

Appendix B:
Biological Resources Report

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project (WDR018)



Biological Resources Report

Prepared by:

**DOKKEN ENGINEERING
110 Blue Ravine Road, Suite 200
Folsom, CA 95630**

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Summary

The City of Elk Grove (City) proposes to construct the Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project (Project), located in Elk Grove, Sacramento County, California. The proposed Project will involve construction of a 2.2-mile long multi-functional corridor along the banks adjacent to segments of Laguna and Whitehouse Creeks, located between East Stockton Boulevard and Camden Park.

This Biological Resources Report is a review and evaluation of the potential impacts to threatened, endangered, proposed listed or special status species and protected habitat resources as a result of the proposed Project. Field surveys were conducted within the Biological Study Area (BSA), which was defined as the proposed Project impact area and a 250-foot buffer from the existing City floodway easement, where feasible, to accommodate the design and facilitate construction.

Multiple surface waters were found within the BSA during field surveys. These surface waters fall into four broad categories including: creek, emergent marsh, seasonal wetland, and vernal pool. All surface waters were evaluated to determine their jurisdictional status. Laguna Creek and Whitehouse Creek as well as adjacent seasonal wetland and vernal pool features were determined to be jurisdictional waters of the United States (WoUS) and waters of the State (WoS). The Project is anticipated to result in permanent and temporary impacts to jurisdictional WoUS and WoS.

Literature research, habitat assessments, and biological surveys were conducted for the proposed Project area. After habitat assessments and biological surveys were completed, each species' specific habitat requirements were compared to actual site conditions and the potential for occurrence was then determined. The queries identified 51 species of special-status plant and wildlife species, 3 of which: Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), and western pond turtle (*Emys marmorata*) were identified as present. Two species, burrowing owl (*Athene cunicularia*) and Sanford's arrowhead (*Sagittaria sanfordii*) were determined to have a high potential to occur within the BSA; while the song sparrow "Modesto population" (*Melospiza melodia*), tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), woolly rose-mallow (*Hibiscus lasiocarpus var. occidentalis*), giant garter snake (*Thamnophis gigas*), and western spadefoot (*Spea hammondi*) have a low to moderate chance of occurring within the BSA.

Federally listed threatened giant garter snake (GGS) has the potential to occur within the BSA due to presence of suitable habitat and recent documented regional occurrences. Additionally, federally listed threatened vernal pool fairy shrimp, and federally-listed endangered vernal pool tadpole shrimp have the potential to occur within the BSA due to the fact that the proposed Project occurs within the range of both species and potentially suitable habitat for the species is present within the BSA. Prior to completion of the environmental review process, the U.S. Army Corps of Engineers (USACE) will initiate and complete Section 7 Consultation with the U.S. Fish and Wildlife Service (USFWS) for potential Project related impacts to these species pursuant the Federal Endangered Species Act (FESA). Section 7 Consultation is planned to occur during the Clean Water Act (CWA) permitting process with the USACE as the Project's federal nexus. In compliance with FESA, any additional avoidance and minimization measures or mitigation efforts resulting from the consultation process will be incorporated into the Project design. Considering the scale of impact, it is anticipated that the Project may affect, but is not likely to adversely affect GGS, vernal pool fairy shrimp and vernal pool tadpole shrimp.

The following permits will be obtained for the proposed Project prior to construction: Section 404 Nationwide Permit 14 from the USACE, Section 401 Water Quality Certification from California Regional Water Quality Control Board (RWQCB), National Pollutant Discharge Elimination System (NPDES) from RWQCB, Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife (CDFW), Construction General Permit from State Water Resources Control Board (SWRCB) for soil disturbance (over 1.0 acre).

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List of Abbreviated Terms

BMPs	Best Management Practices
BRR	Biological Resources Report
BSA	Biological Study Area
Caltrans	California Department of Transportation
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CFG	California Fish and Game
CGP	Construction General Permit
City	City of Elk Grove
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
°F	Degrees Fahrenheit
FESA	Federal Endangered Species Act
FHWA	Federal Highways Administration
GGS	Giant Garter Snake
MBTA	Migratory Bird Treaty Act
MS4	Municipal Separate Storm Sewer Systems
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
OHWM	Ordinary High Water Mark
Project	Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
State	State of California
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Loads
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WPT	Western Pond Turtle

Chapter 1. Introduction

The City of Elk Grove (City) proposes to construct the Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project (Project), located in Elk Grove, Sacramento County, California (Figure 1. Project Vicinity and Figure 2. Project Location). The proposed Project will involve construction of a 2.2-mile long multi-functional corridor along the banks adjacent to segments of Laguna and Whitehouse Creeks, located between East Stockton Boulevard and Camden Park.

This Biological Resources Report (BRR) was prepared for the Project and describes the existing biological environment within the proposed Project's Biological Study Area (BSA).

1.1. Project Description

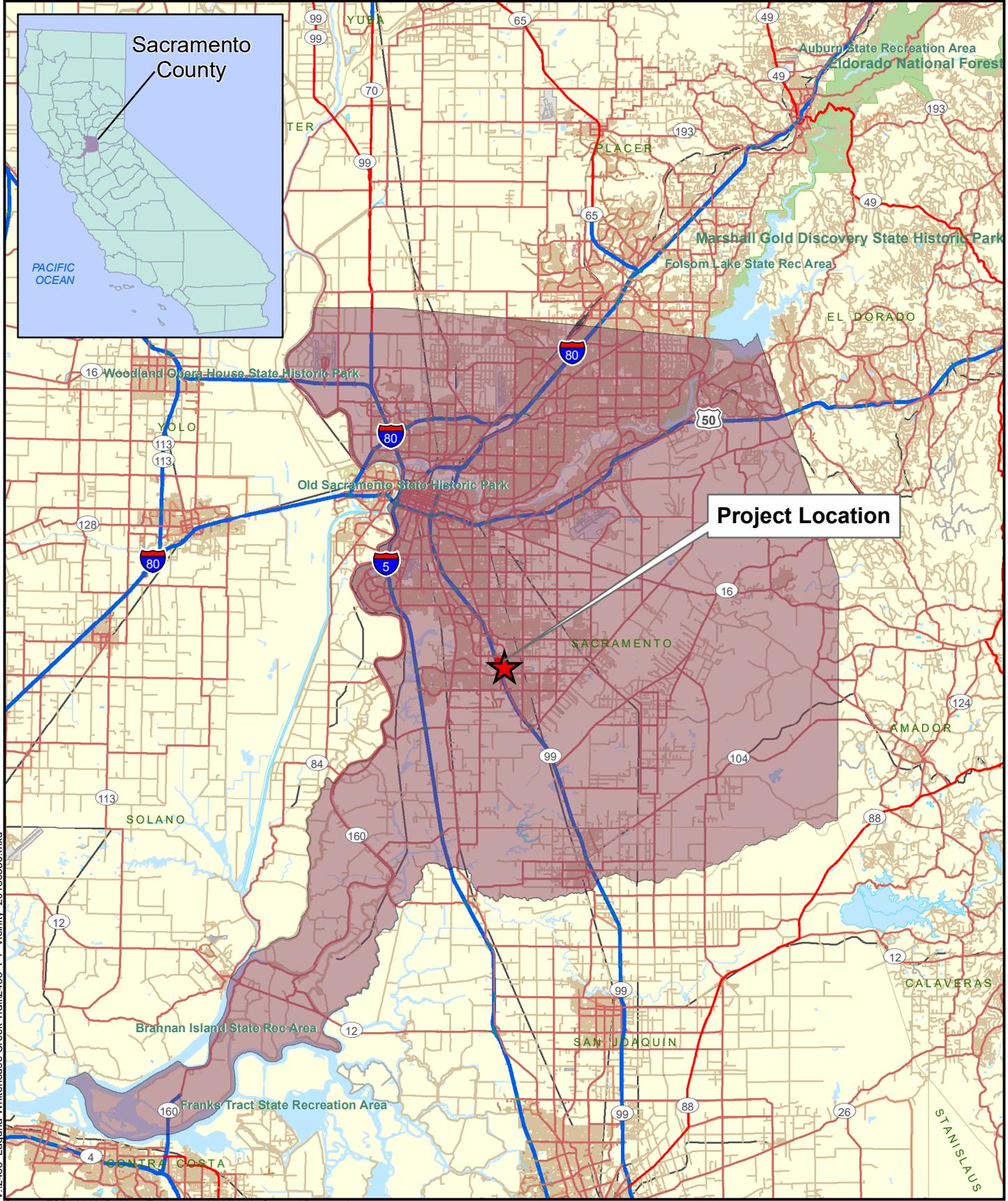
The Project consists of constructing a multi-functional corridor between Camden Lake and East Stockton Boulevard. The Project would be constructed in two phases. Phase I would include construction of a maintenance access road (paved with no striping) from the existing Laguna Creek Trail, located south of the intersection of Beckington Drive and White Peacock Way, to a connection at East Stockton Boulevard approximately 750 feet south of the intersection of East Stockton Boulevard and Cantwell Drive. The maintenance access road would consist of a 12- to 16-foot-wide paved surface with unpaved shoulders ranging from 2 to 3 feet wide. While the majority of the maintenance access road would be paved, the segment that provides direct access to the north side of Laguna Creek near East Stockton Boulevard may be unpaved or may consist of a viaduct. Where determined feasible, single span pre-fab steel or concrete bridges providing necessary access across Laguna and Whitehouse Creeks (Figure 3. Project Features).

Pre-fabricated steel or concrete bridges would provide necessary access across Laguna and Whitehouse Creeks. The Project is considering either a northern crossing or southern crossing of Whitehouse Creek. The southern crossing would be located just north of the confluence with Laguna Creek while the northern crossing would be located approximately 400 feet north of the creek confluence. The difference in environmental impacts between the two design options is minimal and the final location of the crossing will be determined during final design.

Phase II of the Project would consist of converting the maintenance access road into a Class 1 multi-functional trail corridor connection between the Camden Park and East Stockton Boulevard, with striping, and trail amenities incorporated as necessary. Phase II of the Project would complete a gap within the trail system in accordance with the City's Bicycle, Pedestrian, and Trails Master Plan.

Additional Phase I or 2 Project features would include construction of retention basins to offset the floodplain encroachments from the maintenance road/multi-functional trail, fencing to prevent pedestrian incursion beyond the multi-functional corridor, and trail amenities. Right-of-way acquisitions and temporary construction easements are needed where the multi-functional corridor passes through privately-owned parcels, and will be obtained during Phase I of the Project.

This Project is partially funded through the City's Storm Drainage Master Plan and is subject to compliance with the California Environmental Quality Act (CEQA). The lead agency for CEQA compliance is the City. The Project is also subject to compliance with the National Environmental Policy Act (NEPA) due to anticipated federal permitting through the U.S. Army Corps of Engineers federal nexus during the Clean Water Act Section 404 permitting process for project impacts to waters of the U.S.



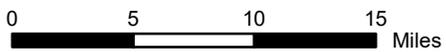
V:\2435 - Laguna-Whitehouse Creek Trail\2435_F1_Vicinity_20180330.mxd

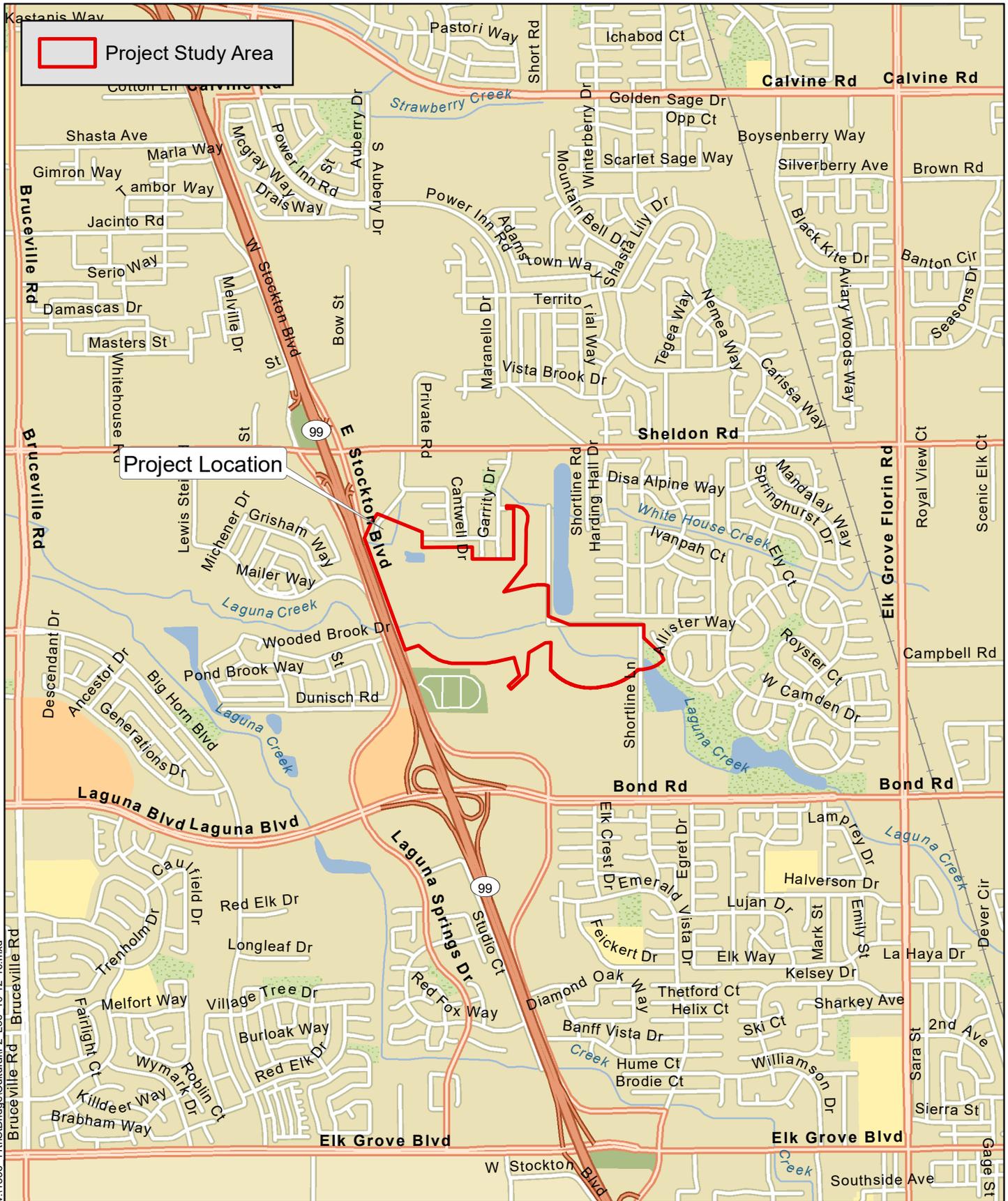
Source: ESRI 2008; Dokken Engineering 3/30/2018; Created By: amyd

Project Location

FIGURE 1
Project Vicinity

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
City of Elk Grove, Sacramento County, California





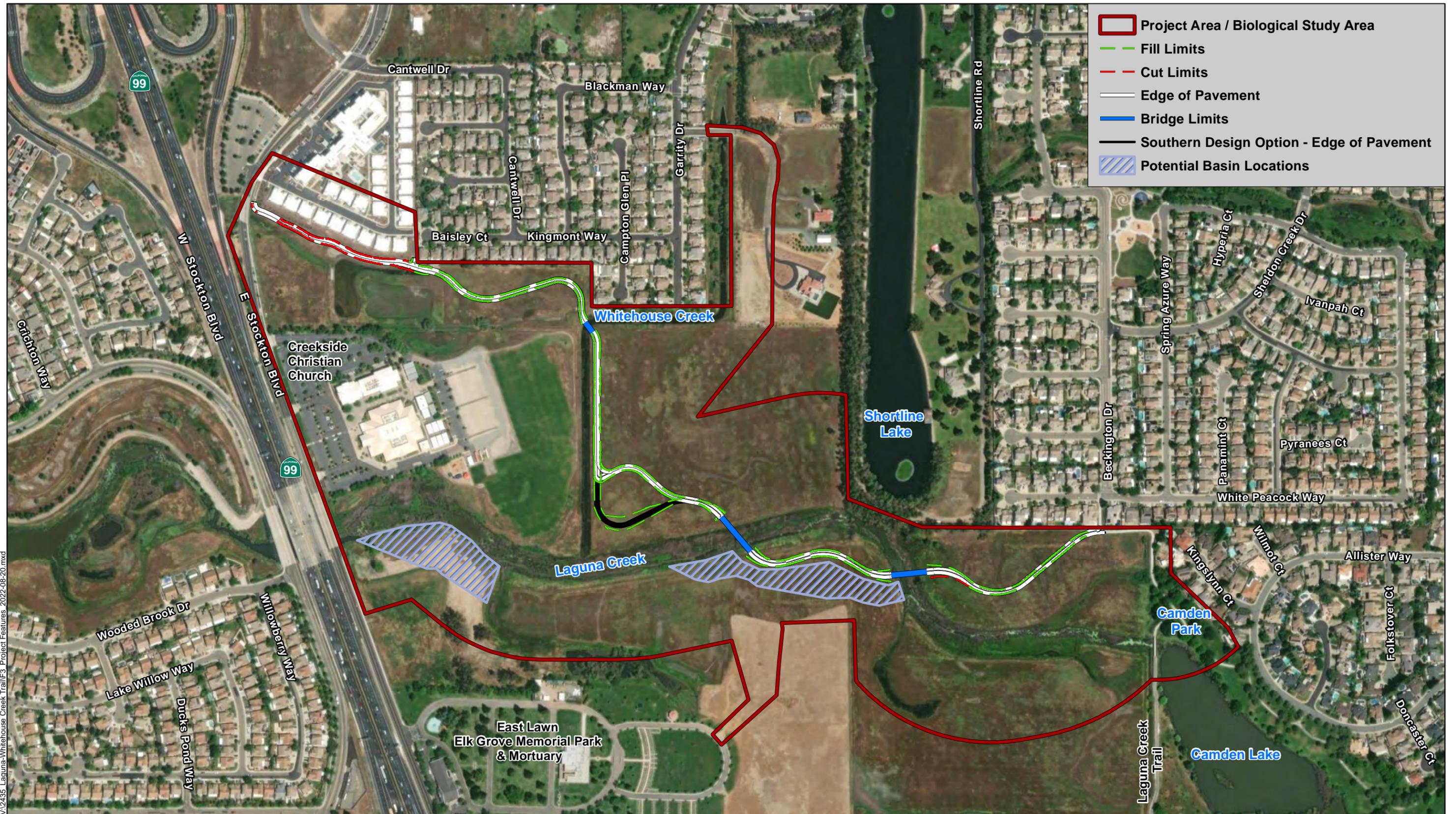
v:\1836_111ns\Bridg\Cultural\F2_Loc_10-12-10.mxd
Bruceville Rd

Source: ESRI World Street Maps Online; Dokken Engineering 4/27/2020; Created By: adellas



FIGURE 2
Project Location

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
City of Elk Grove, Sacramento County, California



V:\2435 Laguna-Whitehouse Creek Trail\F3 Project Features 2022-08-20.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

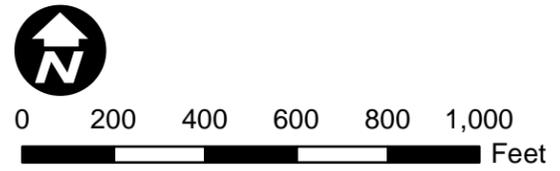


FIGURE 3
Project Features
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

1.1.1. Purpose

The purpose of the Project is to provide access along Laguna Creek and Whitehouse Creek to City maintenance crews.

1.1.2. Need

The Project is needed to provide an off-street multiuse trail system providing connections throughout the City and the Sacramento region.

Chapter 2. Study Methods

Prior to field work, literature research was conducted through the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website to generate an official species list (Appendix A: USFWS Species List), the California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CNDDDB) (Appendix B: CNDDDB Species List), the California Native Plant Society (CNPS) *Electronic Inventory of Rare and Endangered Plants* (Appendix C: CNPS Species List), and the National Marine Fisheries Service (NMFS) (Appendix D: NMFS Species List) to identify habitats and special-status species having the potential to occur within the BSA. Field surveys were conducted on April 4, 2018 to document existing biological resources, detect potential jurisdictional waters, and search for sensitive and protected species or their habitats.

2.1. Regulatory Requirements

This section describes the Federal, State, and local plans, policies, and laws that are relevant to biological resources within the BSA. Applicable Federal permits and approvals that will be required before construction of the proposed Project are provided in Chapter 5.

Federal Regulations

2.1.1. Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 (16 U.S.C. section 1531 et seq.) provides for the conservation of endangered and threatened species listed pursuant to Section 4 of the Act (16 U.S.C. section 1533) and the ecosystems upon which they depend. These species and resources have been identified by USFWS and NMFS.

2.1.2. Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the Federal Water Pollutant Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to Waters of the United States (WoUS). The CWA serves as the primary Federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations, and includes programs addressing both point-source and non-point-source pollution. Point-source pollution originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Non-point-source pollution originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless they are specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

Section 303(d)

Under the mandate of Section 303(d) of the CWA, the RWQCB is required to formulate a list of surface water bodies that exceed applicable water quality standards. Subsequently, the RWQCB is required to describe the impairment sources and prioritize these water bodies to develop Total Maximum Daily Loads (TMDLs). The current list was updated in 2012 and approved by the U.S. EPA in 2013. Laguna Creek and Whitehouse Creek are not 303(d) listed (Caltrans, 2020).

Section 401

The Regional Water Quality Control Board (RWQCB) has jurisdiction under Section 401 of the CWA and regulates any activity which may result in a discharge to surface waters. Typically, the areas subject to jurisdiction of the RWQCB coincide with those of U.S. Army Corps of Engineers (USACE) (i.e., waters of the U.S. including any wetlands). The RWQCB also asserts authority over “Waters of the State” under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act. The proposed Project is located within the Jurisdiction of the Sacramento office of the Central Valley RWQCB.

Section 402

The Central Valley RWQCB is a designated municipal permittee under the EPA’s National Pollutant Discharge Elimination System (NPDES), which regulates stormwater flows into natural water bodies. The NPDES regulations require permitted areas to implement specific activities and actions to eliminate or control stormwater pollution (RWQCB, 2018).

The U.S. EPA defines a Municipal Separate Storm Sewer System (MS4) as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water. As part of the NPDES program, U.S. EPA initiated a program requiring that entities having MS4s apply to their local RWQCBs for storm water discharge permits. The City is permitted as an MS4 under the Central Valley Region wide MS4 (Order No. R5-2016-0040), adopted by the RWQCB on June 23, 2016, therefore, the Project would be subject to the requirements of this permit.

Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ), became effective on February 14, 2011 and July 17, 2012, respectively. The permit regulates storm water discharges from construction sites which result in a land disturbance of equal to or greater than one acre, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP).

By law, all storm water discharges associated with construction activity, including, but not limited to, clearing, grading grubbing or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a Storm Water Pollution Prevention Plan; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows. The Project is a Risk Level 2, with a low sediment risk and high receiving water risk.

Section 404

The USACE regulates discharges of dredged or fill material into waters of the U. S. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or

indirect connection to interstate commerce. USACE regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations).

2.1.3. Executive Order 13186: Migratory Bird Treaty Act

EO 13186 (signed January 10, 2001) directs each Federal agency taking actions that could adversely affect migratory bird populations to work with USFWS to develop a Memorandum of Understanding that will promote the conservation of migratory bird populations. Protocols developed under the Memorandum of Understanding will include the following agency responsibilities:

- avoid and minimize, to the maximum extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and
- prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist Federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA) (50 Code of Federal Regulations [CFR] 10 and 21) and does not constitute any legal authorization to take migratory birds. Take is defined under the MBTA as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take that results from, but is not the purpose of, the activity in question).

State Regulations

2.1.4. California Environmental Quality Act

California Environmental Quality Act (CEQA) is a State law created to inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities and to work to reduce these negative environmental impacts. The City is the CEQA lead agency for this Project.

2.1.5. California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game [CFG] Code Section 2050 et seq.) requires CDFW to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental taking of any such listed species except as allowed by the Act (Sections 2080-2089). In addition, CESA prohibits take of candidate species (under consideration for listing). CESA also requires CDFW to comply with CEQA (Pub. Resources Code Section 21000 et seq.) when evaluating incidental take permit (ITP) applications (CFG Code Section 2081(b) and California Code Regulations, Title 14, section 783.0 et seq.), and the potential impacts the project or activity for which the application was submitted may have on the environment. CDFW’s CEQA obligations include consultation with other public agencies which have jurisdiction over the project or activity [California Code Regulations, Title 14, Section 783.5(d)(3)]. CDFW cannot issue an ITP if issuance would jeopardize the continued existence of the species [CFG Code Section 2081(c); California Code Regulations, Title 14, Section 783.4(b)].

2.1.6. Section 1602: Streambed Alteration Agreement

Under CFG Code 1602, public agencies are required to notify CDFW before undertaking any project that will divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

2.1.7. Section 3503 and 3503.5: Bird and Raptors

CFG Code Section 3503 prohibits the destruction of bird nests and Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests. Trees and shrubs are present in and adjacent to the study area and could contain nesting sites.

2.1.8. Section 3513: Migratory Birds

CFG Code Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

2.1.9. Porter Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

2.1.10. Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. Regional Water Quality Control Boards are

responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

Local Regulations

2.1.11. City of Elk Grove General Plan (As Amended)

The policies below are excerpted from the City of Elk Grove General Plan (as amended) (City of Elk Grove 2019). These policies are designed to guide conservation of native and non-native habitats, plants, and animals within the City's jurisdiction.

- Policy LU-3-22: Identify a mitigation program for critical habitat for special status species known to occur within the Study Areas. A proposed project determined to have a significant impact to habitat for special status species shall implement all feasible mitigation measures established in the program, including but not limited to land dedication (which may be located either inside or outside the corresponding Study Area) or fee payment, or both.
- Policy PT-1-11: In land uses adjacent to natural open space areas, provide on-site landscaping as a transition to natural habitats to the extent feasible.
- Policy NR-1-2: Preserve and enhance natural areas that serve, or may potentially serve, as habitat for special-status species. Where preservation is not possible, require that appropriate mitigation be included in the project.
- Policy NR-1-3: Support the establishment of multipurpose open space areas to address a variety of needs, including but not limited to maintenance of agricultural uses, wildlife habitat, recreational open space, aesthetic benefits, and flood control. To the extent possible, lands protected in accordance with this policy should be in proximity to Elk Grove to facilitate use of these areas by Elk Grove residents, assist in mitigation of habitat loss within the City, and provide an open space resource close to the urbanized areas of Elk Grove.
- Policy NR-1-4: Avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible. Ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, revegetation, restoration on-site or through creation of riparian habitat corridors, or purchase of credits from a qualified mitigation bank.
- Policy NR-1-5: Recognize the value of naturally vegetated stream corridors, commensurate with flood control and public desire for open space, to assist in removal of pollutants, provide native and endangered species habitat and provide community amenities.
- Policy NR-1-6: Encourage the retention of natural stream corridors, and the creation of natural stream channels where improvements to drainage capacity are required.
- Policy NR-1-7: Consider the adoption of Habitat Conservation Plans to protect rare, threatened, or endangered species.
- Policy NR-1-9: Encourage development clustering where it would facilitate on-site protection of woodlands, grasslands, wetlands, stream corridors, scenic areas, or other appropriate features such as active agricultural uses and historic or cultural resources under the following conditions and requirements. Clustering shall not be allowed in the Rural Area.
- Policy NR-2-1: Preserve large native oak and other native tree species as well as large nonnative tree species that are an important part of the City's historic and aesthetic character. When reviewing native or non-native trees for preservation, consider the following criteria: health of tree, safety hazards posed by the tree, suitability for preservation in place, biological value, aesthetic value, shade benefits, water quality benefits, runoff reduction benefits, and air quality benefits (pollutant reduction).

- Policy NR-2-5: Ensure that trees that function as an important part of the City's or a neighborhood's aesthetic character or as natural habitat on public and private land are retained or replaced to the extent possible during the development of new structures, roadways (public and private, including roadway widening), parks, drainage channels, and other uses and structures.

2.1.12. City of Elk Grove Swainson's Hawk Program

In 2003, the City established and adopted Chapter 16.130 (Swainson's Hawk Impact Mitigation Fees) of the Elk Grove Municipal Code, which establishes mitigation policies tailored for projects in Elk Grove that have been determined through the CEQA process to result in a "potential significant impact" on Swainson's hawk foraging habitat (City of Elk Grove, 2020). Chapter 16.130, often referred as the "Swainson's Hawk Code," serves as a conservation strategy that is achieved through the selection of appropriate replacement lands and through management of suitable habitat value on those lands in perpetuity. To mitigate for the loss of foraging habitat in the City, the Swainson's Hawk Code allows a project applicant to provide mitigation by one or a combination of options.

2.2. Studies Required

Online Databases from USFWS (Appendix A: USFWS Species List), CNDDDB (Appendix B: CNDDDB Species List), CNPS (Appendix C: CNPS Species List), and NMFS (Appendix D: NMFS Species List) were queried for presence of potential threatened, endangered, rare or special status species within United States Geological Survey (USGS) 7½ minute quadrangles. These searches identified 51 regional species of special concern with potential to occur in the vicinity of the Project area. These species are listed in Chapter 3, Table 3 which provides a comprehensive list of these species and presents specific characteristics, habitat requirements, and potential for occurrence for each species. Based upon literature and online database research the following surveys and studies were conducted: a general biological survey, a jurisdictional delineation and a rare plant focused survey.

2.2.1. Biological Study Area

Prior to field surveys, the BSA was defined as the proposed Project impact area and a 250-foot buffer from the existing City floodway easement, where feasible, to accommodate the design and facilitate construction (Figure 3. Project Features). The Project impact area is defined as all areas that will be temporarily or permanently impacted by the Project, including proposed right of way, construction easements, cut and fill limits, potential staging areas, and access roads.

2.2.2. Survey Methods

2.2.2.1. GENERAL BIOLOGICAL SURVEY METHODS

General biological surveys were conducted by walking meandering transects through the BSA, mapping vegetation communities and assessing potential habitat for sensitive species within the BSA. All plant and wildlife observations were recorded and are discussed in Chapter 3.

2.2.2.2. JURISDICTIONAL WATERS DELINEATION METHODS

Potential jurisdictional waters within the BSA were assessed and potential wetland features were evaluated for presence of the following wetland indicators: hydrophytic vegetation, hydric soils and wetland hydrology. Surveys of potential jurisdictional waters were confirmed using aerial imagery and field verification, and followed the guidelines provided in the USACE *Wetland Delineation Manual* (USACE 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Wetlands that

exhibit all three wetland indicators are considered waters of the U.S. if they are hydraulically connected to another water of the U.S. Waters of the state can include wetlands that are not hydraulically connected to another water body if they provide habitat for wildlife or special status plant species.

2.2.2.3. FOCUSED RARE PLANT SURVEY METHODS

Information on special status rare plants within the Project area was gathered from several sources including USFWS' online species database (USFWS 2019), CDFW's CNDDDB (CNDDDB 2019), and CNPS' Electronic Inventory of Rare and Endangered Plants (CNPS 2019) to identify habitats and special-status species with the potential to occur within the BSA. Habitat assessments conducted on April 4, 2018 identified suitable habitat for five special status plant species within the BSA. Additional focused rare plant surveys were conducted on April 24-26 and June 21, 2018 during special status rare plant species appropriate blooming seasons. Focused rare plant surveys did not identify any of the rare plant species within corresponding habitat areas. Focused rare plant surveys were consistent with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* published by CDFW (CDFW 2018).

2.3. Personnel and Survey Dates

The general biological survey and habitat assessments were conducted by Dokken Engineering biologists, Andrew Dellas and Scott Salembier on April 4, 2018. Jurisdictional delineations were conducted by Dokken Engineering biologists, Andrew Dellas and Courtney Owens on April 24 – April 26, 2018 to identify jurisdictional resources present within the BSA. Focused rare plant surveys were conducted by Dokken Engineering biologists, Andrew Dellas and Courtney Owens on April 24 – April 26, 2018, as well as Andrew Dellas and Scott Salembier on June 21, 2018 during the appropriate blooming season for species determined to have potential to occur within the BSA.

2.4. Agency Coordination and Consultation History

United States Army Corps of Engineers – Sacramento District

An inter-agency pre-application meeting was held on December 5, 2019 to discuss USACE jurisdiction within the project area as well as FESA-listed species with potential to occur. USFWS was invited to the meeting; however, no officials from USFWS attended the meeting.

Mr. Peck Ha, USACE Senior Project Manager, led the pre-application meeting and determined USACE would be federal lead agency for FESA Section 7 consultation through the USACE CWA Section 404 permitting process. A CWA Section 404 Pre-Construction Notification (PCN) for impacts to waters of the U.S. will be prepared and submitted to USACE. This BRR will accompany the PCN as supporting documentation for FESA Section 7 consultation for giant garter snake (GGS), vernal pool fairy shrimp, and vernal pool tadpole shrimp.

United States Fish and Wildlife Service

On May 21, 2018 an official species list was obtained from USFWS of Federal Endangered and Threatened species that could occur in the vicinity of the proposed Project. On October 15, 2019 an updated official species list was obtained from USFWS. On April 22, 2020 an updated official species list was obtained (Appendix A: USFWS Species List).

California Department of Fish and Wildlife

On May 21, 2018 a nine-quadrangle USGS 7.5-minute Quadrangle search was conducted to obtain a list of species potentially occurring in the Project vicinity from CDFW's CNDDDB. An updated search

was conducted on October 15, 2019. On April 22, 2020 an updated official species list was obtained (Appendix B: CNDDDB Species List).

The City will coordinate with CDFW regarding potential Project effects to all state-listed and species of special concern (SSC) during the Section 1602 Streambed Alteration Agreement permitting process.

National Marine Fisheries Service

On May 21, 2018 an official species list was obtained from NMFS of ESA-listed species, critical habitat, essential fish habitat, and marine mammals under NMFS purview in California. An updated official species list was obtained from NMFS on October 15, 2019. On April 22, 2020 an updated official species list was obtained (Appendix D: NFMS Species List).

California Native Plant Society

On May 21, 2018 a list of special status plants with the potential to occur within the Project vicinity was obtained from CNPS. An updated list was obtained from CNPS on October 15, 2019. On April 22, 2020 an updated official species list was obtained (Appendix D. CNPS Species List).

2.5. Limitations That May Influence Results

Biological surveys, jurisdictional delineation, and focused rare plant surveys were conducted during appropriate weather and temperature conditions, and during specific blooming periods. No limitations were determined for the studies required.

Chapter 3. Environmental Baseline

The Project occurs within in the City of Elk Grove, Sacramento County, in the California Dry Steppe Province ecological subregion, Great Valley Section, and ecological subsection 262Ag (Hardpan Terraces) of California (USDA 2007). The City receives an average of 18 inches of precipitation annually in the form of rain. The average annual high temperature is 73 degrees Fahrenheit (°F) and average annual low temperature is 48 °F (U.S. Climate Data 2020).

3.1. Description of the Existing Biological and Physical Conditions

The following sections discuss ecological conditions of the region and biological resources present within the BSA.

3.1.1. Biological Study Area

The BSA encompasses approximately 132 acres and includes approximately 4,000 linear feet of Laguna Creek from East Stockton Boulevard to Camden Lake. The BSA is approximately 4,300 feet (0.8 miles) from east to west and approximately 1,700 feet (0.33 miles) from north to south. The BSA was defined as the proposed Project impact area and a 250-foot buffer from the existing City floodway easement to accommodate the design and facilitate construction

3.1.2. Physical Conditions

3.1.2.1. TOPOGRAPHY

The BSA is within the USGS Elk Grove 7 ½ Minute Quadrangle. The Project area occurs within a single distinct topographic region of valley floor. The topography of the valley floor consists of low-elevation fluvial plains formed on nonmarine sedimentary rock with gently rolling terrain located on the Sacramento valley floor. The BSA occurs between the approximate elevations of 45-50 feet above mean sea level.

3.1.2.2. SOILS

The Natural Resource Conservation Service (NRCS) Custom Soil Resource Report for the Project (NRCS 2018) identifies soils within the BSA as:

- Bruella sandy loam, 0 to 2 percent slopes (13.5%)
- Dierssen sandy clay loam, drain, 0 to 2 percent slopes (6.0%)
- Madera loam, 0 to 2 percent slopes (8.5%)
- San Joaquin silt loam, leveled, 0 to 1 percent slopes (9.6%)
- San Joaquin silt loam, 0 to 3 percent slopes (62.4%)

3.1.2.3. HYDROLOGICAL RESOURCES

Hydrological resources within the BSA include Laguna Creek, Whitehouse Creek, and associated wetland features: emergent marsh, vernal pools, vernal swales, seasonal wetlands, and seasonal wetland swales. Laguna Creek and Whitehouse Creek are part of the Morrison Creek watershed, and Laguna Creek subwatershed, within the Lower Sacramento River Hydrologic Unit (HUC 6) (Caltrans 2020). Whitehouse Creek flows from east to west and has been redirected around residential developments north of the BSA. Whitehouse Creek then joins with Laguna Creek within the BSA approximately 0.25 miles east of East Stockton Boulevard. Laguna Creek flows east to west travelling approximately 4000 linear feet through the BSA from Camden Lake to East Stockton Boulevard. All wetland and water features were assessed for Federal and State jurisdiction.

3.1.3. Biological Conditions in the Biological Study Area

The BSA is dominated by undisturbed annual grassland areas and aquatic habitats. Land use within the BSA is designated as low- and medium-density residential and institutional. The BSA is currently zoned as “Agricultural Residential 5-acre min (AR-5) and is surrounded by “Low Density Residential” (RD-4) and “Shopping Center” (SC) according to the City’s General Plan, as amended (City of Elk Grove 2019). Dominant land cover and vegetative communities within the BSA consist of disturbed/urban, annual grassland, eucalyptus, freshwater pond, perennial creeks, vernal pools, vernal swales, seasonal wetlands, seasonal wetland swales, and emergent marsh (Figure 4. Waters and Vegetation Communities within the BSA).

3.1.3.1. VEGETATION COMMUNITIES

Disturbed/Urban

The disturbed/urban land cover type is defined as areas that have been subject to previous or ongoing disturbances such as along roadsides, trails, and parking lots. Mowed, scraped or graded land, and gravel areas would be included in this land cover type. Disturbed land cover type is vegetated with diverse weedy flora. Vascular plant species associated with these areas typically include Johnson grass (*Sorghum halepense*), Canadian horseweed (*Conyza canadensis*), milk thistle (*Silybum marianum*), yellow-star thistle (*Centaurea solstitialis*), and field bindweed (*Convolvulus arvensis*).

Annual Grassland

The Project area is dominated by annual grassland areas. The annual grasslands throughout the rural landscape consist of varying non-native species including wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), medusa head (*Elymus caput-medusae*), prickly lettuce (*Lactuca serriola*), and others. These annual grasslands within the BSA are typically used for hay production and are disturbed annually from this process.

Eucalyptus

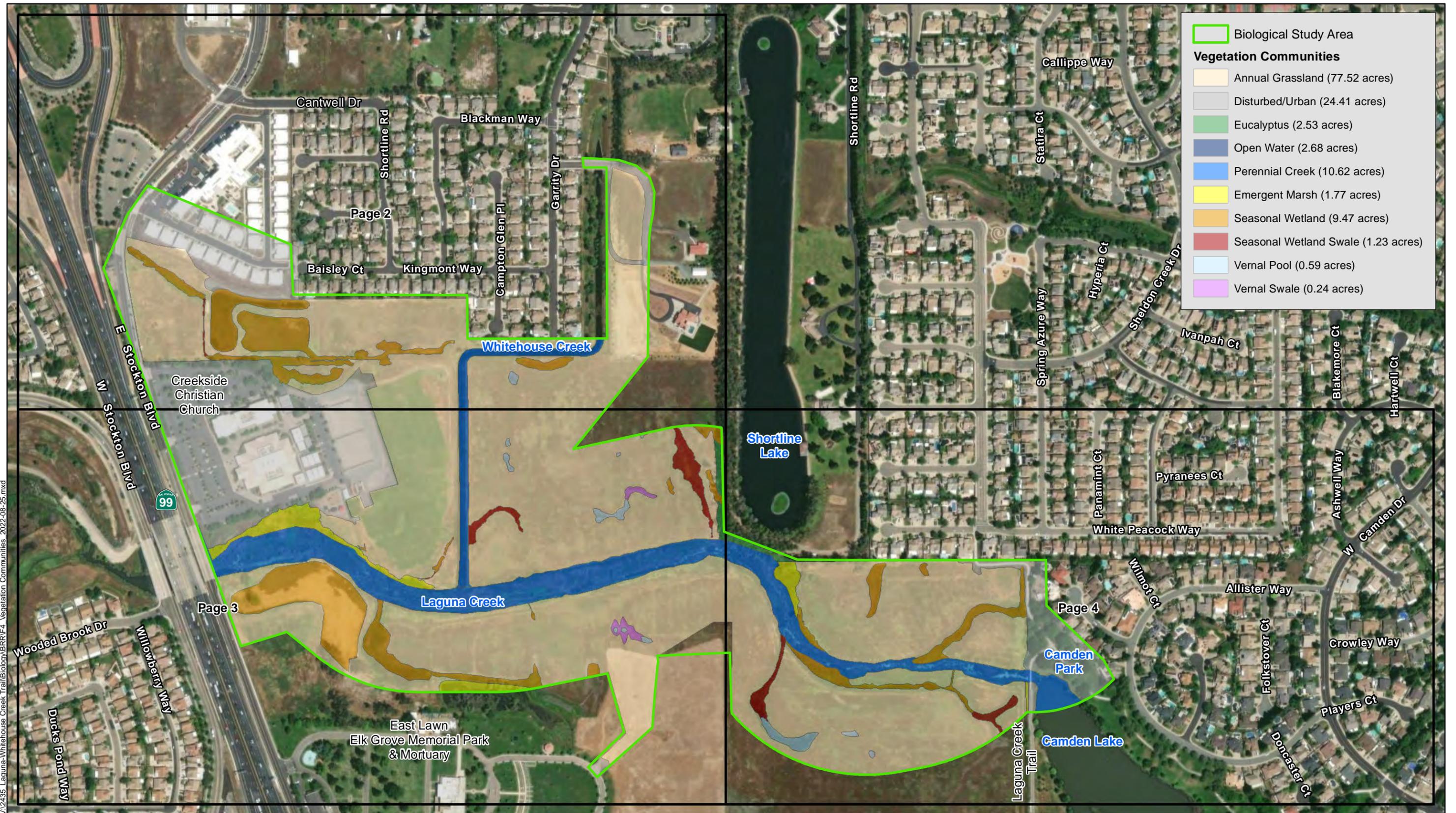
The Project area has one area of eucalyptus habitat surrounding Shortline Lake. The eucalyptus stand is composed of Tasmanian blue gum (*Eucalyptus globulus*), a Cal-IPC listed invasive species. In most cases, eucalyptus forms a dense stand with a closed canopy, and are planted in rows for wind protection or dense groves for hardwood production. This stand appears to have been planted for wind protection for the Shortline Lake properties. The habitat is a monotypic stand of eucalyptus with little to no shrubby understory.

Freshwater Pond

The BSA includes a portion of Shortline Lake as freshwater pond habitat. This habitat is highly managed but the Shortline Lake properties, which use the pond as a water skiing course. Shortline Lake is a human-made excavated unnatural water body, managed to prevent algae and wetland vegetation from growing.

Perennial Creeks

A portion of the BSA includes Whitehouse Creek and Laguna Creek. The perennial creek habitat type is defined as the average wetted area within the perennial linear water features such as rivers, streams and creeks. Habitat types typically found immediately adjacent to the stream and creek habitat include mixed riparian woodland, mixed riparian scrub, valley oak woodland, seasonal wetland, seasonal wetland swales, freshwater marsh, and valley grassland habitats.



