultural practices on reserve system lands will comply with AMM20, *Bank Swallow,* above.

4.3.5.1 Valley Elderberry Longhorn Beetle

On reserve lands whose primary conservation values include valley elderberry longhorn beetle conservation, agricultural and other activities that would potentially result in take of valley elderberry longhorn beetle will not occur within a 100-foot buffer around elderberry shrubs, thereby avoiding take. Management activities that would not result in take of valley elderberry longhorn beetle (e.g., hand weeding, planting native plants) may occur within the 100-foot buffer. If existing, ongoing activities (e.g., agricultural activities, such as a farming road) encroach within 100 feet of elderberry shrubs on reserve land, the valley elderberry longhorn beetle habitat within 100 feet of such activities will not count toward the habitat protection commitment for this species. The Conservancy will coordinate with the wildlife agencies if elderberry shrubs are present within the reserve system on or near cultivated lands to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.2 California Tiger Salamander

Reserve system activities will avoid harming, harassing, injuring, or killing California tiger salamanders. If California tiger salamanders are present in a pond or other water feature on a site enrolled in the reserve system, the management plan for the site will specify water management measures intended to reduce the potential establishment of predatory non-native species and will restrict pond maintenance activities, and limit ground disturbing activities to the dry season to minimize the potential for harming California tiger salamanders that may be actively moving through uplands. In the event that a salamander needs to be moved out of harm's way to avoid injuring or killing individuals, a qualified biologist will relocate the salamander to nearby habitat. The Conservancy will coordinate with the wildlife agencies where California tiger salamanders may be present within the reserve system, to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.3 Giant Garter Snake

Canal and ditch maintenance on cultivated lands typically involves removal of vegetation, debris, and sediment from water conveyance channels. To minimize effects on giant garter snake, these activities within giant garter snake habitat will be limited to the giant garter snake's active season (May 1 to October 1) when possible. To minimize the take of giant garter snake, farmers and land managers on lands in the reserve system will limit maintenance of conveyance structures located within giant garter snake habitat to clearing one side along at least 80% of the linear distance of the channels during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). In the event that a giant garter snake needs to be moved out of harm's way to avoid injuring or killing individuals, a qualified biologist will relocate the giant garter snake to nearby habitat.

For channel maintenance activities conducted within giant garter snake habitat, farmers on cultivated land within giant garter snake habitat in the reserve system will place removed material at least 200 feet from permanent aquatic habitat. For portions of channels that do not have previously used spoil disposal sites and the area has been checked by a qualified biologist to confirm that giant garter snakes are not in harm's way, removed materials may be placed along channels in areas that are at least 200 feet from permanent aquatic habitat and where materials will not re-enter the canal because of stormwater run-off. The Conservancy will coordinate with the wildlife agencies where giant garter snakes may be present within the reserve system on or near cultivated lands, to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.4 Western Pond Turtle

Western pond turtles may occur within canals and ditches in the reserve system. To minimize the take of western pond turtle, farmers and land managers on lands in the reserve system will limit maintenance of conveyance structures located within western pond turtle habitat to clearing one side along at least 80% of the linear distance of the channels during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year).

For channel maintenance activities conducted within western pond turtle habitat, farmers and land managers within western pond turtle habitat in the reserve system will place removed material at least 200 feet from permanent aquatic habitat. For portions of channels that do not have previously used spoil disposal sites and the area has been checked by a qualified biologist to confirm that western pond turtles are not in harm's way, removed materials may be placed along channels in areas that are at least 200 feet from permanent aquatic habitat and where materials will not re-enter the canal because of stormwater run-off. In the event that a western pond turtle needs to be moved out of harm's way to avoid injuring or killing individuals, a qualified biologist will relocate the western pond turtle to nearby habitat The Conservancy will coordinate with the wildlife agencies where western pond turtles may be present within the reserve system on or near cultivated lands, to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.5 Swainson's Hawk and White-tailed Kite

Swainson's hawk and white-tailed kite prey species can be considered agricultural pests and rodenticides are sometimes used as part of general agricultural operations to control pest

populations. Rodenticides both reduce available food resources and can directly harm individual Swainson's hawks and white-tailed kites that ingest prey that have been poisoned by rodenticides. The use of rodenticides is prohibited on all lands in the reserve system, including cultivated lands, in order to avoid effects to Swainson's hawk and white-tailed kite.