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F4_Vegetation Communities_2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

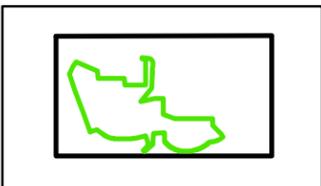
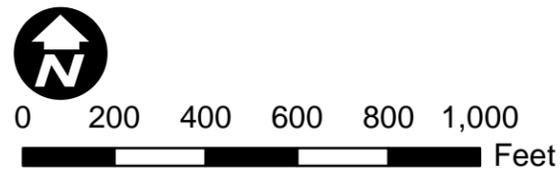


FIGURE 4
Vegetation Communities within the BSA
Page 1 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F4_Vegetation Communities_2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

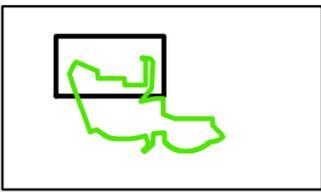
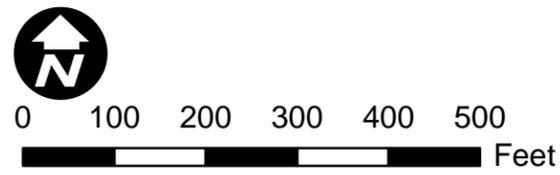


FIGURE 4
Vegetation Communities within the BSA
 Page 2 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

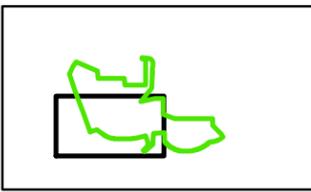


FIGURE 4
Vegetation Communities within the BSA
 Page 3 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

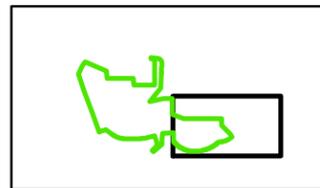
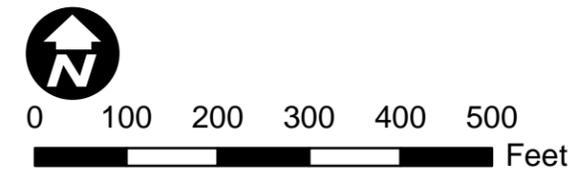


FIGURE 4
Vegetation Communities within the BSA
 Page 4 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

Vernal Pool

Vernal pools are characterized by seasonal inundation and their potential to support vernal pool species. A wide variety of herbaceous species are associated with this community type, including Italian ryegrass, Mediterranean barley, coyote thistle (*Eryngium* spp.), smooth goldfields (*Lasthenia glaberrima*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and woolly marbles (*Psilocarphus* spp.). Additional species that may be present include Sacramento mint (*Pogogyne zizyphoroides*), hyssop loosestrife (*Lythrum hyssopifolium*), toad rush (*Juncus bufonius*), popcorn flower (*Plagiobothrys* spp.), alkali weed, mayweed, and curly dock. Vernal pool communities have the potential to support special-status vernal pool invertebrates, such as fairy shrimp (*Branchinecta* spp.) and tadpole shrimp (*Lepidurus* spp.).

Vernal Swale

Vernal pools are sometimes connected to each other by small drainages known as vernal swales, forming complexes of vernal pools. Vernal swales differ from vernal pools in that they function distinctly as shallow, seasonal conveyance channels. The typically connect vernal pools or convey shallow seasonal flows down gradual inclines often collecting water in a vernal pool or seasonal wetland. Vernal swales and pools typically share plant species and successive "rim bloom" plant assemblages and soil types (California Open Lands 2020).

Seasonal Wetland

Seasonal wetlands are defined as ephemeral wetlands that pond during the rainy season and dry during the summer dry season. This habitat type is dominated by hydrophytic vegetation types of grasses, herbs, and forbs. The seasonal wetland habitat type occurs in the adjacent lands of the Stone Lakes NWR in the northwest quadrant of the BSA. Seasonal wetlands can provide habitat for vernal pool associates, and habitat for a wide variety of wildlife including song birds, waterfowl, reptiles, and other wildlife species.

Seasonal Wetland Swale

The seasonal swale land cover type is defined as low meandering channels that tend to be saturated long enough to support vegetative associations. Swale features often represent the headwaters of streams, connect seasonal wetlands, and/or drain small watersheds into defined creeks. Swales can be supported by minor groundwater seepage. Swales contain rabbitsfoot grass (*Polypogon monspeliensis*), fireweed (*Epilobium pygmaeum*), fiddle dock (*Rumex pulcher*), and pricklyseed buttercup (*Ranunculus muricatus*). Seasonal swales that occur within and between vernal pool complexes are classified as vernal swales.

Emergent Marsh

Freshwater emergent wetlands are characterized by erect, rooted herbaceous hydrophytes such as common cattail. Emergent wetlands are flooded frequently enough so that the roots of the vegetation are in an anaerobic environment. On the upper margins of this habitat, saturated or periodically flooded soils support several moist soil plant species including Baltic rush (*Juncus balticus*), tall flatsedge, smartweed (*Persicaria* spp.), and, on more alkali sites, saltgrass (*Distichlis spicata*). Lower, wetter portions of freshwater emergent wetlands in the Project area are composed of cattails, bulrush, and floating primrose. In the Project area, several freshwater emergent wetlands exist west of Franklin Boulevard.

Freshwater marshes are among the most productive wildlife habitats in California. Many species rely on freshwater marshes for their entire life cycle. The rare giant garter snake uses these wetlands as its primary habitat. Slow-moving waters provide important resting and foraging habitats for migratory water birds such as the mallard (*Anas platyrhynchos*) and cinnamon teal (*Anas cyanoptera*).

Wetlands also provide habitat for the American coot (*Fulica americana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and black phoebe (*Sayornis nigricans*).

3.1.3.2. COMMON PLANT SPECIES OBSERVED

Table 1 includes a list of plant species observed within the BSA during field surveys. No special status plant species were observed.

Table 1: Plant Species Observed within the BSA

Common Name	Scientific Name	Native (N)/ Non-native (X)
black mustard	<i>Brassica nigra</i>	X (Invasive) ¹
blue dicks	<i>Dichelostemma capitatum</i>	N
broadleaf cattail	<i>Typha latifolia</i>	N
bullthistle	<i>Cirsium vulgare</i>	X (Invasive) ¹
California brome	<i>Bromus carinatus</i>	N
California bulrush	<i>Schoenoplectus californicus</i>	N
California manroot	<i>Marah fabacea</i>	N
California poppy	<i>Eschscholzia californica</i>	N
California Wild Rose	<i>Rosa californica</i>	N
Canary Island pine	<i>Pinus canariensis</i>	X
carpet clover	<i>Trifolium monanthum</i>	N
Chinese pistache	<i>Pistacia chinensis</i>	X
Chinese privet	<i>Ligustrum sinense</i>	X
Chinese Tallow	<i>Triadica sebifera</i>	X (Invasive) ¹
Cichory	<i>Cichorium intybus</i>	X
coast redwood	<i>Sequoia sempervirens</i>	N
common fiddleneck	<i>Amsinckia intermedia</i>	N
common lippia	<i>Phyla nodiflora</i>	N
common smartweed	<i>Persicaria hydropiperoides</i>	X
common Sow-thistle	<i>Sonchus oleraceus</i>	X
common Spike-rush	<i>Eleocharis palustris</i>	N
common stork's-bill	<i>Erodium cicutarium</i>	X (Invasive)
common tarweed	<i>Centromadia pungens</i>	N
coyote brush	<i>Baccharis pilularis</i>	N
coyote-thistle	<i>Eryngium castrense</i>	N
curled dock	<i>Rumex crispus</i>	X (Invasive)
curvepod yellowcress	<i>Rorippa curvisiliqua</i>	N
cut-leaved crane's-bill	<i>Geranium dissectum</i>	X (Invasive)
Dallis grass	<i>Paspalum diatatum</i>	X
english plantain	<i>Plantago lanceolata</i>	X (invasive)
field sedge	<i>Carex praegracilis</i>	N
floating primerose-willow	<i>Ludwigia peploides</i>	N
fountain grass	<i>Pennisetum setaceum</i>	X (Invasive) ¹
foxtail Barley	<i>Hordeum murinum</i>	X (Invasive) ¹

Common Name	Scientific Name	Native (N)/ Non-native (X)
Fremont cottonwood	<i>Populus fremontii</i>	N
French lavender	<i>Lavandula stoechas</i>	X
Goodding's willow	<i>Salix gooddingii</i>	N
hairy hawkbit	<i>Leontodon saxatilis</i>	X
hairy vetch	<i>Vicia villosa ssp. villosa</i>	X
harvest brodiaea	<i>Brodiaea elegans</i>	N
Himalayan Blackberry	<i>Rubus armeniacus</i>	X (Invasive) ¹
Hyssop loosestrife	<i>Lythrum hyssopifolia</i>	X (Invasive)
interior live oak	<i>Quercus wislizeni</i>	N
Italian Ryegrass	<i>Lolium multiflorum</i>	X (Invasive) ¹
Italian thistle	<i>Carduus pycnocephalus</i>	X (Invasive) ^{1,3}
jointed charlock	<i>Raphanus sativus</i>	X (Invasive)
little quaking-grass	<i>Briza minor</i>	X
London plane tree	<i>Platanus hispanica</i>	X
lupine sp.	<i>Lupinus</i>	N
Mediterranean barley	<i>Hordeum marinum gussoneanum</i>	X (Invasive) ¹
medusa head	<i>Taeniatherum caput-medusae</i>	X (Invasive) ^{1,2,3}
Mexican Fan Palm	<i>washingtonia robusta</i>	X (Invasive) ¹
milk thistle	<i>Silybum marianum</i>	X (Invasive) ¹
Muehlenberg's Centaury	<i>Zeltnera muehlenbergii</i>	N
narrow leaf milkweed	<i>Asclepias fascicularis</i>	N
narrowleaf willow	<i>Salix exigua</i>	N
Pacific poison oak	<i>Toxicodendron diversilobum</i>	N
pennyroyal	<i>Mentha pulegium</i>	X (Invasive) ¹
purple owl's-clover	<i>Castilleja exserta exserta</i>	N
ripgut brome	<i>Bromus diandrus</i>	X (Invasive) ^{1,3}
rose Clover	<i>Trifolium hirtum</i>	X (invasive)
rough cocklebur	<i>Xanthium strumarium</i>	N
scarlet oak	<i>Quercus coccinea</i>	X
small six-weeks grass	<i>Vulpia microstachys</i>	N
soft chess brome	<i>Bromus hordeaceus</i>	X (invasive)
Spikeweed	<i>Centromedia fitchii</i>	N
spreading Rush	<i>Juncus patens</i>	N
sturdy sedge	<i>Carex alma</i>	N
sweet fennel	<i>Foeniculum vulgare</i>	X (Invasive) ¹
tall flatsedge	<i>Cyperus eragrostis</i>	N
Tasmanian blue gum	<i>Eucalyptus globulus</i>	X (invasive)
tumbleweed	<i>Salsola tragus</i>	X (invasive)
valley oak	<i>Quercus lobata</i>	N
vernal pool buttercup	<i>Ranunculus bonariensis trisepalus</i>	
wall bedstraw	<i>Galium parisiense</i>	X

Common Name	Scientific Name	Native (N)/ Non-native (X)
watercress	<i>Nasturtium officinale</i>	N
Western redbud	<i>Cercis occidentalis</i>	N
White stemmed filaree	<i>Erodium brachycarpum</i>	X
wild pea	<i>Pisum sativum elatius</i>	X
wildoats	<i>Avena fatua</i>	X (Invasive) ¹
yellow starthistle	<i>Centaurea solstitialis</i>	X (Invasive) ^{1,2,3}

* CNPS sensitive

¹ California Invasive Plant Council (Cal-IPC) Moderate or High invasive rating

² Sacramento County Agricultural Commission High or Watch list rating

³ California Department of Food and Agriculture (CDFA) List C rating

3.1.3.3. WILDLIFE SPECIES OBSERVED

Table 2 represents wildlife species observed within the BSA through direct observation or sign.

Table 2: Animal Species Observed within the BSA

Common Name	Scientific Name	Native (N) / Non-Native (X)
Birds		
American Coot	<i>Fulica americana</i>	N
American Pipit	<i>Anthus rubescens</i>	N
American Robin	<i>Turdus migratorius</i>	N
Anna's Hummingbird	<i>Calypte anna</i>	N
Barn Swallow	<i>Hirundo rustica</i>	N
Black Phoebe	<i>Sayornis nigricans</i>	N
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	N
Bushtit	<i>Psaltirparus minimus</i>	N
California Quail	<i>Callipepla californica</i>	N
California Scrub-Jay	<i>Aphelocoma californica</i>	N
Canada Goose	<i>Branta canadensis</i>	N
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	N
Common Gallinule	<i>Gallinula galeata</i>	N
Cooper's Hawk	<i>Accipiter cooperii</i>	N
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	N
European Starling	<i>Sturnus vulgaris</i>	X
Great Egret	<i>Ardea alba</i>	N
Green Heron	<i>Butorides virescens</i>	N
House Finch	<i>Haemorhous mexicanus</i>	X
House Sparrow	<i>Passer domesticus</i>	X
Killdeer	<i>Charadrius vociferus</i>	N
Mallard	<i>Anas platyrhynchos</i>	N
Mourning Dove	<i>Zenaida macroura</i>	N
Northern Mockingbird	<i>Mimus polyglottos</i>	N
Prairie Falcon	<i>Falco mexicanus</i>	N

Red-shouldered Hawk	<i>Buteo lineatus</i>	N
Red-tailed Hawk	<i>Buteo jamaicensis</i>	N
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	N
Ring-necked Pheasant	<i>Phasianus colchicus</i>	N
Rock Pigeon (Feral Pigeon)	<i>Columba livia</i>	N
Savannah Sparrow	<i>Passerculus sandwichensis</i>	N
Snowy Egret	<i>Egretta thula</i>	N
Song Sparrow	<i>Melospiza melodia</i>	N
Swainson's Hawk	<i>Buteo swainsoni</i>	N
Turkey Vulture	<i>Cathartes aura</i>	N
Western Bluebird	<i>Sialia mexicana</i>	N
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	N
White-tailed Kite	<i>Elanus leucurus</i>	N
Wild Turkey	<i>Meleagris gallopavo</i>	N
Wilson's Snipe	<i>Gallinago delicata</i>	N
Yellow-rumped Warbler	<i>Setophaga coronata</i>	N
Reptiles		
Western fence lizard	<i>Sceloporus occidentalis</i>	N
Western pond turtle	<i>Emys marmorata</i>	N

3.1.3.4. INVASIVE SPECIES

The BSA is located within the Sacramento Valley Floristic Providence and contains many weed species identified as being invasive. Based on the California Invasive Plant Council (Cal-IPC) Inventory Database, the following non-native species observed during biological surveys are listed with an invasive rating of moderate or high: black mustard (*Brassica nigra*), bullthistle (*Cirsium vulgare*), Chinese tallow (*Triadica sebifera*), fountain grass (*Pennisetum setaceum*), foxtail barley (*Hordeum murinum*), Himalayan blackberry (*Rubus armeniacus*), Italian rye grass (*Festuca perennis*), Italian thistle (*Carduus pycnocephalus*), Mediterranean barley (*Hordeum marinum gussoneanum*), medusa head (*Taeniatherum caput-medusae*), Mexican fan palm (*washingtonia robusta*), pennyroyal (*Mentha pulegium*), ripgut brome (*Bromus diandrus*), sweet fennel (*Foeniculum vulgare*), wildoats (*Avena fatua*), and yellow starthistle (*Centaurea solstitialis*). The following invasive species were observed within the BSA and have an invasive rating of limited: common stork's bill (*Erodium cicutarium*), curled dock (*Rumex crispus*), cut-leaved geranium (*Geranium dissectum*), English plantain (*Plantago lanceolata*), jointed charlock (*Raphanus sativus*), milk thistle (*Silybum marianum*), rose clover (*Trifolium hirtum*), soft chess brome (*Bromus hordeaceus*), Tasmanian blue gum (*Eucalyptus globulus*), and tumbleweed (*Salsola tragus*) (Cal-IPC 2020).

3.1.3.5. HABITAT CONNECTIVITY

According to CDFW, there are no California Essential Habitat Connectivity areas within the BSA. However, Whitehouse Creek and Laguna Creek may be used by native wildlife as a migration corridor, leading east to west toward the Sacramento River and Stone Lakes National Wildlife Refuge. The Project does not anticipate any impoundments or barriers to native wildlife migration within Whitehouse Creek or Laguna Creek.

3.2. Regional Species, Habitats, and Natural Communities of Concern

Plant and animal species are considered to have special-status if they have been listed as such by Federal or State agencies or by one or more special interest groups, such as CNPS. Special-status species are protected under FESA, CESA, or CDFW regulations. Prior to the field surveys, queries of the USFWS, CNDDDB, NOAA Fisheries and CNPS databases were conducted to identify species protected under the FESA, CESA or CDFW regulations with potential of occurrence in the Project vicinity. Table 3 contains a comprehensive list of the regional species of special concern as listed by USFWS, CNDDDB, NOAA Fisheries or CNPS online databases.

After biological surveys were conducted, each species' specific habitat requirements were compared to actual site conditions and the potential for occurrence was then determined. The queries identified 51 species of special-status plant and wildlife species, 3 of which were identified as present during biological surveys. The species listed below are those determined to be present, determined to have a high potential, or determined to have a low to moderate potential to occur within the BSA. The remaining species listed in Table 3 are presumed absent from the BSA.

Present

- Swainson's hawk (*Buteo swainsoni*)
- White-tailed kite (*Elanus leucurus*)
- Western pond turtle (*Emys marmorata*)

High Potential

- Burrowing owl (*Athena cunicularia*)
- Sanford's arrowhead (*Sagittaria sanfordii*)

Low to Moderate Potential

- Song sparrow "Modesto population" (*Melospiza melodia*)
- Tricolored blackbird (*Agelaius tricolor*)
- Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packardii*)
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
- Dwarf downingia (*Downingia pusilla*)
- Legenere (*Legenere limosa*)
- Wolly rose-mallow (*Hibiscus lasiocarpus var. occidentalis*)
- Giant garter snake (GGS) (*Thamnophis gigas*)
- Western spadefoot (*Spea hammondi*)

Table 3: Special Status Species with Potential to Occur in the Project Vicinity

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Amphibian Species					
California red-legged frog	<i>Rana draytonii</i>	Fed: T State: -- CDFW: SSC	Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development and must have access to estivation habitat; estivation occurs late summer-early winter. Breeds from March-July January-July Occurs from elevations near sea level to 5,200 ft.	A	Presumed Absent: The BSA does contain potentially suitable permanent deep-water habitat within Laguna Creek. However, the presence of bull frog and predatory fish within Laguna Creek would preclude the species using this habitat. Additionally, the BSA does not contain suitable upland habitat. The nearest recent occurrence is approximately 31 miles from the BSA. Due to the presence of predatory fish and bull frogs, and the distance to presumed extant occurrences the species is presumed absent from the BSA.
California tiger salamander	<i>Ambystoma californiense</i>	Fed: T State: T CDFW: SSC	Inhabits annual grasslands and the grassy understory of Valley-Foothill Hardwood communities. Requires underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat. However, the BSA does not contain suitable upland hardwood woodland habitat for the species. The nearest recent occurrence is approximately 15 miles from the BSA, within a conservation bank. Due to the lack of suitable upland habitat and the distance from known extant occurrences, the species is presumed absent from the BSA.
Western spadefoot	<i>Spea hammondi</i>	Fed: -- State: -- CDFW: SSC	Inhabits burrows within grassland and valley foothill hardwood woodland communities. Requires vernal, shallow, temporary pools formed by heavy winter rains for reproduction. Breeds late winter-March.	HP	Low to Moderate Potential: The BSA does contain potentially suitable upland estivation, and aquatic vernal pool habitat for the species. The nearest presumed extant occurrence of the species is approximately 10 miles from the BSA. Due to the presence of potentially suitable habitat and the distance to local presumed extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Bird Species							
bank swallow	<i>Riparia riparia</i>			Fed: -- State: T CDFW: --	A migratory colonial nester inhabiting lowland and riparian habitats west of the deserts during spring - fall. Majority of current breeding populations occur along the Sacramento and Feather rivers in the north Central Valley. Requires vertical banks or cliffs with fine textured/sandy soils for nesting (tunnel and burrow excavations). Nests exclusively near streams, rivers, lakes or the ocean. Breeds May-July.	A	Presumed Absent: The BSA does not contain suitable vertical banks or cliffs for nesting, nor does Laguna Creek to the east or west have this type of habitat. The nearest recent presumed extant occurrence is approximately 11 miles north of the BSA along the American River. Due to the lack of suitable habitat and the distance from presumed extant occurrences, the species is presumed absent from the BSA.
burrowing owl	<i>Athene cunicularia</i>			Fed: -- State: -- CDFW: SSC	Species inhabits arid, open areas with sparse vegetation cover such as deserts, abandoned agricultural areas, grasslands, and disturbed open habitats. Requires friable soils for burrow construction (Below 5,300 feet).	HP	High Potential: The BSA does contain potential suitable habitat for the species, and mammal burrows in friable soils were observed during the April 4, 2018 biological surveys; however, no species were observed. The nearest recent occurrence is approximately 0.5 mile from the BSA. The species is considered to have a high potential of occurring within the BSA due to the presence of suitable habitat and close proximity to recent occurrences.
California black rail	<i>Laterallus jamaicensis coturniculus</i>			Fed: -- State: T CDFW: FP	A rare yearlong California resident of brackish, and fresh emergent wetlands in delta and coastal locations, including the San Francisco Bay area, Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and lower Colorado River; extirpated from San Diego County and the majority of coastal southern California. Occurs in tidal emergent wetlands dominated by pickleweed, in brackish marshes dominated by bulrushes with pickleweed and in freshwater wetlands dominated by bulrushes, cattails, and saltgrass. Species prefers high wetland areas, away from areas experiencing fluctuating water levels. Requires vegetation providing adequate overhead cover for nesting. Eggs are laid March-June.	A	Presumed Absent: The BSA does not contain suitable delta or coastal brackish emergent wetlands, and the BSA is not located in the species known range within the San Francisco Bay Area or Sacramento-San Joaquin Delta. The nearest presumed extant occurrence of the species is approximately 7 miles from the BSA within the Stone Lakes National Wildlife Refuge. Due to the lack of suitable habitat delta/coastal wetland habitat and the distance to presumed extant occurrences, the species is presumed absent from the BSA.

Golden eagle	<i>Aquila chrysaetos</i>	Fed: -- State: -- CDFW: FP		Inhabits rolling foothills, mountain areas, sage-juniper flats, and desert communities. Requires open terrain for hunting, often utilizing rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops, grasslands and early successional stages of forest and shrub habitats. Nests on cliffs of all heights and in large trees in open areas; may reuse previous nest sites. Breeds from late January through August (0-11,500 feet).	A	Presumed Absent: The BSA does not contain suitable foothills, mountain areas, sage-juniper flats or desert communities. The nearest extant occurrence of the species is approximately 8 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to known extant occurrences, the species is presumed absent from the BSA.
least bell's vireo	<i>Vireo bellii pusillus</i>	Fed: -- State: E CDFW: --		Summer resident of southern California inhabiting low riparian habitats in the vicinity of water and dry river bottoms. Prefers willows, baccharis, mesquite and other low, dense vegetation as nesting sites (below 2000 feet).	A	Presumed Absent: The BSA does not contain potentially suitable riparian habitats with willows, baccharis, mesquite or other low, dense vegetation. The nearest known extant occurrence of the species is approximately 13.5 miles from the BSA within the Sacramento/Yolo Bypass. Due to the lack of suitable habitat and distance from known extant occurrences the species is presumed absent from the BSA.
purple martin	<i>Progne subis</i>	Fed: -- State: -- CDFW: SSC		Present in California as a summer migrant, arriving in March and departing by late September. Inhabits valley foothill and montane hardwood/hardwood-conifer, coniferous habitats and riparian habitats. Nests in tall, old, isolated trees or snags in open forest or woodland and in proximity to a body of water. Frequently nests within former woodpecker cavities; may nest in human-made structures such as nesting boxes, under bridges and in culverts. Needs abundant aerial insect prey. Breeds April-August.	A	Presumed Absent: The BSA does not contain potentially suitable valley foothill and montane hardwood/hardwood-conifer, coniferous or riparian habitats. The nearest known extant occurrence of the species is approximately 8.5 miles from the BSA. Due to the lack of suitable habitat and distance from known extant occurrences the species is presumed absent from the BSA.
Song sparrow ("Modesto" population)	<i>Melospiza melodia</i>	Fed: -- State: -- CDFW: SSC		An endemic bird found exclusively in the north-central portion of the Central Valley, with highest densities in the Butte Sink and Sacramento-San Joaquin River Delta. The species is usually found in open brushy habitats, along the borders	HP	Low to Moderate Potential: The BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas within and adjacent to Laguna Creek. These habitats are moderately dense and are dominated by tules and cattails, which the

				of ponds or streams, abandoned pastures, desert washes, thickets, or woodland edges. In addition, there is a strong affinity for emergent freshwater marshes dominated by tules and cattails, riparian willow thickets, and valley oak forests with a blackberry understory. Breeds from March through August. Nest found in base of shrubs or clumps of grass.		species is known to inhabit for nesting and foraging. The nearest recent occurrence is approximately 5 miles from the BSA within the Stone Lakes National Wildlife Refuge. Due to the presence of potentially suitable nesting and foraging habitat and the proximity to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.
Swainson's hawk	<i>Buteo swainsoni</i>	Fed: -- State: T CDFW: --	-- T --	Inhabits grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields that support a stable rodent prey base. Breeds March to late August.	HP	Present: The BSA does have potential suitable foraging and nesting habitat for the species. The species was observed foraging within the BSA during the April 4, 2018 biological survey. Due to the presence of suitable foraging and nesting habitat, and the observance of the species during the biological survey, the species is considered present within the BSA.
Tricolored blackbird	<i>Agelaius tricolor</i>	Fed: -- State: CE CDFW: SSC	-- CE SSC	Inhabits freshwater marsh, swamp and wetland communities, but may utilize agricultural or upland habitats that can support large colonies, often in the Central Valley area. Requires dense nesting habitat that is protected from predators, is within 3-5 miles from a suitable foraging area containing insect prey and is within 0.3 miles of open water. Suitable foraging includes wetland, pastureland, rangeland, at dairy farms, and some irrigated croplands (silage, alfalfa, etc.). Nests mid-march - early August, but may extend until October/November in the Sacramento Valley region.	HP	Low to Moderate Potential: The BSA does contain potentially suitable nesting and foraging habitat; however, the species was not observed during the April 4, 2018 biological surveys. There are 6 presumed extant occurrences of the species within 5 miles of the BSA. Due to the presence of suitable nesting and foraging habitat and the number of local extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Fed: State: CDFW:	T E --	Species inhabits riparian forests, along broad, lower flood bottoms of larger river systems. Nests in large blocks of riparian jungles often mixed with cottonwoods. Nesting appears to be preferred in riparian forest habitats with a dense understory; requires water near nesting site. Breeds June- August.	A	Presumed Absent: The BSA does not contain suitable dense riparian forest habitat for the species. The nearest presumed extant occurrence is approximately 13.5 miles from the BSA. Due to the lack of suitable habitat and the distance from extant occurrences, the species is presumed absent from the BSA.
White-tailed kite	<i>Elanus leucurus</i>	Fed: State: CDFW:	-- -- FP	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Breeds February- October.	HP	Present: The BSA does have potential suitable foraging and nesting habitat for the species. The species was observed foraging within the BSA during the April 4, 2018 biological survey. Due to the presence of suitable foraging and nesting habitat, and the observance of the species during the biological survey, the species is considered present within the BSA.
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Fed: State: CDFW:	-- -- SSC	Occurs primarily as a migrant and summer resident from April to early October. The species almost exclusively nests in marshes with tall emergent vegetation such as tules (<i>Scirpus</i> sp.) or cattails (<i>Typha</i> sp.), in open areas and edges over water at depths typically ranging from 1-4 feet deep. Frequently breeds within marshes edges of lakes, reservoirs, or larger ponds. Breeds from April-July.	HP	Low to Moderate Potential: The BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas within and adjacent to Laguna Creek. These habitats are moderately dense and are dominated by tules and cattails, which the species is known to inhabit for nesting and foraging. The nearest recent occurrence is approximately 6 miles from the BSA within the Stone Lakes National Wildlife Refuge. Due to the presence of potentially suitable nesting and foraging habitat and the proximity to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.
Fish Species						
Central Valley Steelhead	<i>Oncorhynchus mykiss irideus</i>	Fed: State: CDFW:	T -- --	Spawning occurs in small tributaries on coarse gravel beds in riffle areas. Central Valley steelhead are found in the Sacramento River system; the principal remaining wild populations spawn annually in Deer and Mill Creeks in Tehama County, in the lower Yuba River, a small population in the lower Stanislaus River.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. The species does not populate Laguna Creek or Whitehouse Creek. Levee barriers from the Sacramento River to Laguna Creek prevent passage of the species.

Chinook salmon – Central Valley spring-run ESU	<i>Oncorhynchus tshawytscha</i> pop. 6	Fed: T State: T CDFW: --	T T --	Spring-run Chinook enter the Sacramento-San Joaquin River system to spawn, requiring larger gravel particle size and more water flow through their redds than other salmonids. Remaining runs occur in Butte, Mill, Deer, Antelope, and Beegum Creeks, tributaries to the Sacramento River. Known to occur in Siskiyou and Trinity counties.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. The species does not populate Laguna Creek or Whitehouse Creek. Levee barriers from the Sacramento River to Laguna Creek prevent passage of the species.
Chinook salmon – Sacramento River winter-run ESU	<i>Oncorhynchus tshawytscha</i> pop. 7	Fed: E State: E CDFW: --	E E --	Winter-run Chinook are currently restricted within the Sacramento River below Keswick dam; species does not spawn in tributaries. Species requires cold water over gravel beds to spawn.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. The species does not populate Laguna Creek or Whitehouse Creek. Levee barriers from the Sacramento River to Laguna Creek prevent passage of the species.
Delta smelt	<i>Hypomesus tanspacificus</i>	Fed: T State: -- CDFW: --	T -- --	Occurs within the Sacramento-San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay. Most often occurs in partially saline waters.	A	Presumed Absent: The BSA does not contain suitable saline waters for the species, and it was confirmed through CNDDDB that the BSA is outside the range of the species.
Longfin smelt	<i>Spirinchus thaleichthys</i>	Fed: C State: T CDFW: SSC	C T SSC	Within California, occurs slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh, the San Pablo Bay, the main San Francisco Bay, the Gulf of the Farallones, Humboldt Bay, and the Eel river estuary & local coastal areas. Resides in California and are primarily an anadromous estuarine species that can tolerate salinities ranging from freshwater to nearly pure seawater. Their spatial distribution within a bay or estuary is seasonally variable. Longfin smelt may also make daily migrations; remaining deep during the day and rising to the surface at night.	A	Presumed Absent: The BSA does not contain suitable saline waters for the species, and it was confirmed through CNDDDB that the BSA is outside the range of the species.

Sacramento perch	<i>Archoplites interruptus</i>	Fed: -- State: -- CDFW: SSC	-- -- SSC	Inhabits sloughs, lakes, and slow moving rivers of the Central Valley. Prefers turbid lakes, reservoirs and ponds warmed by summer heat and absent of plants; may occasionally occur in clear water among beds of aquatic vegetation. Species tolerates high temperatures, high salinities, high turbidity, and low water clarity. Young require aquatic and overhanging vegetation for cover. Spawns March-August in water temperatures between 64-84°F	A	Presumed Absent: The BSA does contain potentially suitable slow-moving creek/river habitat; however, the species is not known to occur within this waterway and the only known extant occurrence is within Lake Greenhaven from 1973. Laguna Creek has no connection with Lake Greenhaven, and no other known populations were identified within the USGS 7.5-minute 9-quadrangles search. Due to the lack of connection to waterbodies of known extant occurrences the species is presumed absent from the BSA.
Sacramento splittail	<i>Pognichthys macrolepidotus</i>	Fed: -- State: -- CDFW: SSC	-- -- SSC	Historically inhabited low moving rivers, sloughs, and alkaline lakes of the Central Valley; now restricted to the Delta, Suisun Bay and associated marshes. Species is adapted to fluctuating environments with tolerance to water salinities from 10-18 ppt., low oxygen levels (< 1.0 mg/L) and temperatures of 41-75°F. Spawns late February- early July, with a peak in March-April; requires flooded vegetation for spawning activity and protective cover for young.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. Laguna Creek is outside the Delta and Suisun Bay extant of the species.
Invertebrate Species						
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Fed: -- State: -- CDFW: --	T -- --	Species requires elderberry shrubs as host plants. Typically occurs in moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages. (Sea level-3,000ft)	A	Presumed Absent: The BSA does not contain potentially suitable riparian habitat, nor were there any requisite elderberry host shrubs observed within the BSA during the April 4, 2018 biological survey. The nearest presumed extant occurrence of the species is approximately 5.5 miles from the BSA. Due to the lack of potentially suitable riparian habitat or host elderberry shrubs, the species is presumed absent from the BSA.

<p>Vernal pool fairy shrimp</p>	<p><i>Branchinecta lynchi</i></p>	<p>Fed: T State: -- CDFW: --</p>	<p>T</p>	<p>In California, species inhabits portions of Tehama county, south through the Central Valley, and scattered locations in Riverside County and the Coast Ranges. Species is associated with smaller and shallower cool-water vernal pools approximately 6 inches deep and short periods of inundation. In the southernmost extremes of the range, the species occurs in large, deep cool-water pools. Inhabited pools have low to moderate levels of alkalinity and total dissolved solids. The shrimp are temperature sensitive, requiring pools below 50 F to hatch and dying within pools reaching 75 F. Young emerge during cold-weather winter storms.</p>	<p>HP</p>	<p>Low to Moderate Potential: The BSA does contain potentially suitable vernal pool habitat for the species. The nearest presumed extant occurrence of the species is approximately 4 miles from the BSA. A protocol level survey (ECORP 2007) was conducted and found no federally-listed crustaceans were found to occur in any of the pools within the BSA. However, two Biological Opinions issued from USFWS on the directly adjacent projects (Laguna Creek Trail – Camden Spur North and South, 2015; and East Lawn Expansion Project, 2012), concurred that even though the no federally-listed crustaceans were found, the project may affect, but is not likely to adversely affect fairy shrimp or tadpole shrimp. Due to the presence of potentially suitable habitat and the distance to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.</p>
<p>Vernal pool tadpole shrimp</p>	<p><i>Lepidurus packardii</i></p>	<p>Fed: E State: -- CDFW: --</p>	<p>E</p>	<p>Inhabits vernal pools and swales containing clear to highly turbid waters such as pools located in grass bottomed swales of unplowed grasslands, old alluvial soils underlain by hardpan, and mud-bottomed pools with highly turbid water.</p>	<p>HP</p>	<p>Low to Moderate Potential: The BSA does contain potentially suitable vernal pool habitat for the species. The nearest presumed extant occurrence of the species is approximately 4 miles from the BSA. A protocol level survey (ECORP 2007) was conducted and found no federally-listed crustaceans were found to occur in any of the pools within the BSA. However, two Biological Opinions issued from USFWS on the directly adjacent projects (Laguna Creek Trail – Camden Spur North and South, 2015; and East Lawn Expansion Project, 2012), concurred that even though the no federally-listed crustaceans were found, the project may affect, but is not likely to adversely affect fairy shrimp or tadpole shrimp. Due to the presence of potentially suitable habitat and the distance to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.</p>

Western pond turtle	<i>Emys marmorata</i>	Fed: -- State: -- CDFW: SSC		A fully aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat (sandy banks or grassy open field) for reproduction (sea level to 4,690 feet).	HP	Present: The BSA does contain suitable aquatic and upland habitat for the species. The species was observed during the April 24-26, 2018 jurisdictional delineation, at the confluence of Whitehouse Creek and Laguna Creek. Due to the presence of suitable habitat and the observation of the species during the jurisdictional delineation, the species is considered present within the BSA.
Plant Species						
Ahart's dwarf rush	<i>Juncus leispemus var. aharti</i>	Fed: -- State: -- CNPS: 1B.2		An annual herb inhabiting grassland swales, gopher mounds and vernal pool margins of mesic valley and foothill grassland communities. Flowers March – May (98-751 feet).	A	Presumed Absent: The BSA does contain potentially suitable grassland and vernal pool habitat; however, the BSA is below the species known elevation range, and the nearest presumed extant occurrence is approximately 10 miles from the BSA. The species is presumed absent from the BSA.
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	Fed: -- State: -- CNPS: 1B.2		An annual herb inhabiting clay soils and shallow waters of marshes and swamps, lake margins, and vernal pools. Flowers April-August (33-7,792 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable shallow water and vernal pool habitat. The nearest presumed extant occurrence is approximately 3 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrence the species has a low to moderate potential to occur within the BSA.
Bolander's water-hemlock	<i>Cicuta maculata var. bolanderi</i>	Fed: -- State: -- CNPS: 2B.2		A perennial herb inhabiting coastal marshes and swamps with fresh or brackish water. Blooms July-September (6-660 feet).	A	Presumed Absent: The BSA does not contain suitable coastal marsh or brackish waters, and the nearest presumed extant occurrence is approximately 13 miles from the BSA within the Sacramento Delta. Due to the lack of suitable habitat and distance to presumed extant occurrences the species is presumed absent from the BSA.
bristly sedge	<i>Carex comosa</i>	Fed: -- State: -- CNPS: 2B.1		A perennial herb inhabiting coastal prairies, marshes and swamps along lake margins, and valley foothill grasslands communities. Blooms May-September (0-2,050 feet).	A	Presumed Absent: The BSA does not contain suitable coastal prairies, marshes, swamps, or valley foothill grassland communities. The nearest presumed extant occurrence of the species is approximately 7 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.

Delta mudwort	<i>Limosella australis</i>	Fed: State: CNPS:	-- -- 1B.2	A perennial stoloniferous herb inhabiting low elevation muddy banks of riparian scrub, freshwater or brackish marshes and swamps, and intertidal flats. Flowers May-August (0 - 32feet).	HP	Presumed Absent: The BSA does contain suitable freshwater emergent marsh; however, the nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the distance to extant populations the species is presumed absent from the BSA.
Delta tule pea	<i>Lathyrus jepsonii var jepsonii</i>	Fed: State: CNPS:	-- -- 1B.2	A perennial herb inhabiting freshwater and brackish marshes of coastal and estuarine communities. Flowers May - August (0 - 98 feet).	A	Presumed Absent: The BSA does not contain suitable coastal and estuarine communities. The nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.
dwarf downingia	<i>Downingia pusilla</i>	Fed: State: CNPS:	-- -- 2B.2	An annual herb inhabiting vernal pools and mesic valley and foothill grassland communities. Flowers March-May (3-1,460 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable vernal pool habitat. The nearest presumed extant occurrence is approximately 2 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrences the species has a low to moderate potential to occur within the BSA.
Ferris' milk-vetch	<i>Astragalus tener var. ferrisiae</i>	Fed: State: CNPS:	-- -- 1B.1	An annual herb inhabiting vernal meadows and seeps and sub-alkaline flats within valley and foothill grassland communities. Known only from six extant occurrences. Flowers April - May (6-246 feet).	A	Presumed Absent: The BSA does contain valley grasslands; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 15 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
Heckard's pepper-grass	<i>Lepidium latipes var. heckardii</i>	Fed: State: CNPS:	-- -- 1B.2	An annual herb found in alkaline flats within valley or foothill grasslands. Flowers March-May (0 - 660 feet).	A	Presumed Absent: The BSA does contain valley grasslands; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 7 miles from the BSA. Due to the lack of suitable soils and the

						distance from extant occurrences, the species is presumed absent from the BSA.
legenere	<i>Legenere limosa</i>	Fed: -- State: -- CNPS: 1B.1	--	An annual herb inhabiting wet areas, vernal pools, and ponds. Flowers May-June (0-2,887 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable wet areas and vernal pool habitat. The nearest presumed extant occurrence is approximately 1.5 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the presumed extant occurrences the species has a low to moderate potential to occur within the BSA.
marsh skullcap	<i>Scutellaria galericulata</i>	Fed: -- State: -- CNPS: 2B.2	--	A perennial rhizomatous herb inhabiting wet sites and streambanks of lower montane coniferous forest, mesic meadows and seeps, and marsh and swamp communities. Flowers June-September (0 -6,889 feet).	A	Presumed Absent: The BSA does not contain suitable lower montane coniferous forest or mesic meadow habitat. The nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.
Mason's lilaepsis	<i>Lilaepsis masonii</i>	Fed: -- State: -- CNPS: 1B.2	--	A perennial rhizomatous herb found exclusively in the Sacramento-San Joaquin River Delta and San Francisco Bay. Found in low elevation freshwater and brackish marshes adjacent to surface water. Flowers June - August (0 - 100 feet).	A	Presumed Absent: The BSA is not located within the Sacramento-San Joaquin River Delta or San Francisco Bay area. The nearest presumed extant occurrence of the species is approximately 10 miles from the BSA within the Sacramento Delta channel. Due to the location of the BSA and the distance to extant populations, the species is presumed absent from the BSA.
Northern California black walnut	<i>Juglans hindsii</i>	Fed: -- State: -- CNPS: 1B.1	--	A deciduous tree inhabiting along streams and slopes within riparian forest and riparian woodland communities. Flowers April-May (0-1,444 feet).	A	Presumed Absent: The BSA does not contain suitable riparian forest or woodland communities. The nearest presumed extant populations of the species exist along the Sacramento River, approximately 10 miles from the BSA. Due to the lack of suitable habitat and the distance from extant occurrences, the species is presumed absent from the BSA.

Pappose tarplant	<i>Centromadia parryi</i> <i>ssp. parryi</i>	Fed: -- State: -- CNPS: 1B.2		An annual herb inhabiting chaparral, coastal scrub, meadows, seeps, marshes, swamps (coastal salt), and valley foothill grasslands often with alkaline soils. Flowers May - November (0 - 1377 ft.).	A	Presumed Absent: The BSA does contain potentially suitable valley grassland habitat; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 9 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
Peruvian dodder	<i>Cuscuta obtusiflora</i> <i>var. glandulosa</i>	Fed: -- State: -- CNPS: 2B.2		An annual parasitic vine inhabiting freshwater marsh communities on herbs such as <i>Alternanthera</i> sp., <i>Dalea</i> sp., <i>Lythrum</i> sp., <i>Polygonum</i> sp., and <i>Xanthium</i> sp. Flowers July - October (49-1,640 feet).	HP	Presumed Absent: The BSA does contain potentially suitable habitat; however, the species has not been documented since the 1940's within California, of which one occurrence is noted as questionable by CNDDDB within approximately 3 miles from the BSA.
Sacramento Orcutt grass	<i>Orcuttia viscida</i>	Fed: E State: -- CNPS: 1B.2		An annual herb inhabiting vernal pools. Flowers April-July (98-328 feet).	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 11 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	Fed: E State: -- CNPS: 1B.2		A perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds and ditches. Flowers May-October (0-2,132 feet).	HP	High Potential: The BSA does contain potentially suitable freshwater marsh and creek channels. The nearest presumed extant occurrence of the species is approximately 1 mile from the BSA. Due to the presence of potentially suitable habitat and the proximity to CNDDDB presumed extant occurrences, the species is considered to have a high potential to occur within the BSA.
saline clover	<i>Trifolium hydrophilum</i>	Fed: -- State: -- CNPS: 1B.2		An annual herb inhabiting mesic, alkaline soils of salt marsh, marshes and swamps, vernal pools, and valley and foothill grasslands. Flowers April-June (0 - 1,000 feet).	A	Presumed Absent: The BSA does contain potentially suitable marsh, vernal pool and valley grassland habitat; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable

						soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 10 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
side-flowering skullcap	<i>Scutellaria lateriflora</i>	Fed: -- State: -- CNPS: 2B.2	-- -- 2B.2	A perennial rhizomatous herb inhabiting mesic meadow and seeps and marsh and swamp communities. Known in CA from only three occurrences in the Sacramento-San Joaquin Delta. Flowers July (0-1,640 feet).	A	Presumed Absent: The BSA is not located within the Sacramento-San Joaquin River Delta. The nearest presumed extant occurrence of the species is approximately 10 miles from the BSA within the Sacramento Delta channel. Due to the location of the BSA and the distance to extant populations, the species is presumed absent from the BSA.
slender Orcutt grass	<i>Orcuttia tenuis</i>	Fed: -- State: -- CNPS: --	E -- --	An annual herb inhabiting vernal pools, often within gravelly soils. Flowers May-October (115-5,774 feet).	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 6 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.
Suisun marsh aster	<i>Symphotrichum lentum</i>	Fed: -- State: -- CNPS: 2B.3	-- -- 2B.3	A perennial rhizomatous herb inhabiting wetlands, freshwater marsh, and brackish-marsh communities. Flowers May-November (0-984 feet).	A	Presumed Absent: The BSA does contain potentially suitable freshwater marsh and wetland habitat; however, the nearest presumed extant occurrence of the species is approximately 15 miles northwest of the BSA within the Yolo Bypass. Due to the distance of presumed extant occurrences, the species is presumed absent from the BSA.
watershield	<i>Brasenia schreberi</i>	Fed: -- State: -- CNPS: 2B.3	-- -- 2B.3	A perennial rhizomatous aquatic herb inhabiting ponds, slow streams and freshwater marsh and swamp communities. Flowers June-September (98-7,217 feet).	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 8 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.

woolly rose-mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	Fed: -- State: -- CNPS: 1B.2	A perennial rhizomatous herb inhabiting freshwater wetlands, wet banks, and marsh communities. Often found in-between riprap on levees. Flowers June-September (0-394 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable freshwater wetlands and marsh communities. The nearest presumed extant occurrence is within approximately 5 miles of the BSA. Due to the presence of potentially suitable habitat and the distance to extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.
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<p>Federal Designations (Fed): (FESA, USFWS) E: Federally listed, endangered T: Federally listed, threatened D: Delisted</p>	<p>State Designations (CA): (CESA, CDFW) E: State-listed, endangered T: State-listed, threatened CE: State-candidate, endangered R: State-designated, rare</p>
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<p>Other Designations CDFW_SSC: CDFW Species of Special Concern CDFW_FP: CDFW Fully Protected California Native Plant Society (CNPS) Designations: <i>*Note: according to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.</i> 1A: Plants presumed extinct in California. 1B: Plants rare and endangered in California and throughout their range. 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range. 3: Plants about which need more information; a review list. Plants 1B, 2, and 3 extension meanings: _1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) _2 Fairly endangered in California (20-80% occurrences threatened) _3 Not very endangered in California (<20% of occurrences threatened or no current threats known)</p>
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<p>Habitat Potential Absent [A] - No habitat present and no further work needed. Habitat Present [HP] - Habitat is, or may be present. The species may be present. Critical Habitat [CH] – Project is within designated Critical Habitat.</p>
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<p>Potential for Occurrence Criteria: Present: Species was observed on site during a site visit or focused survey. High: Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within 5 miles of the site. Low-Moderate: Either low quality habitat (including soils and elevation factors) for the species occurs on site and a known occurrence exists within 5 miles of the site; or suitable habitat strongly associated with the species occurs on site, but no records were found within the database search. Presumed Absent: Focused surveys were conducted and the species was not found, or species was found within the database search but habitat (including soils and elevation factors) do not exist on site, or the known geographic range of the species does not include the survey area.</p>
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<p>Species Table Sources: Babcock 1995, Bennet 2005, CDFW 2020a, CDFW 2020b, CNDDDB 2020, CNPS 2020, Mayer 1988, [NMFS 2005, 2012], NRCS 2018, Shuford 2008, [USFWS 2002, 2007a, 2007b, 2009, 2020], Zeiner 1988-1990</p>
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Chapter 4. Survey Results and Effects of the Action

4.1. Habitats and Natural Communities of Concern

The BSA lies within the Great Valley floristic province (Jepson eFlora 2020), a biologically diverse ecosystem. Biological surveys and a jurisdictional delineation were conducted to assess natural communities and biological resources within the BSA. Sensitive wildlife species were identified as present during the biological surveys, and the jurisdictional delineation determined jurisdictional waters of the U.S. and state occur within the BSA.