The removal or cutting of trees on lands in the reserve system is prohibited except as reasonably necessary and/or prudent for (1) fire breaks, (2) prevention or treatment of disease; or (3) removing vegetation and debris which poses a health and safety hazard or a threat to standard agricultural operations including, but not limited to, downed trees or limbs. In cases where the cutting or removal of a tree is deemed necessary due to one of the reasons mentioned above, the removal of the tree shall not occur during the Swainson's hawk or white-tailed kite nesting season (February 1 through October 1) to avoid disturbance during the breeding season. No standing tree shall be removed until it has been verified that the tree is not an active Swainson's hawk or white-tailed kite nest tree. The Conservancy will coordinate with the wildlife agencies where Swainson's hawks or white-tailed kites are present within the reserve system on or near cultivated lands, to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.6 Western Burrowing Owl

Farmers and land managers on lands in the reserve system will avoid disturbing burrows occupied by western burrowing owls. The Conservancy will coordinate with the wildlife agencies if burrowing owls are found on actively farmed lands within the reserve system to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.3.5.7 Tricolored Blackbird

Tricolored blackbirds can nest in triticale and other types of grain crops, although this has not been documented in Yolo County. In the rare event that tricolored blackbirds nest in cultivated lands within the reserve system, the farmer will delay harvesting the crop and other agricultural practices a sufficient distance from the active nest to avoid harming, harassing, injuring or killing individuals. The restriction will be maintained until the tricolored blackbirds have finished nesting (i.e., fledglings are capable of acquiring food on their own). A qualified biologist will confirm the distance in which harvesting can occur and the time at which tricolored blackbirds have finished nesting (and therefore when the remaining harvest may occur). The Conservancy will coordinate with the wildlife agencies if tricolored blackbirds are found within the reserve system on or near actively farmed lands, to develop additional protection measures as needed to maintain the conservation values of the easement and comply with the Yolo HCP/NCCP.

4.4 Qualified Biologist

Qualified biologists will conduct several types of surveys and monitoring for the Yolo HCP/NCCP, including species surveys, planning-level habitat surveys, preconstruction surveys, construction monitoring, and effectiveness monitoring conducted on the reserve system. This requirement applies to all monitoring described in this HCP/NCCP that calls for a qualified biologist, including avoidance and minimization measures described in this chapter and the effectiveness monitoring described in Chapter 6, *Conservation Strategy*.

Qualified biologists are those biologists who have the experience, education, and training necessary to perform the tasks described in the Yolo HCP/NCCP accurately and in an unbiased fashion. The term *qualified biologist* is used generically to mean a biologist who is trained to perform the given task. Such a person is, more specifically, a wildlife biologist, botanist, or biological consultant who has been trained in wildlife biology or botany. Training must be in the field to which the task is related. For example, a wildlife biologist may not perform a covered plant survey or delineate land cover types for a project application unless the individual is competent in those fields.

If the task does not have the potential to result in take of covered species (e.g., land cover mapping or monitoring of the compliance of construction crews), applicants (or Permittees) may choose their own biologists to conduct these specialized tasks.