4.1.1. Discussion of Jurisdictional Waters

Potential jurisdictional waters within the BSA were assessed and potential wetland features were evaluated for presence of the following wetland indicators: hydrophytic vegetation, hydric soils and wetland hydrology. Surveys of potential jurisdictional waters were confirmed using aerial imagery and field verification, and followed the guidelines provided in the USACE *Wetland Delineation Manual* (USACE 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Wetlands that exhibit all three wetland indicators are considered waters of the U.S. if they are hydraulically connected to another water of the U.S. Waters of the state can include wetlands that are not hydraulically connected to another water body if they provide habitat for wildlife or special status plant species.

Previous to the current 2018 survey efforts, ECORP Consulting Inc. had performed a wetland delineation for the East Lawn Cemetery Expansion (2006-2007). These delineation results have since expired; however, the mapping efforts from the ECORP delineation were used as reference for aquatic feature locations.

Jurisdictional delineations were conducted by Dokken Engineering biologists, Andrew Dellas and Courtney Owens on April 24 – April 26, 2018 to identify jurisdictional resources present within the BSA. Observed OHWM and wetland features were mapped in the field with a Trimble GeoXT Geoexplorer 6000 Series handheld GPS unit.

4.1.1.1. JURISDICTIONAL WATERS SURVEY RESULTS

Hydrological resources within the BSA include Laguna Creek, Whitehouse Creek, and associated wetland features: emergent marsh, vernal pools, vernal swales, seasonal wetlands, and seasonal wetland swales (Figure 5. Jurisdictional Waters within the BSA). Laguna Creek and Whitehouse Creek are part of the Morrison Creek watershed, and Laguna Creek subwatershed, within the Lower Sacramento River Hydrologic Unit (HUC 6) (Caltrans 2020). Whitehouse Creek flows from east to west and has been redirected around residential developments north of the BSA. Whitehouse Creek then joins with Laguna Creek within the BSA approximately 0.25 miles east of East Stockton Boulevard. Laguna Creek flows east to west travelling approximately 4000 linear feet through the BSA from Camden Lake to East Stockton Boulevard. All wetland and water features were assessed for Federal and State jurisdiction.

Perennial Creeks

The Study Area includes the perennial Laguna Creek and Whitehouse Creek. Whitehouse Creek and Laguna Creek are part of the Morrison Creek watershed, and Laguna Creek subwatershed, within the Lower Sacramento River Hydrologic Unit (HUC 6) (Caltrans 2020). Whitehouse Creek flows from

east to west and has been redirected from its natural orientation around residential developments north of the Study Area. Whitehouse Creek then joins with Laguna Creek within the Study Area approximately 0.25 miles east of East Stockton Boulevard. Approximately 1,500 linear feet of Whitehouse Creek is within the Study Area. Laguna Creek flows east to west travelling approximately 4,000 linear feet through the Study Area from Camden Lake to East Stockton Boulevard. Whitehouse Creek and Laguna Creek ultimately make connection with the Sacramento River approximately 6 miles west of the Study Area. Approximately 10.74 acres of the Study Area was delineated as perennial creek.

Vernal Pools

Vernal pools are characterized by seasonal inundation and their potential to support vernal pool species. A wide variety of herbaceous species are associated with this community type, including Italian ryegrass, Mediterranean barley, coyote thistle (*Eryngium* sp.), smooth goldfields (*Lasthenia glaberrima*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and woolly marbles (*Psilocarphus* spp.). Additional species that may be present include Sacramento mint (*Pogogyne zizyphoroides*), hyssop loosestrife (*Lythrum hyssopifolium*), toad rush (*Juncus bufonius*), popcorn flower (*Plagiobothrys* spp.), alkali weed, mayweed, and curly dock. Vernal pool communities have the potential to support special-status vernal pool invertebrates, such as fairy shrimp (*Branchinecta* spp.) and tadpole shrimp (*Lepidurus* spp.). The Study Area includes vernal pool communities. A total of 12 vernal pools were delineated within the Study Area consisting of approximately 0.60 acres.

Vernal Swale

Vernal swales are sometimes connected to each other by small drainages known as vernal swales, forming complexes of vernal pools. Vernal swales differ from vernal pools in that they function distinctly as shallow, seasonal conveyance channels. They typically connect vernal pools or convey shallow seasonal flows down gradual inclines often collecting water in a vernal pool or seasonal wetland. Vernal swales and pools typically share plant species and successive "rim bloom" plant assemblages and soil types (California Open Lands 2020). A total of 2 vernal swale areas were delineated within the Study Area consisting of approximately 0.24 acres.

Seasonal Wetland

Seasonal wetlands are defined as ephemeral wetlands that pond during the rainy season and dry during the summer dry season. This habitat type is dominated by hydrophytic vegetation types of grasses, herbs, and forbs. The seasonal wetland habitat type occurs in the adjacent lands of the Stone Lakes NWR in the northwest quadrant of the Study Area. Seasonal wetlands can provide habitat for vernal pool associates, and habitat for a wide variety of wildlife including song birds, waterfowl, reptiles, and other wildlife species. A total of 20 seasonal wetland features were delineated within the Study Area consisting of approximately 9.47 acres.

Seasonal Wetland Swale

The seasonal swale land cover type is defined as low meandering channels that tend to be saturated long enough to support vegetative associations. Swale features often represent the headwaters of streams, connect seasonal wetlands, and/or drain small watersheds into defined creeks. Swales can be supported by minor groundwater seepage. Swales contain rabbitsfoot grass (*Polypogon monspeliensis*), fireweed (*Epilobium pygmaeum*), fiddle dock (*Rumex pulcher*), and pricklyseed buttercup (*Ranunculus muricatus*). Seasonal swales that occur within and between vernal pool complexes are classified as vernal swales. A total of 6 seasonal wetland swale features were delineated within the Study Area consisting of approximately 1.23 acres.

Emergent Marsh

Freshwater emergent marsh wetlands are characterized by erect, rooted herbaceous hydrophytes such as common cattail. Emergent wetlands are flooded frequently enough so that the roots of the vegetation are in an anaerobic environment. On the upper margins of this habitat, saturated or periodically flooded soils support several moist soil plant species including Baltic rush (*Juncus balticus*), tall flatsedge (*Cyperus eragrostis*), smartweed (*Persicaria spp.*), and, on more alkali sites, saltgrass (*Distichlis spicata*). Lower, wetter portions of freshwater emergent wetlands in the Project area are composed of cattails, bulrush, and floating primrose. In the Project area, several freshwater emergent wetlands exist west of Franklin Boulevard. A total of 3 emergent marsh features were delineated within the Study Area consisting of approximately 1.77 acres.

4.1.1.2. PROJECT IMPACTS TO JURISDICTIONAL WATERS

The Project will result in both permanent and temporary effects to jurisdictional waters of the U.S. and state, and CDFW jurisdictional habitats. Permanent effects include areas that will permanently be altered by required fill materials for construction of the access road. Temporary effects include construction areas outside of permanent effects that will be re-contoured to preconstruction conditions and re-vegetated after construction. Permanent and temporary impacts to aquatic features resulting from the proposed Project are shown in **Table 4** and **Figure 6**. A discussion of specific impacts to each aquatic resource type are described below.

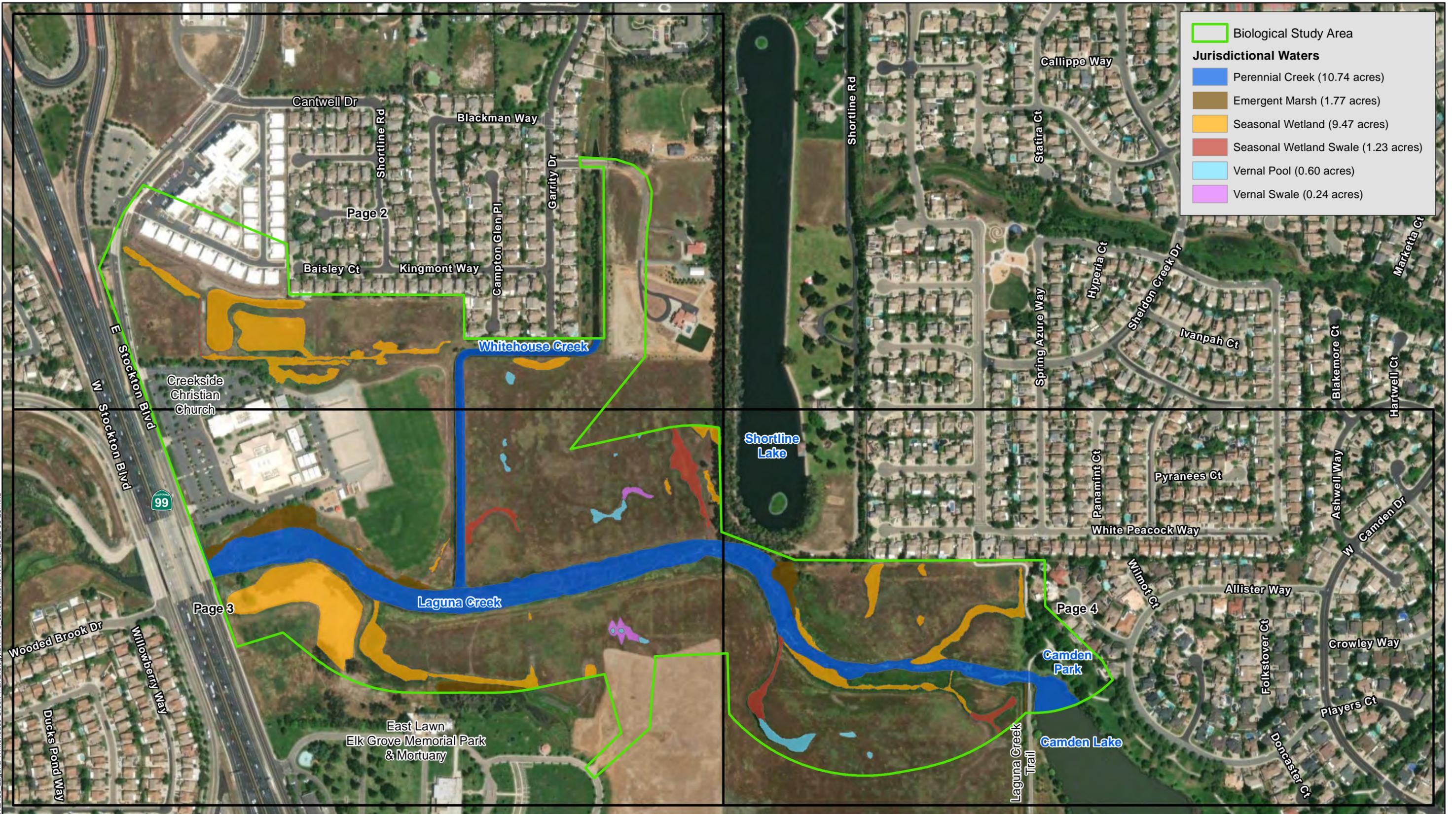
Table 4. Project Effects to Jurisdictional Waters

Jurisdictional Waters	Waters of the U.S., State and CDFW Waters	
	<i>Permanent Impacts (Acres)</i>	<i>Temporary Impacts (Acres)</i>
Perennial Creeks	0	0
Seasonal Wetlands	1.84	1.71
Seasonal Wetland Swales	0.05	<0.01
Vernal Pools	0	0
Vernal Swales	0	0
Emergent Marsh	0	0
Total	1.89	1.72

Perennial Creeks

Laguna Creek

The construction of the proposed Project would not result in permanent and temporary impacts to Laguna Creek and Whitehouse Creek, as shown in **Table 4** and **Figure 6**. The Project would not result in temporary or permanent impacts to perennial creek habitat.



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F5 - Jurisdictional Waters 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez



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Feet

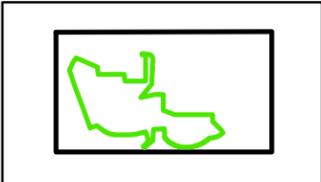


FIGURE 5
Jurisdictional Waters within the BSA
 Page 1 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F5 -Jurisdictional Waters 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

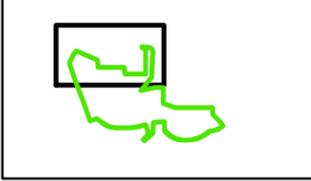
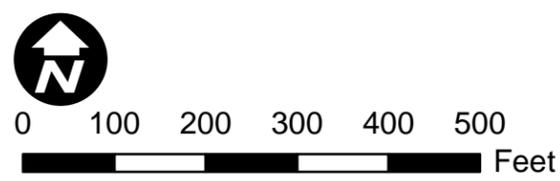


FIGURE 5
Jurisdictional Waters within the BSA
 Page 2 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse_Creek_Trail\Biology\BRR\F5 - Jurisdictional Waters 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

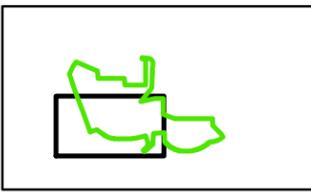
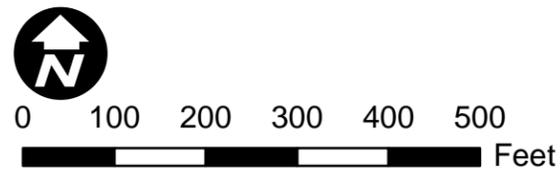
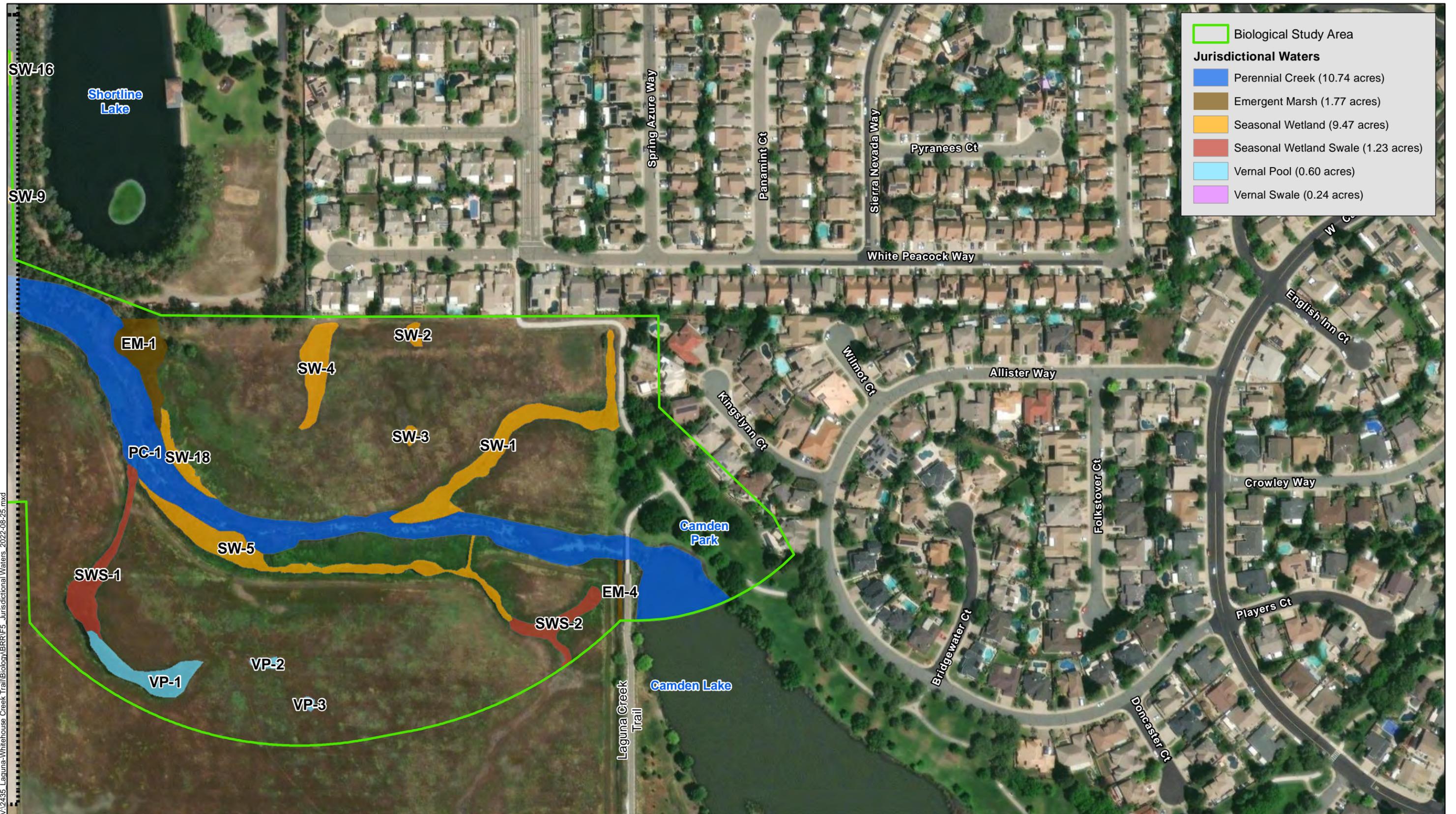


FIGURE 5
Jurisdictional Waters within the BSA
 Page 3 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 8/25/2022; Created By: rramirez

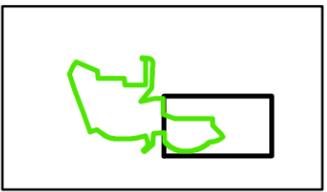
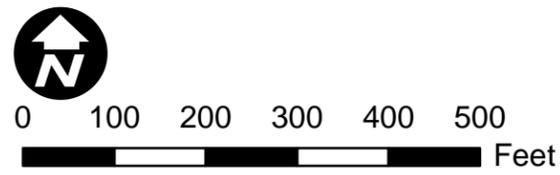
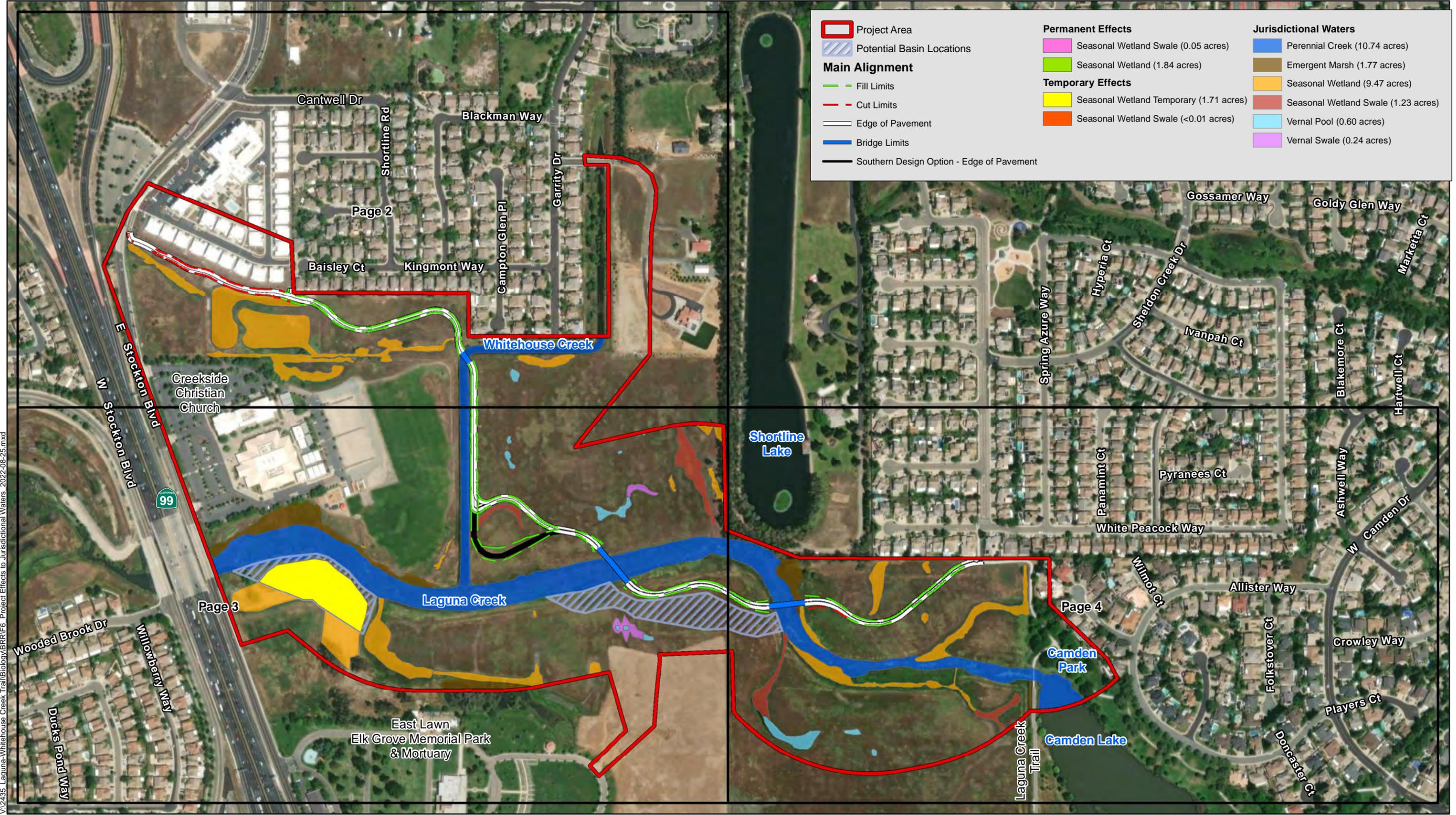


FIGURE 5
Jurisdictional Waters within the BSA
 Page 4 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



Project Area	Permanent Effects	Jurisdictional Waters
Potential Basin Locations	Seasonal Wetland Swale (0.05 acres)	Perennial Creek (10.74 acres)
Main Alignment	Seasonal Wetland (1.84 acres)	Emergent Marsh (1.77 acres)
Fill Limits	Temporary Effects	Seasonal Wetland (9.47 acres)
Cut Limits	Seasonal Wetland Temporary (1.71 acres)	Seasonal Wetland Swale (1.23 acres)
Edge of Pavement	Seasonal Wetland Swale (<0.01 acres)	Vernal Pool (0.60 acres)
Bridge Limits		Vernal Swale (0.24 acres)
Southern Design Option - Edge of Pavement		

V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F6 - Project Effects to Jurisdictional Waters_2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

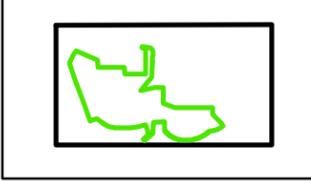
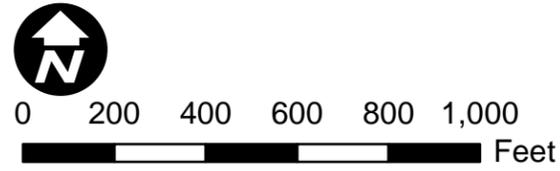


FIGURE 6
Project Effects to Jurisdictional Waters within the BSA
 Page 1 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



Project Area	Permanent Effects	Jurisdictional Waters
Potential Basin Locations	Seasonal Wetland Swale (0.05 acres)	Perennial Creek (10.74 acres)
Main Alignment	Seasonal Wetland (1.84 acres)	Emergent Marsh (1.77 acres)
Fill Limits	Temporary Effects	Seasonal Wetland (9.47 acres)
Cut Limits	Seasonal Wetland Temporary (1.71 acres)	Seasonal Wetland Swale (1.23 acres)
Edge of Pavement	Seasonal Wetland Swale (<0.01 acres)	Vernal Pool (0.60 acres)
Bridge Limits		Vernal Swale (0.24 acres)
Southern Design Option - Edge of Pavement		

V:\2435_Laguna-Whitehouse_Creek_Trail\Biology\BRR\F6 - Project Effects to Jurisdictional Waters_2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

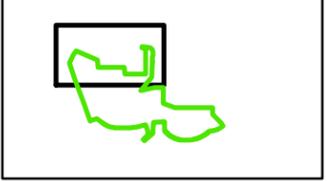
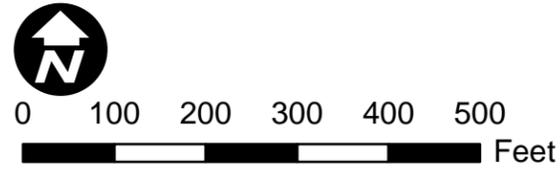
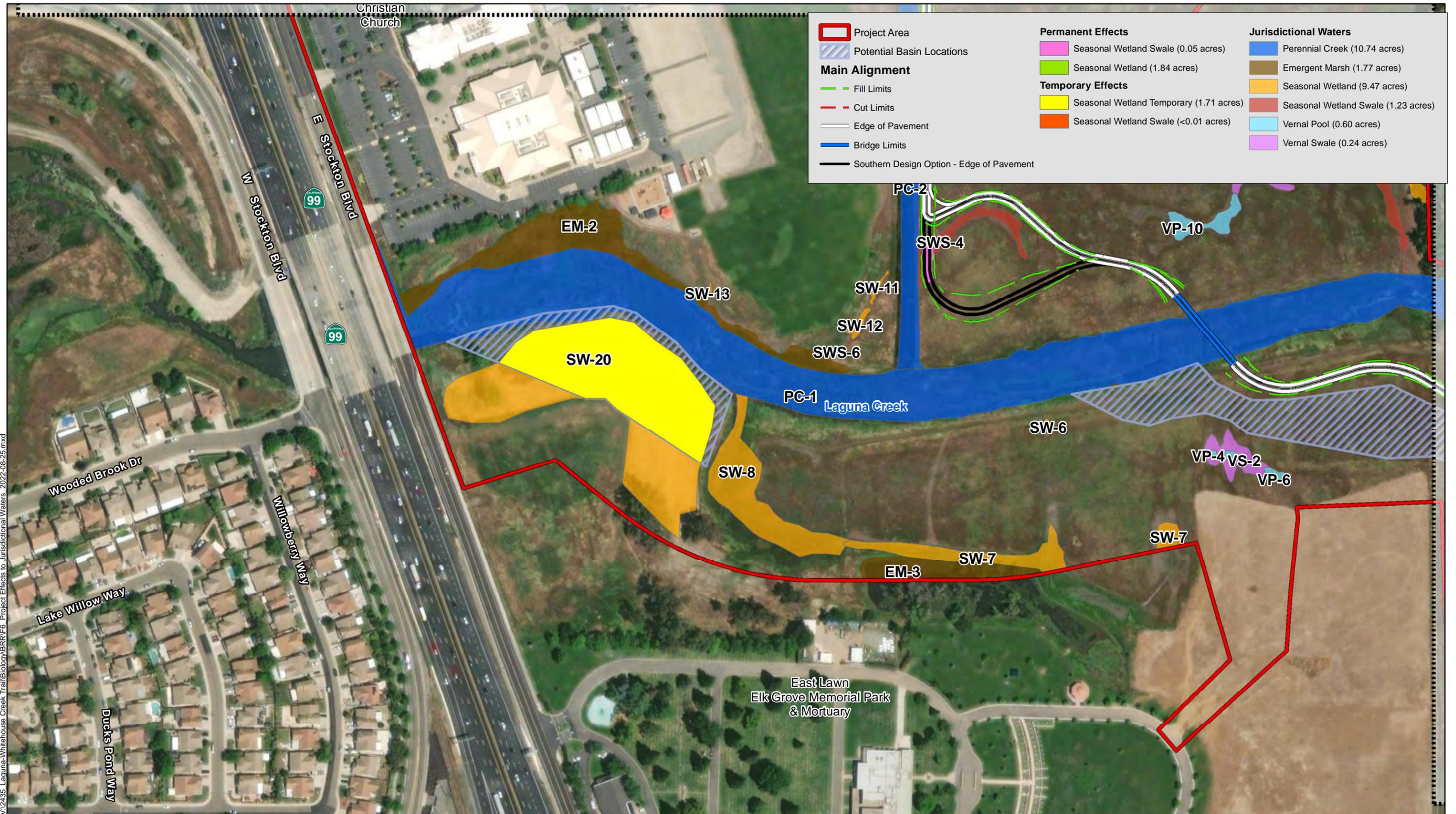


FIGURE 6
Project Effects to Jurisdictional Waters within the BSA
 Page 2 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse_Creek_Trail\Biology\BRR\F6 - Project Effects to Jurisdictional Waters_2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amy

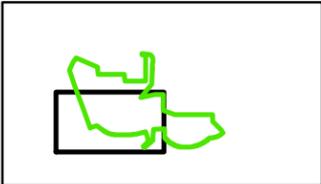
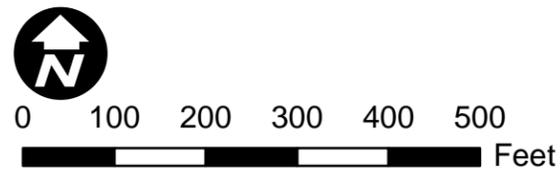
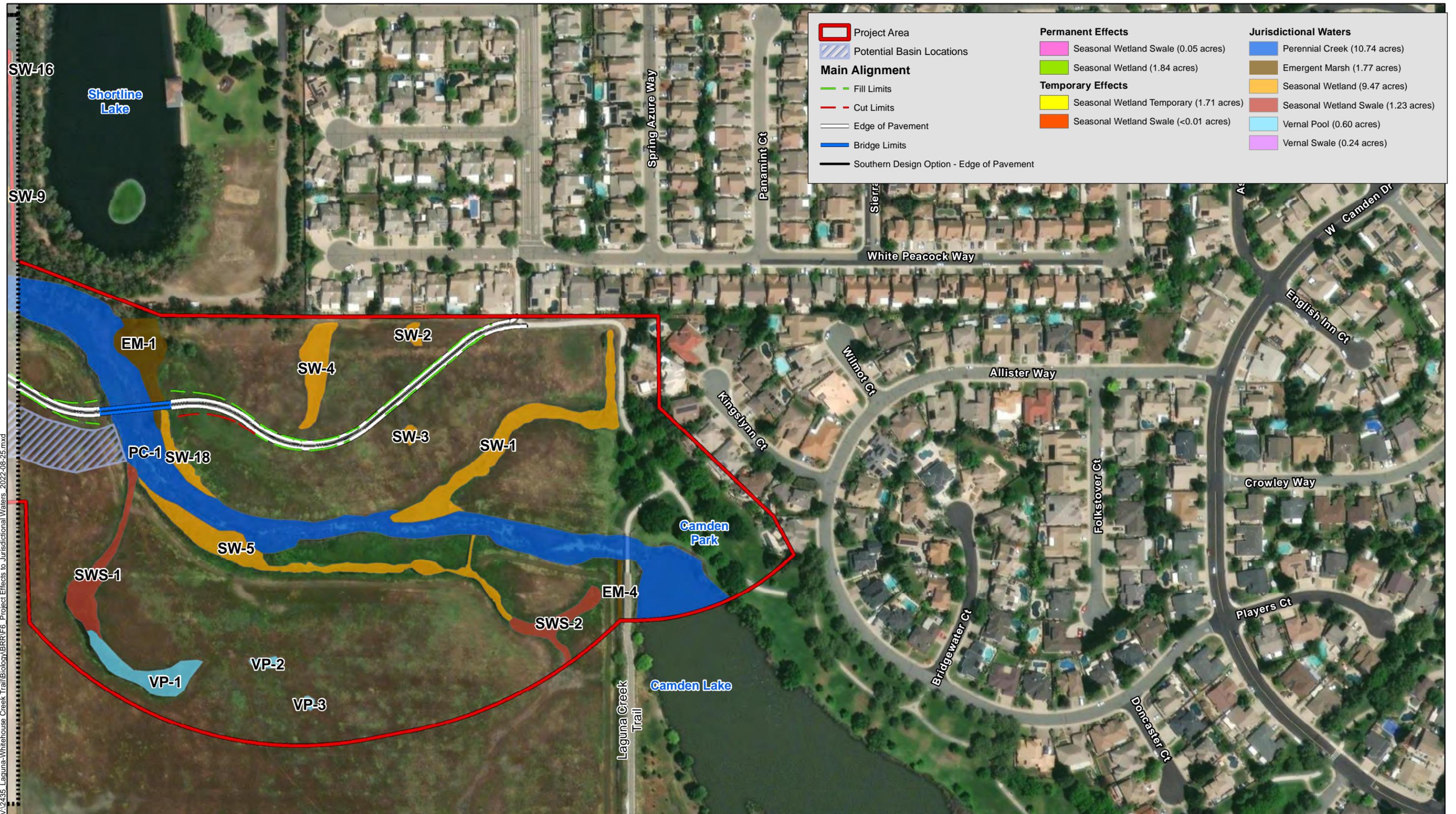


FIGURE 6
Project Effects to Jurisdictional Waters within the BSA
 Page 3 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F6 - Project Effects to Jurisdictional Waters - 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

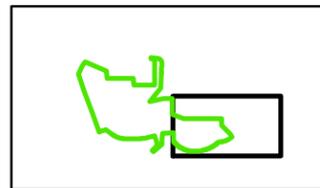
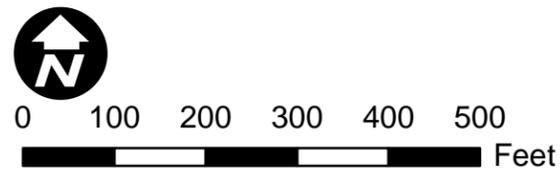


FIGURE 6
Project Effects to Jurisdictional Waters within the BSA
 Page 4 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

Vernal Pools and Swales

Direct Impacts

Due to the delicate hydrology of vernal pools, direct impacts to a portion of a vernal pool permanently modify the hydrology of the entire vernal pool and all direct impacts are treated as permanent impacts. However, the proposed Project has been designed to avoid all permanent impacts to vernal pool habitat. Therefore, no permanent direct impacts to vernal pool habitat are anticipated.

Indirect Impacts

Modifications to the micro-watershed (including vernal swales) surrounding vernal pools indirectly affects their long-term hydrology. Indirect impacts may result from changes in on-site hydrology to vernal pools due to the creation of impervious surfaces on impermeable surfaces. These may alter the amount of water entering vernal pools and potentially degrade vernal pool crustacean habitat. After reviewing vernal pools present within the BSA, it was determined that construction of the proposed Project could cause hydrological or biological modifications that could cause indirect effects of vernal pools in the area of construction of the proposed Project. An indirect effects discussion for potential indirect impacts to vernal pool invertebrates is provided in Section 4.3.5.

Seasonal Wetland

The construction of the proposed Project would result in permanent impacts to seasonal wetlands as shown in **Table 4** and **Figure 6**. Approximately 1.84 acres of permanent impacts would occur to seasonal wetland habitat. Approximately 1.71 acres of temporary impacts would occur in addition to permanent impacts that would be temporarily disturbed to facilitate construction of the Project alignment.

Seasonal wetland habitat may be suitable for vernal pool invertebrates and potential permanent direct and indirect impacts to seasonal wetland habitat may be considered impacts to vernal pool invertebrate species. A discussion of both direct and indirect effects to special status vernal pool invertebrates is provided in Section 4.3.5.

Seasonal Wetland Swale

The construction of the proposed Project would result in approximately 0.05 acres of permanent impacts to seasonal wetland swale habitat. However, a minor amount of temporary impacts, approximately <0.01 acres would have temporary effects, as shown in **Table 4** and **Figure 6**.

Emergent Marsh

The construction of the proposed Project would not result in permanent and temporary impacts to emergent marsh habitat, as shown in **Table 4** and **Figure 6**.

4.1.1.3. AVOIDANCE AND MINIMIZATION EFFORTS FOR WATERS

The Project has been designed to minimize temporary and permanent impacts to jurisdictional waters to the maximum extent practicable. Prior to construction, regulatory permits will be obtained from USACE, CDFW, and RWQCB. In addition to all measures specified in these permits, the following Best Management Practices (BMPs) will be incorporated into the design to minimize construction impacts to jurisdictional waters within the BSA and regional water quality. The Project will comply with the following measures:

BIO-1: Prior to the start of construction activities, the Project limits in proximity to jurisdictional waters shall be marked with high visibility Environmentally Sensitive Area (ESA) fencing or staking to ensure construction will not further encroach into waters. The Project biologist will periodically inspect the ESA to ensure sensitive locations remain undisturbed.

BIO-2: Contract specifications will include the following BMPs, where applicable, to reduce erosion during construction:

- Implementation of the Project shall require approval of a site-specific Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Program (WPCP) that would implement effective measures to protect water quality, which may include a hazardous spill prevention plan and additional erosion prevention techniques;
- Existing vegetation shall be protected in place where feasible to provide an effective form of erosion and sediment control. In locations where this is not feasible, the remaining BMPs listed below shall be implemented;
- Stabilizing materials shall be applied to the soil surface to prevent the movement of dust from exposed soil surfaces on construction sites as a result of wind, traffic, and grading activities;
- Roughening and/or terracing shall be implemented to create unevenness on bare soil through the construction of furrows running across a slope, creation of stair steps, or by utilization of construction equipment to track the soil surface. Surface roughening or terracing reduces erosion potential by decreasing runoff velocities, trapping sediment, and increasing infiltration of water into the soil, and aiding in the establishment of vegetative cover from seed.
- Soil exposure shall be minimized through the use of temporary BMPs, groundcover, and stabilization measures;
- The contractor shall conduct periodic maintenance of erosion- and sediment-control measures.

BIO-3: To conform to water quality requirements, the Project must implement the following:

- Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants shall be a minimum of 100 feet from surface waters. Any necessary equipment washing shall occur where the water cannot flow into surface waters. The Project specifications shall require the contractor to operate under an approved spill prevention and clean-up plan;
- Construction equipment shall not be operated in flowing water;
- Construction work shall be conducted according to site-specific construction plans that minimize the potential for sediment input to waters of the U.S. and State;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life shall be prevented from contaminating the soil or entering surface waters;
- Equipment used in and around surface waters shall be in good working order and free of dripping or leaking contaminants; and,
- Any surplus concrete rubble, asphalt, or other debris from construction shall be taken to an approved disposal site.

BIO-4: All temporarily disturbed areas shall be restored onsite to pre-Project conditions or better prior to Project completion. Where possible, vegetation shall be trimmed rather than fully removed with the guidance of the Project biologist.

4.1.1.4. COMPENSATORY MITIGATION FOR JURISDICTIONAL WATERS

The proposed Project will have permanent impacts to waters of the U.S., state, and CDFW waters. Compensatory mitigation for permanent and temporary impacts to waters of the U.S. and State will be determined through waters permitting in coordination through Section 404, Section 401, and Section 1602. Consultation efforts with RWQCB, USACE, and CDFW will occur through this process and final mitigation ratios for impacts to waters of the U.S. and State will be determined.

4.1.1.5. CUMULATIVE IMPACTS TO JURISDICTIONAL WATERS

The proposed Project would create new permanent modifications to already heavily modified water feature Whitehouse Creek; which has already been realigned to accommodate residential development and is regularly maintained to preserve water carrying capacity. When viewed within the historical context of realignment and constant disturbance, the Project will result in a comparatively minor impact to this feature. This impact will contribute to the long-term anthropomorphic modification of Whitehouse Creek; but, with the inclusion of compensatory mitigation for Project impacts to jurisdictional waters, no cumulative impacts to jurisdictional waters are anticipated.

The proposed Project would also contribute to minor permanent and temporary alterations to Laguna Creek. The abutments for the new bridges will be constructed outside of the OHWM and bridges have been designed to clear span Laguna Creek. Construction of this new bridges will not contribute to long term cumulative loss of jurisdictional waters, and with the inclusion of compensatory mitigation for Project impacts to jurisdictional waters, no cumulative impacts to jurisdictional waters are anticipated.

The proposed Project would also permanently and temporarily modify seasonal wetlands, and emergent marsh by constructing the Project. However, with the inclusion of compensatory mitigation for Project impacts jurisdictional waters, no cumulative impacts to jurisdictional seasonal wetlands, and emergent marsh habitat is anticipated.

4.2. Special Status Plant Species

Preliminary literature research was conducted to determine the special status plant species with the potential to occur in the vicinity of the Project. A review of CNDDDB, CNPS and online databases concluded that 23 special status plant species had the potential to occur within the BSA. Based on preliminary research, aerial reconnaissance, and field surveys of habitat conditions within the BSA, it was determined that 5 special status plant species had a low to high potential to occur within the BSA: Boggs Lake hedge-hyssop (*Gratiola heterospeala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), Sanford's arrowhead (*Sagittaria sanfordii*), and woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*). Rare plant surveys were conducted April 24, 2018, April 25, 2018 and April 26, 2018 by Dokken biologists Andrew Dellas and Courtney Owens, as well as June 21, 2018 by Dokken Engineering biologist Andrew Dellas and Scott Salembier. Rare plant surveys included habitat assessments, and focused surveys for special status plant species. No special status plant species were identified during the survey efforts. A Botanical Survey Report has been prepared for the Project (Dokken Engineering 2019, Appendix F).

4.2.1. Discussion of Sensitive Plant Species

Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Boggs Lake hedge-hyssop is an annual herb inhabiting clay soils and shallow waters of marshes and swamps, lake margins, and vernal pools. The species flowers from April-August at elevations ranging from 33-7,792 feet.

Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not a state or federal listed species, but is a CNPS rare plant rank 2B.2. Dwarf downingia is an annual herb inhabiting vernal pools and mesic valley and foothill grassland communities. The species flowers from March-May at elevations ranging from 3-1,460 feet.

Legenere

Legenere (*Legenere limosa*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.1. Legenere is an annual herb inhabiting wet areas, vernal pools, and ponds. The species flowers from May-June at elevations ranging from 0-2,887 feet.

Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Sanford's arrowhead is a perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds and ditches. The species flowers from May-October at elevations ranging from 0-2,132 feet.

Wooly Rose-Mallow

Wooly rose-mallow (*Hibiscus lasiocarpus var. occidentalis*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Wooly rose-mallow is a perennial rhizomatous herb inhabiting freshwater wetlands, wet banks, and marsh communities, and is often found in-between riprap on levees. The species flowers from June-September at elevations ranging from 0-394 feet.