If the task has the potential to result in take of covered species (e.g., handling a California tiger salamander, establishing perimeters around an active nest or burrows, or conducting the effectiveness monitoring described in Section 6.5, *Monitoring and Adaptive Management*), the Conservancy must approve the biologist before the biologist can conduct such tasks. To be approved, the biologist must provide the Conservancy with credentials that demonstrate that he or she has an understanding of the monitoring protocols, data collection techniques, and handling procedures for the covered species. Upon Conservancy approval, the Conservancy will maintain a list of pre-approved qualified biologists who may conduct monitoring work for a 5-year period. The Conservancy will provide the list of qualified biologists in annual reports to the wildlife agencies. The Conservancy will keep resumes of the qualified biologists on file, available upon request by the wildlife agencies. Individuals who are not pre-approved by the Conservancy to conduct monitoring with the potential for take may conduct monitoring if they have the appropriate valid permits or authorizations from CDFW and USFWS for the species that they are monitoring. In either case, the biologist will possess all of the qualifications that would otherwise be required under a recovery permit.

4.5 Exemptions from Avoidance and Minimization Measures

These following covered activities are not subject to the avoidance and minimization measures described in this chapter[13]. For activities that are exempt from the avoidance and minimization measures, project proponents will report quantifiable natural community and covered species habitat losses (the Conservancy will not track effects that cannot be quantified) but will not submit an application package. Although these covered activities are exempt from the avoidance and minimization measures, all activities that are described as covered in Chapter 3, *Covered Activities*, will receive take coverage under the Yolo HCP/NCCP. Additionally, activities that are not covered under the Yolo HCP/NCCP are not subject to the avoidance and minimization measures in this chapter.

[13] Activities that are exempt from the avoidance and measures may still be subject to fees as described in Section 8.4.1.1, *Exemptions from HCP/NCCP Fees*. Similarly, some activities that are exempt from fees may still be subject to the avoidance and minimization measures.

The Conservancy will base its determination as to whether an activity qualifies for an exemption on land cover types mapped for the Yolo HCP/NCCP at the time of permit issuance and the nature of covered activities previously permitted on the site.

Many of the covered activities that are exempt from the avoidance and minimization measures in this chapter may also be exempt from the land cover fees, as described in Chapter 8, Section 8.4.1.1, *Exemptions from HCP/NCCP Fees*.

The following covered activities and projects are exempt from all of the avoidance and minimization measures in this chapter, and the Conservancy will not track these activities.

- Projects that do not result in ground disturbance, do not affect Swainson's hawk or white-tailed kite nests, do not result in the release of potential water quality contaminants, and do not create new wildlife barriers.
- Any covered activity described in Chapter 3, *Covered Activities*, that occurs on developed land cover types (see Table 2-1 for land cover types classified as developed), as verified in the field, unless the activity may affect covered species; may affect mapped or unmapped stream, riparian, pond, or wetland land cover types; may remove trees during the nesting season; or occurs in a stream setback.
- Routine infrastructure maintenance by Permittees or SPEs that occurs inside an urban planning unit (Planning Units 19, 20, 21, or 22) and does not affect stream, riparian, pond, or wetland land cover types.
- Natural community and species habitat enhancement activities implemented as a component of the Yolo HCP/NCCP conservation strategy, provided that a qualified biologist determines that such activities would have no adverse direct or indirect effects on sensitive natural communities or covered species habitat, and upon approval by the wildlife agencies on a case-by-case basis.

These exemptions overlap with the exemptions from conditions on covered activities described in land cover fees described in Section 8.4.1.1, *Exemptions from HCP/NCCP Fees*.

4.6 Revisions to Avoidance and Minimization Measures

The Conservancy may revise avoidance and minimization measures over the course of the permit term in response to problems that may arise during implementation. Avoidance and minimization measures may be modified through the adaptive management process, based on results of implementation. The wildlife agencies will review proposed revisions to avoidance and minimization measures and respond within 30 days. The Conservancy will not adopt revised avoidance and minimization measures until they are approved by the wildlife agencies. Allowing such revisions will ensure that out-of-date or ineffective avoidance and minimization measures do not persist and that best available science can be incorporated into the avoidance and minimization measures, as appropriate for the Yolo HCP/NCCP.

The Conservancy may also update survey protocols during the permit term, based on changes to the accepted protocol, with the concurrence from CDFW and USFWS.

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