4.2.1.1. SPECIAL STATUS PLANT SURVEY RESULT

Boggs Lake hedge-hyssop

The BSA does contain potentially suitable shallow water and vernal pool habitat. The nearest presumed extant occurrence is approximately 3 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrence the species has a low to moderate potential to occur within the BSA. However, during the April and June focused rare plant surveys, no specimens of the species were identified within the BSA.

Dwarf Downingia

The BSA does contain potentially suitable vernal pool habitat. The nearest presumed extant occurrence is approximately 2 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrences the species has a low to moderate potential to occur within the BSA. However, during the April and June focused rare plant surveys, no specimens of the species were identified within the BSA.

Legenere

The BSA does contain potentially suitable wet areas and vernal pool habitat. The nearest presumed extant occurrence is approximately 1.5 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the presumed extant occurrences the species has a low to moderate

potential to occur within the BSA. However, during the April and June focused rare plant surveys, no specimens of the species were identified within the BSA.

Sanford's arrowhead

The BSA does contain potentially suitable freshwater marsh and creek channels. The nearest presumed extant occurrence of the species is approximately 1 mile from the BSA. Due to the presence of potentially suitable habitat and the proximity to CNDDDB presumed extant occurrences, the species is considered to have a high potential to occur within the BSA. However, during the April and June focused rare plant surveys, no specimens of the species were identified within the BSA.

Woolly rose-mallow

The BSA does contain potentially suitable freshwater wetlands and marsh communities. The nearest presumed extant occurrence is within approximately 5 miles of the BSA. Due to the presence of potentially suitable habitat and the distance to extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA. However, during the April and June focused rare plant surveys, no specimens of the species were identified within the BSA.

4.2.1.2. PROJECT IMPACTS TO SPECIAL STATUS PLANTS

Boggs Lake hedge-hyssop

Boggs lake hedge-hyssop is restricted to shallow wetland and vernal pool habitat. No vernal pool habitat will be directly impacted by the Project; however, approximately 1.84 acres of seasonal wetland habitat would be permanently impacted and approximately 1.71 acres of seasonal wetland habitat would be temporarily impacted by the proposed Project. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Natural Communities* (CDFW 2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in measure **BIO-5**. With the inclusion of measure **BIO-5** below, no direct impacts to the species are anticipated.

Dwarf downingia

The BSA does contain potentially suitable vernal pool habitat. No vernal pool habitat will be directly impacted by the Project; however, approximately 1.84 acres of seasonal wetland habitat would be permanently impacted and approximately 1.71 acres of seasonal wetland habitat would be temporarily impacted by the proposed Project. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Natural Communities* (CDFW 2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in measure **BIO-5**. With the inclusion of measure **BIO-5** below, no direct impacts to the species are anticipated.

Legenere

The BSA does contain potentially suitable wet areas and vernal pool habitat. No vernal pool habitat will be directly impacted by the Project; however, approximately 1.84 acres of seasonal wetland habitat would be permanently impacted and approximately 1.71 acres of seasonal wetland habitat would be temporarily impacted by the proposed Project. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Natural Communities* (CDFW 2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in measure **BIO-5**. With the inclusion of measure **BIO-5** below, no direct impacts to the species are anticipated.

Sanford's arrowhead

The BSA does contain potentially suitable freshwater marsh and creek channels. The project would not impact potentially suitable creek channel habitat or potentially suitable freshwater emergent marsh habitat. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Natural Communities* (CDFW 2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in measure **BIO-5**. With the inclusion of measure **BIO-5** below, no direct impacts to the species are anticipated.

Woolly rose-mallow

The BSA does contain potentially suitable freshwater wetlands and marsh communities. The project would permanently impact approximately 1.84 acres and temporarily impact approximately 1.71 acres of potentially suitable seasonal wetland habitat. The project would not impact potentially suitable freshwater emergent marsh habitat. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Natural Communities* (CDFW 2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in measure **BIO-5**. With the inclusion of measure **BIO-5** below, no direct impacts to the species are anticipated.

4.2.2. Avoidance and Minimization Efforts for Special Status Plant Species

BIO-5: A focused rare plant survey shall be conducted during the blooming season of each special status plant species with potential to occur within the Project area prior to the start of construction (Boggs Lake hedge-hyssop, dwarf downingia, legenere, Sanford's arrowhead, and woolly rose-mallow). If rare plants are discovered during these surveys, additional ESA fencing or relocation shall be implemented to avoid and minimize impact to the species. The City will consult with CDFW may be required to determine appropriate buffer distances and/or relocation of species populations.

4.2.3. Compensatory Mitigation for Special Status Plant Species

With the inclusion of measure **BIO-5**, no direct impacts to the special status plant species are anticipated. No compensatory mitigation is proposed at this time. If any special status plant species are discovered within the BSA during the implementation of **BIO-5**, additional compensatory mitigation may be required.

4.2.4. Cumulative Impacts to Special Status Plant Species

With the incorporation of avoidance and minimization measures for special status plant species, and compensatory mitigation for the loss of potentially suitable wetland habitat, no impacts to special status species are anticipated; therefore, no cumulative impacts to special status plant species are anticipated.

4.3. Special Status Wildlife Species

Preliminary literature research was conducted to determine the special status wildlife species with the potential to occur in the vicinity of the Project. A review of CNDDDB, USFWS, and NOAA Fisheries online databases concluded that 28 special status wildlife species had the potential to occur within the Project vicinity. Analysis of specific habitat requirements and current and historical occurrences determined the BSA was potentially suitable for following species:

- Swainson's hawk (*Buteo swainsoni*),
- white-tailed kite (*Elanus leucurus*),
- burrowing owl (*Athena cunicularia*),
- song sparrow "Modesto population" (*Melospiza melodia*),
- tricolored blackbird (*Agelaius tricolor*),
- yellow-headed blackbird (*Xanthocephalus xanthocephalus*),
- vernal pool fairy shrimp (*Branchinecta lynchi*),
- vernal pool tadpole shrimp (*Lepidurus packardii*),
- giant garter snake (*Thamnophis gigas*),
- western pond turtle (*Emys marmorata*), and
- western spadefoot (*Spea hammondi*).

Field surveys conducted April 4, 2018 and April 24 – April 26, 2018 by Dokken Engineering biologist Andrew Dellas, Scott Salembier, and Courtney Owens, included a habitat assessment, and focused surveys for special status wildlife species. Swainson's hawk, white-tailed kite, and western pond turtle were observed during the field surveys and are considered present within the BSA. No other special status species were observed during the field surveys, but they are still considered to have potential of occurring within the BSA based on presence of potentially suitable habitat and recently documented regional occurrences, as detailed in Table 3 above.

4.3.1. Discussion of Swainson's Hawk

Swainson's hawk is state-listed as threatened. Swainson's hawk migrates annually from wintering areas in South America to breeding locations in northwestern Canada, the western U.S., and Mexico. In California, Swainson's hawks nest throughout the Sacramento Valley in large trees in riparian habitats and in isolated trees in or adjacent to agricultural fields. The breeding season extends from late March through late August, with peak activity from late May through July (England et al. 1997). In the Sacramento Valley, Swainson's hawks forage in large, open agricultural habitats, including alfalfa and hay fields (CDFW 1994). The breeding population in California has declined by an estimated 91% since 1900; this decline is attributed to the loss of riparian nesting habitats and the conversion of native grassland and woodland habitats to agriculture and urban development (CDFW 1994).

4.3.1.1. SWAINSON'S HAWK SURVEY RESULTS

The BSA does have potential suitable foraging and nesting habitat for the species. The species was observed foraging within the BSA during the April 4, 2018 biological survey. Due to the presence of suitable foraging and nesting habitat, and the observance of the species during the biological survey, the species is considered present within the BSA.

4.3.1.2. PROJECT IMPACTS TO SWAINSON'S HAWK

The Project will permanently remove approximately 6.2 acres of Swainson's hawk valley grassland foraging habitat. However, no trees with current or historic nesting Swainson's hawk sites were

observed during the surveys and the only large diameter trees within the BSA would not be impacted by the Project. Further, the Project's proposed pre-construction nesting surveys would ensure no Swainson's hawk nesting trees would be removed during construction; therefore, no impacts to nesting Swainson's hawk are anticipated. With the implementation of Project minimization and avoidance measures, use of Standard BMPs, proposed compensatory mitigation for Swainson's hawk valley grassland foraging habitat, the Project will not result in take of Swainson's hawk. With the avoidance of take, the Project does not anticipate that a CDFW Section 2081 Incidental Take Permit (ITP) for Swainson's hawk will be necessary.

4.3.1.3. SWAINSON'S HAWK AVOIDANCE AND MINIMIZATION EFFORTS

The following protective measure has been incorporated to minimize and avoid impacts to Swainson's hawk:

BIO-6: Should work occur within the Swainson's hawk nesting season (February 1st-August 31st), the Project biologist must conduct a pre-construction nesting survey consistent with survey methods recommended by the Swainson's Hawk Technical Advisory Committee within ¼ mile of the Project and two weeks prior to construction clearing and grubbing activities. Should a nesting Swainson's hawk pair be found within ¼ mile of the Project, the Project biologist will consult with the wildlife agencies for appropriate buffers. The contractor shall not work within the 1/2 mile nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in consultation with wildlife agencies) in the buffer area until the Project biologist determines the young have fledged.

4.3.1.4. COMPENSATORY MITIGATION FOR SWAINSON'S HAWK

The following compensatory mitigation measure has been incorporated to compensate for impacts to Swainson's hawk foraging habitat:

BIO-7: Valley grasslands in the Project area are considered Swainson's hawk foraging habitat and are protected under Chapter 16.130 of the City Municipal Code, Swainson's Hawk Impact Mitigation Fees. The City shall mitigate for the permanent loss of Swainson's hawk foraging habitat at a 1:1 ratio. Mitigation can be accomplished through participation in the City of Elk Grove Swainson's Hawk Impact Mitigation Fees Ordinance, other method acceptable to the California Department of Fish and Wildlife, or other method acceptable to the Elk Grove City Council pursuant to Section 16.130.110.

4.3.1.5. CUMULATIVE IMPACTS TO SWAINSON'S HAWK BLACKBIRD

With the implementation of avoidance, minimization, and mitigation measures **BIO-6** and **BIO-7**, the Project will avoid potential effects to Swainson's hawk. No cumulative impacts to the species are anticipated.

4.3.2. Discussion of White-tailed Kite

White-tailed kite is a fully protected species under CFG Code Section 3511. The species has a restricted distribution in the U.S., occurring only in California and western Oregon and along the Texas coast (American Ornithologists' Union 1983). The species is fairly common in California's Central Valley margins with scattered oaks and river bottomlands. White-tailed kites nest in riparian and oak woodlands and forage in nearby grasslands, pastures, agricultural fields, and wetlands. They use nearby treetops for perching and nesting sites. Voles and mice are common prey species.

4.3.2.1. WHITE-TAILED KITE SURVEY RESULTS

The BSA does have potential suitable foraging and nesting habitat for the species. The species was observed foraging within the BSA during the April 4, 2018 biological survey. Due to the presence of suitable foraging and nesting habitat, and the observance of the species during the biological survey, the species is considered present within the BSA.

4.3.2.2. PROJECT IMPACTS TO WHITE-TAILED KITE

The Project will permanently remove approximately 6.2 acres of white-tailed kite valley grassland foraging habitat. However, no trees with current or historic nesting white-tailed kite nesting sites were observed during the surveys and the only potentially suitable nesting trees within the BSA would not be impacted by the Project. Further, the Project's proposed pre-construction nesting surveys (**BIO-8**) would ensure no white-tailed kite nesting trees would be removed during construction; therefore, no impacts to white-tailed kite are anticipated. With the implementation of Project minimization and avoidance measure **BIO-8**, use of Standard BMPs, and proposed compensatory mitigation for Swainson's hawk valley grassland foraging habitat, the Project will not result in direct impacts to white-tailed kite.

4.3.2.3. WHITE-TAILED KITE AVOIDANCE AND MINIMIZATION EFFORTS

In addition to the Swainson's hawk nesting survey listed above, the following preconstruction nesting bird survey measure will be incorporated to minimize and avoid impacts to white-tailed kite and other songbirds.

BIO-8: Vegetation removal or earthwork shall be minimized during the nesting season (February 1st – August 31st). If vegetation removal is required during the nesting season (February 1st – August 31st), a pre-construction nesting bird survey must be conducted within 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist shall be removed by the contractor.

A minimum 100 foot no-disturbance buffer shall be established around any active nest of migratory birds and a minimum 300 foot no-disturbance buffer shall be established around any nesting raptor species. The contractor must immediately stop work in the buffer area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in consultation with wildlife agencies) in the buffer area until a qualified biologist determines the young have fledged. A reduced buffer can be established if determined appropriate by the Project biologist and approved by CDFW.

4.3.2.4. COMPENSATORY MITIGATION FOR WHITE-TAILED KITE

With the implementation of the nesting bird survey avoidance and minimization measure **BIO-8**, direct impacts to white-tailed kite are not anticipated. White-tailed kite and Swainson's hawk share foraging habitats and it is anticipated that mitigation for Swainson's hawk valley grassland foraging habitat, as stated in mitigation measure **BIO-7**, will mitigate for the loss of white-tailed kite habitat. Compensatory mitigation specific to this species is not required or proposed at this time.

4.3.2.5. CUMULATIVE IMPACTS TO WHITE-TAILED KITE

With the implementation of avoidance, minimization and mitigation measures, the Project will avoid potential effects to white-tailed kite. No cumulative impacts to the species are anticipated.

4.3.3. Discussion of Burrowing Owl

The burrowing owl is not a state or federally listed species but is a CDFW Species of Special Concern. The burrowing owl inhabits arid, open areas with sparse vegetation cover such as deserts, abandoned agricultural areas, grasslands, and disturbed open habitats. The species requires friable soils for burrow construction and prefers areas on bare, well drained, level to sloping sites. Typically, the species occupies old small mammal burrows, but has been known to utilize pipes, culverts and nest boxes when preferred burrows are absent. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Breeding season takes place from February 1 to August 31 and wintering takes place from September 1 to January 31 and breeds from March to August (CDFW 2012). The burrowing owl is a year-round species of California and occurs throughout the state up to 5,300 feet where appropriate habitat occurs (Zeiner 1988-1990, CNDDDB 2020).

4.3.3.1. BURROWING OWL SURVEY RESULTS

The BSA does contain potential suitable habitat for the species, and mammal burrows were observed during the April 4, 2018 biological surveys; however, no burrowing owl were observed within the BSA. The nearest recent occurrence is approximately 0.5 mile from the BSA. The species is considered to have a high potential of occurring within the BSA due to the presence of suitable habitat and close proximity to recent occurrences.

4.3.3.2. PROJECT IMPACTS TO BURROWING OWL

The Project will permanently remove approximately 6.2 acres of potentially suitable burrowing owl valley grassland foraging and nesting habitat. However, no current or historic burrowing owl nesting sites were observed during the surveys and the only potentially suitable mammal burrows were identified. With the implementation of the **BIO-9** below, use of Standard BMPs, and proposed compensatory mitigation for Swainson's hawk valley grassland foraging habitat, the Project does not anticipate direct impacts to burrowing owl.

4.3.3.3. BURROWING OWL AVOIDANCE AND MINIMIZATION EFFORTS

The following protective measures have been incorporated to minimize and avoid impacts to burrowing owl:

BIO-9: The Project biologist must conduct preconstruction surveys consistent with the 2012 CDFW Staff Report on Burrowing Owl Mitigation. If no burrowing owls are detected, no further action for burrowing owl shall be required. If burrowing owls are observed during the preconstruction surveys, consultation with CDFW shall be required to determine appropriate no-work buffer distances, avoidance strategies and/or mitigation for impacted nest sites.

4.3.3.4. COMPENSATORY MITIGATION FOR BURROWING OWL

With the implementation of species-specific avoidance and minimization measure **BIO-8**, direct impacts to burrowing owls are not anticipated. Burrowing owl and Swainson's hawk share foraging habitats and it is anticipated that mitigation for Swainson's hawk valley grassland foraging habitat, as stated in mitigation measures **BIO-7**, will mitigate for the loss of burrowing owl foraging and nesting habitat. If burrowing owls are observed during the preconstruction surveys, coordination and potential compensatory mitigation will be determined through coordination with CDFW. Compensatory mitigation specific to this species is not required or proposed at this time.

4.3.3.5. CUMULATIVE IMPACTS TO BURROWING OWL

With the implementation of species-specific avoidance and minimization measures, the Project will avoid potential effects to burrowing owl. No cumulative impacts to the species are anticipated.

4.3.4. Discussion of Emergent Wetland Nesting Songbirds

Song sparrow (“Modesto” population)

The song sparrow is not a state of federally listed species but is a CDFW Species of Special Concern. The ecological requirements of the species are largely undescribed, but the species is known to have an affinity for emergent freshwater marshes dominated by tules and cattails (Grinnell and Miller 1944). Marshall (1948) described the primary habitat requirements of several subspecies of Song Sparrow in California as being moderately dense vegetation to supply cover for nest sites, a source of standing or running water, semi-open canopies to allow light, and exposed ground or leaf litter for foraging. Habitat loss, fragmentation, and degradation are the primary threats to the species. Nesting season for the species usually begins in April, and most nesters in California are nonmigratory, with other migrants coming from the north (Shuford and Gardali 2008).

Tricolored blackbird

The tricolored blackbird is not a federally listed species but is listed as a CESA threatened species. This species typically nests in freshwater marsh or other areas with dense, emergent vegetation such as dense cattails or tules, thickets of blackberry and willow. However, when preferred nesting is not available the species has been known to nest in grain (triticale), fiddleneck, thistles etc. (University of California Davis 2015, Meese 2008). Most tricolored blackbirds forage within 3 miles of their colony sites and require some source of water in proximity to their colony location. Preferred foraging habitats include crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields, as well as annual grasslands, cattle feedlots, and dairies. The species may also forage in remnant native habitats, including wet and dry vernal pools and other seasonal wetlands, riparian scrub habitats, and open marsh borders (Shuford and Gardali 2008).

Yellow-headed blackbird

The yellow-headed blackbird is not a federal or state listed species but is a CDFW Species of Special Concern. Yellow-headed blackbird tend to nest and roost in dense emergent vegetation, feeding primarily on seeds and cultivated grains, while eating insects through the breeding season. Nesting occurs in dense wetlands of cattails and tules and timed to coincide with maximum emergence of aquatic insects. Breeding season typically lasts from mid-April to late July. The species occurs throughout the Central Valley during breeding season and migrates south during the winter months.

4.3.4.1. EMERGENT WETLAND NESTING SONGBIRD SURVEY RESULTS

Song sparrow (“Modesto” population)

Song sparrow “Modesto” population was not observed during the biological surveys; however, the BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas within and adjacent to Laguna Creek. These habitats are moderately dense and are dominated by tules and cattails, which the species is known to inhabit for nesting and foraging. The nearest recent occurrence is approximately 5 miles from the BSA within the Stone Lakes National Wildlife Refuge. Due to the presence of potentially suitable nesting and foraging habitat and the proximity to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Tricolored Blackbird

Tricolored blackbird was not observed during the biological surveys; however, The BSA does contain potentially suitable nesting and foraging habitat; however, the species was not observed during the April 4, 2018 biological surveys. There are 6 presumed extant occurrences of the species within 5 miles of the BSA. Due to the presence of suitable nesting and foraging habitat and the number of local extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Yellow-headed blackbird

Yellow-headed blackbird was not observed during the biological surveys; however, The BSA does contain potentially suitable nesting and foraging habitat; however, the BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas within and adjacent to Laguna Creek. These habitats are moderately dense and are dominated by tules and cattails, which the species is known to inhabit for nesting and foraging. The nearest recent occurrence is approximately 6 miles from the BSA within the Stone Lakes National Wildlife Refuge. Due to the presence of potentially suitable nesting and foraging habitat and the proximity to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

4.3.4.2. PROJECT IMPACTS TO EMERGENT WETLAND NESTING SONGBIRDS

The proposed Project would construct a multi-functional access road and new bridges along the Project alignment. The Project would not impact potentially suitable freshwater emergent marsh habitat. Additionally, the Project is anticipated to permanently impact approximately 1.84 acres and temporarily impact 1.71 acres of seasonal wetland. These areas are potentially suitable foraging and nesting habitat for the song sparrow “Modesto” population, tricolored blackbird and yellow-headed blackbird. With the implementation of Project minimization and avoidance measures, use of Standard BMPs, proposed compensatory mitigation for impacts to jurisdictional waters, the Project will not result in take of listed or non-listed special status emergent wetland nesting songbirds. With the avoidance of take, the Project does not anticipate that a CDFW Section 2081 ITP for listed or non-listed emergent wetland nesting songbirds will be necessary.

4.3.4.3. EMERGENT WETLAND NESTING SONGBIRDS AVOIDANCE AND MINIMIZATION EFFORTS

Avoidance and minimization measures **BIO-1** through **BIO-3** would avoid and minimize for impacts to wetland foraging/nesting habitat, and **BIO-8** would avoid any direct impact to individuals or nests of the species.

4.3.4.4. COMPENSATORY MITIGATION FOR EMERGENT WETLAND NESTING SONGBIRDS

With the implementation of site-specific avoidance and minimization measure **BIO-1** through **BIO-3**, and **BIO-8**, direct impacts to emergent wetland nesting songbirds is not anticipated. Emergent wetland nesting songbirds and GGS share many habitats and it is anticipated that mitigation for jurisdictional waters and GGS will compensate for the loss of emergent wetland nesting songbird’s habitat. Compensatory mitigation specific to these species is not proposed at this time.

4.3.4.5. CUMULATIVE IMPACTS TO EMERGENT WETLAND NESTING SONGBIRDS

With the implementation of site-specific avoidance and minimization measures, as well as compensatory mitigation for jurisdictional waters and GGS habitat, the Project will avoid and reduce potential effects to emergent wetland nesting songbirds. No cumulative impacts to the species are anticipated.

4.3.5. Discussion of Vernal Pool Crustaceans

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a federal-listed threatened species. The vernal pool fairy shrimp is a federally threatened species. This species occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, and alkaline grassland valley floor pools. In California, species inhabits portions of Tehama county, south through the Central Valley, and scattered locations in Riverside County and the Coast Ranges. Species is associated with smaller and shallower cool-water vernal pools approximately 6 inches deep and short periods of inundation. In the southernmost extremes of the range, the species occurs in large, deep cool-water pools. Inhabited pools have low to moderate levels of alkalinity and total dissolved solids. The shrimp

are temperature sensitive, requiring pools below 50 F to hatch and dying within pools reaching 75 F. Young emerge during cold-weather winter storms.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp (*Lepidurus packardii*) is a federal-listed endangered species. This species inhabits a variety of vernal pools or other seasonally ponded habitats and emerges soon after these habitats become inundated, typically after the first several storm events of the fall/winter season. The shrimp feeds on microscopic organisms and detritus, reaches maturity, and lays eggs for the next wet season. Vernal pool tadpole shrimp are found in the Central Valley from Shasta County to northern Tulare County, and in the central Coast Range from Solano County to Alameda County (USFWS 2005).

4.3.5.1. VERNAL POOL CRUSTACEANS SURVEY RESULTS

Although no crustaceans were identified during the biological surveys, the species does have the potential to occur within the BSA. There are approximately 0.59 acres of vernal pools, 0.24 acres of vernal swales, and 9.47 acres of seasonal wetland within the BSA. Vernal pool crustaceans have the potential to occur within these habitat types; however, a number of seasonal wetlands within the BSA have been determined unsuitable for the species, due to water quality degradation and flowing water regime that would exclude the species from these habitats.

Unsuitable Habitats

Seasonal wetlands and seasonal wetland swales at the northwestern terminus of the BSA (SW-19, SW-15, SW-14, and SWS-5) are noted as detention basins, used as catchments of nuisance irrigation waters and stormwater retention areas for the housing and assisted living developments to the north, and Creekside Christian Church to the south. These areas are highly modified un-natural areas and deliver deleterious chemicals (pesticides, herbicides, and residues) in nuisance irrigation and stormwater runoff into these aquatic resources. Petroleum products, pesticides, herbicides, and other chemicals can be conveyed into the habitats by overland runoff during the rainy season, thereby adversely affecting water quality and altering the water chemistry (e.g., pH), which may make conditions unsuitable for vernal pool crustaceans (USFWS 2007a [Johnson 2005; C. Johnson 2007; Weston et al., 2005; Weston et al. 2006]). Additionally, years of contamination can also lead to highly toxic levels in sediments in addition to annual degradation of water quality (USFWS 2007b [Weston et al. 2004; Amweg et al. 2005]). Furthermore, as stormwater detention areas, these aquatic resources have un-suitable deep waters (approximately 1.5 to 3-feet deep) and inundation periods are longer, increasing temperatures unsuitable to hatching and persistence of the species (USFWS 2007). Therefore, these seasonal wetland features are considered unsuitable habitats for vernal pool crustaceans, and the species are presumed absent from these features.

In addition, SW-11, SW-12, SW-13, SWS-6, and SWS-4 have water regime fluctuations and flow patterns to and from Laguna Creek and Whitehouse Creek, and therefore, would not provide suitable inundation periods for either vernal pool crustacean species, as well as the potential for increased predation and increased temperatures from perennial creek waters. Therefore, these seasonal wetland features are also considered unsuitable habitats for vernal pool crustaceans, and the species are presumed absent from these features.

Vernal Pool Fairy Shrimp

The BSA does contain potentially suitable vernal pool and seasonal wetland habitat for the species. The nearest presumed extant occurrence of the species is approximately 4 miles from the BSA. A protocol level survey (ECORP 2007) was conducted for the East Lawn Expansion Project and found no federally listed crustaceans to occur in any of the pools within the East Lawn properties within the BSA. Additionally, two Section 7 consultation efforts have occurred within the Project area: Laguna

Creek Trail – Camden Spur North and South, 2015 (a Biological Opinion issued in 2015 by USFWS on the directly adjacent Laguna Creek Trail – Camden Spur North and South Project (Consultation Code: 08ESMF00-2015-F-0302-1); and East Lawn Expansion Project, 2012 (Consultation Code: 08ESMF00-2012-I-0451-1). Both of these consultation efforts concurred that actions within the Project area may affect, but are not likely to adversely affect fairy shrimp or tadpole shrimp. Due to the presence of potentially suitable habitat and the distance to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Vernal Pool Tadpole Shrimp

The BSA does contain potentially suitable vernal pool and seasonal wetland habitat for the species. The nearest presumed extant occurrence of the species is approximately 4 miles from the BSA. A protocol level survey (ECORP 2007) was conducted for the East Lawn Expansion Project and found no federally listed crustaceans were found to occur in any of the pools within the BSA. However, two Letters of Concurrence issued from USFWS on projects directly adjacent (Laguna Creek Trail – Camden Spur North and South, 2015; and East Lawn Expansion Project, 2012), concurred that even though the no federally-listed crustaceans were found, the Project may affect, but is not likely to adversely affect fairy shrimp or tadpole shrimp. Due to the presence of potentially suitable habitat and the distance to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

4.3.5.2. PROJECT IMPACTS TO VERNAL POOL CRUSTACEANS

The vernal pool fairy shrimp and vernal pool tadpole shrimp have been grouped together for the purpose of this impact analysis.

The proposed Project has been designed to avoid all permanent and temporary effects to suitable vernal pool crustacean habitat. However, changes to hydrology due to the increase in impervious surfaces may have indirect impacts to hydrology or biological quality in the suitable habitats. In order to minimize changes to hydrology within the Project area, the Project has been designed with water catchment ditches at the bottom of the berms of the multi-functional corridor. These catchment ditches would minimize and avoid changes of increased runoff reaching adjacent suitable habitats and reduce the potential for changes in hydrology or degradation of water quality.

Though hydrology and water quality of suitable habitats are not anticipated to change due to the proposed Project, grading and other soil disturbance in uplands adjacent to these habitats could result in increased sedimentation from dust movement and/or introduction of invasive plant species, thereby reducing the quality of the habitats. The Project is anticipated to have a total of approximately 0.72 acres of indirect effects to potentially suitable vernal pool invertebrate habitat due to grading and construction activities within 250-feet of suitable habitats (Figure 7. Project Effects to Vernal Pool Crustacean Habitat). Avoidance and minimization measures **BIO-1** through **BIO-3** would avoid and minimize impacts to wetland habitats. In addition to any measures pursuant the Project's permitting requirements, avoidance and minimization measures **BIO-10** and **BIO-11** shall be implemented as part of the Project to further avoid and minimize impacts to potentially suitable vernal pool habitat.

4.3.5.3. VERNAL POOL CRUSTACEANS AVOIDANCE AND MINIMIZATION EFFORTS

The following protective measures have been incorporated to minimize and avoid impacts to vernal pool crustaceans:

BIO-10: All suitable vernal pool crustacean habitat adjacent to the project footprint shall be designated as an ESA and protected with ESA fencing. As part of the ESA fencing installation, protective silt fencing shall be installed between the adjacent vernal pool habitat and the construction area limits to prevent accidental disturbance during construction and to protect water quality within the aquatic habitat during construction.

BIO-11: A Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of sensitive habitat near the Project area and to instruct them on proper avoidance measures.

4.3.5.4. COMPENSATORY MITIGATION FOR VERNAL POOL CRUSTACEANS

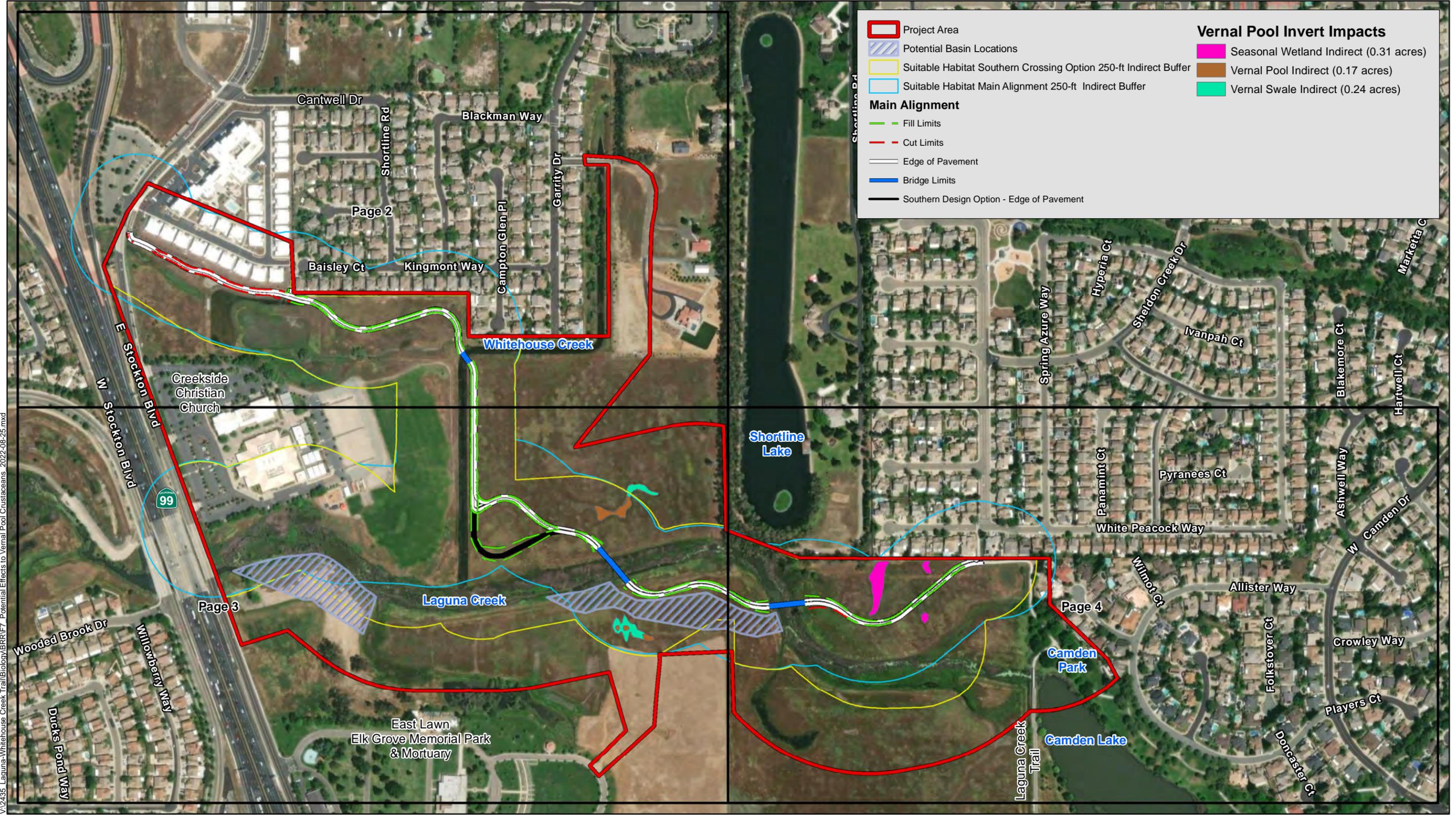
Measure **BIO-12** provides options to provide compensatory mitigation of effects to vernal pool crustaceans, including the option of performing protocol-level surveys, or assuming presence of threatened and endangered species. If special-status vernal pool species are found or presence is assumed, compensation is proposed consistent with the USACE *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects With Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office*, dated February 28, 1996. USACE will consult with the USFWS under Section 7 of FESA shall be initiated through federal nexus during USACE Section 404 permitting processes and impacted suitable habitat shall be mitigated for using an acceptable USACE bank credits or in-lie fee.

BIO-12: The proposed Project shall mitigate for potential impacts to vernal pool crustaceans by conducting USFWS protocol-level surveys, or assuming presence of the species in the Project area. Protocol-level surveys for the vernal pool fairy shrimp and vernal pool tadpole shrimp shall occur in suitable habitats occurring in the proposed Project area and within 250 feet of adjacent suitable habitat. If vernal pool fairy shrimp or vernal pool tadpole shrimp are not detected during the protocol-level surveys and if the USFWS concurs that neither species is present, no further mitigation is required. If either of the species is detected during protocol-level surveys or the presence of the species is assumed in lieu of conducting surveys, and proposed activities will result in direct or indirect impacts to potential habitat, the following measures shall be implemented:

1. Formal consultation with the USFWS shall be initiated under Section 7 of the Endangered Species Act. No direct or indirect impacts to suitable habitat for these species shall occur until Incidental Take authorization has been obtained from the USFWS.
2. For every acre of habitat directly or indirectly affected, at least two vernal pool preservation credits shall be dedicated in a USFWS-approved ecosystem preservation bank (2:1 ratio). With USFWS approval, appropriate payment into an in-lieu fee fund or on-site preservation may be used to satisfy this measure.
3. For every acre of habitat directly affected, at least one vernal pool creation credit shall be dedicated in a USFWS-approved habitat mitigation bank (1:1 ratio). With USFWS approval, appropriate payment into an in-lieu fee fund, on-site creation, or off-site creation may be used to satisfy this measure.

4.3.5.5. CUMULATIVE IMPACTS TO VERNAL POOL CRUSTACEANS

With the implementation of species-specific avoidance, minimization, and mitigation measures, the Project will not contribute to cumulative impacts in the region. No cumulative impacts to the viability of the population of



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F7_Potential Effects to Vernal Pool Crustaceans 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

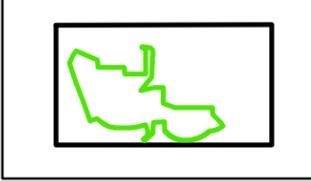
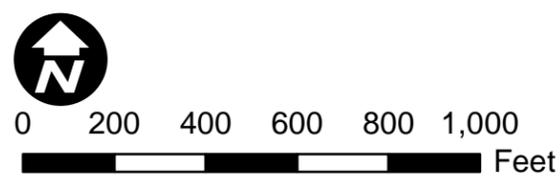


FIGURE 7
Potential Effects to Vernal Pool Crustaceans
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 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

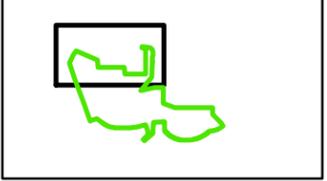
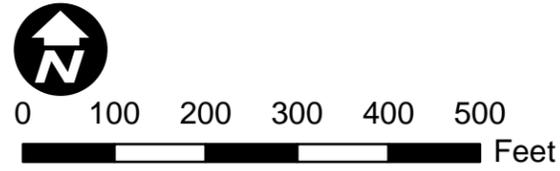


FIGURE 7
Potential Effects to Vernal Pool Crustaceans
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 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amy

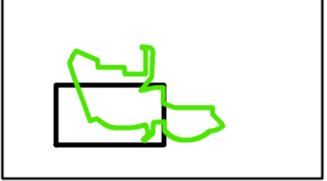
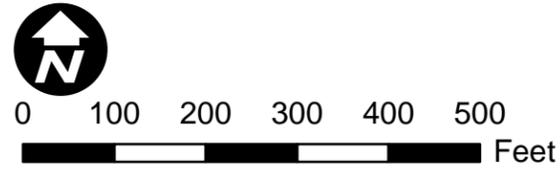


FIGURE 7
Potential Effects to Vernal Pool Crustaceans
 Page 3 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



V:\2435_Laguna-Whitehouse Creek Trail\Biology\BRR\F7_Potential Effects to Vernal Pool Crustaceans 2022-08-25.mxd

Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

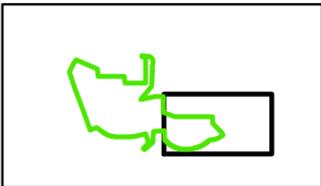
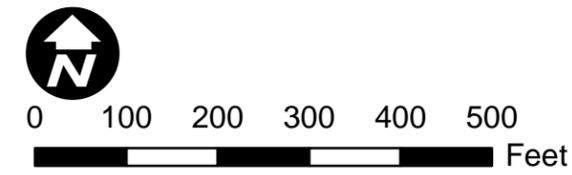


FIGURE 7
Potential Effects to Vernal Pool Crustaceans
 Page 4 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

4.3.6. Discussion of Western Pond Turtle

The western pond turtle (WPT) is not a State or Federally listed species but is a CDFW Species of Special Concern. WPTs are native to the west coast and are found from Baja California, Mexico north through Klickitat County, Washington. The WPT is a fully aquatic turtle, inhabiting ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. The species requires suitable basking sites such as logs, rocks and exposed banks and associated upland habitat consisting of sandy banks or grassy open fields for reproduction. The species is omnivorous, consuming aquatic wildlife and vegetation. The WPT is known to hibernate underwater beneath a muddy bottom in colder climates and reproduce from March to August (Zeiner 1990). Nests are generally found in flat areas with low vegetation and dry, hard soil.

4.3.6.1. WESTERN POND TURTLE SURVEY RESULTS

The BSA does contain suitable aquatic and upland habitat for the species. The species was observed during the April 24-26, 2018 jurisdictional delineation, at the confluence of Whitehouse Creek and Laguna Creek. Due to the presence of suitable habitat and the observation of the species during the jurisdictional delineation, the species is considered present within the BSA.

4.3.6.2. PROJECT IMPACTS TO WESTERN POND TURTLE

The proposed Project would construct a multi-functional access road and new bridges along the Project alignment. The Project is anticipated to permanently impact approximately 0.05 acres of aquatic habitat and approximately 3.72 acres of upland habitat. Additionally, the Project is anticipated to have temporary impacts to approximately 1.72 acres of aquatic habitat, and approximately 1.43 acres of upland habitat. With the implementation of the species-specific avoidance and minimization measures identified below, no direct impacts to WPT are anticipated.

4.3.6.3. WESTERN POND TURTLE AVOIDANCE AND MINIMIZATION EFFORTS

The following measures have been incorporated to minimize and avoid impacts to WPTs:

BIO-13: To avoid impacts to western pond turtles, the Project biologist will conduct a pre-construction survey of the Laguna Creek, Whitehouse Creek, and adjacent banks and upland habitats within the Project area. Surveys shall be conducted no more than 24 hours prior to onset of construction. If a turtle is located within the construction area, a qualified biologist will capture the turtle and relocate it to an appropriate habitat a safe distance from the construction site.

BIO-14: If water pumps are used to dewater the Project Area, pump intakes shall be screened and equipped with an energy dissipater to protect aquatic species. The energy dissipater should be large enough to reduce approach velocity to 0.33 feet per second or less, and be enclosed with ½ inch metal screen. The surface area of the energy dissipater shall be determined by dividing the maximum diverted flow, by the allowable approach velocity (example: 1.0 ft³ per second/ 0.33 feet per second = 3.0 ft² surface area).

4.3.6.4. COMPENSATORY MITIGATION FOR WESTERN POND TURTLE

With the implementation of site-specific avoidance and minimization measure **BIO-13** and **BIO-14**, direct impacts to WPTs are not anticipated. The Project will avoid potential impacts to the WPT; compensatory mitigation for impacts to the species is not required or proposed at this time.

4.3.6.5. CUMULATIVE IMPACTS TO WESTERN POND TURTLE

With the implementation of site-specific avoidance and minimization measures, the Project will avoid potential effects to WPTs. No cumulative impacts to the species are anticipated.

4.3.7. Discussion of Western Spadefoot

The western spadefoot is not a state or federally listed species but is a CDFW Species of Special Concern. In California, the species is distributed throughout the Central Valley; along the Coast Ranges in Monterey, San Luis Obispo, and Santa Barbara counties; and in Southern California south of the Transverse Mountains and west of the Peninsular Mountains. Western spadefoot inhabits woodlands and grasslands and is almost entirely terrestrial, only entering water to breed in vernal pools January through May after which the female deposits eggs on emergent vegetation before returning to land. Their diet consists of a variety of insects and earthworms. Western spadefoot estivate through the dry season underground and remain dormant until winter rains soften soils and refill vernal pools (CDFW 2020b).

4.3.7.1. WESTERN SPADEFOOT SURVEY RESULTS

The BSA does contain potentially suitable upland estivation, and aquatic vernal pool habitat for the species. The only recent presumed extant occurrence of the species is approximately 10 miles from the BSA. Due to the presence of potentially suitable habitat and the distance to local presumed extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

4.3.7.2. PROJECT IMPACTS TO WESTERN SPADEFOOT

The proposed Project would construct a multi-functional access road and new bridges along the Project alignment. The Project is not anticipated to permanently impact potentially suitable vernal pool habitat. However, the Project does anticipate approximately 1.84 acres of permanent impacts to potentially suitable wetland habitat, and 3.72 acres of upland habitat. Additionally, the Project is anticipated to have temporary impacts to approximately 1.71 acres of wetland habitat, and approximately 1.43 acres of upland habitat. Furthermore, the Project may contribute to indirect impacts to approximately 0.72 acres of potentially suitable vernal pool and seasonal wetland habitat due to changes in hydrology and/or biophysical conditions of these potentially suitable habitats. With the implementation of the species-specific avoidance and minimization measures identified below, no direct impacts to western spadefoot are anticipated.

4.3.7.3. WESTERN SPADEFOOT AVOIDANCE AND MINIMIZATION EFFORTS

The following measures have been incorporated to minimize and avoid impacts to western spadefoot:

BIO-15: If suitable habitat for western spadefoot toad is to be removed from October through April, a Project biologist shall conduct a preconstruction survey for this species within 50 feet of suitable habitat that is proposed to be impacted. The survey shall be conducted a maximum of one week prior to removal of suitable breeding habitat.

If no spadefoot toads are detected during the survey, no further measures are required. If this species is observed on-site, the Project biologist shall move it to suitable habitat in a safe location outside of the construction zone.

If western spadefoot toads are detected during the preconstruction survey, the Project biologist shall be on-site during initiation of construction activities within 50 feet of suitable habitats and shall provide WEAP training to all personnel working within 50 feet of suitable habitats.

In the event that a western spadefoot toad is observed within an active construction zone, the contractor shall temporarily halt construction activities until a Project biologist has moved the toad to a safe location, within similar habitat, outside of the construction zone.

BIO-16: To allow western spadefoot and other subterranean wildlife enough time to escape initial clearing and grubbing activities, equipment used during initial clearing and grubbing in annual grassland or wetland habitats shall be operated at speeds no greater than 3 miles per hour.

4.3.7.4. COMPENSATORY MITIGATION FOR WESTERN SPADEFOOT

With the implementation of site-specific avoidance and minimization measure **BIO-15** and **BIO-16**, direct impacts to WPTs are not anticipated; therefore, compensatory mitigation for impacts to the species is not required or proposed at this time.

4.3.7.5. CUMULATIVE IMPACTS TO WESTERN SPADEFOOT

With the implementation of site-specific avoidance and minimization measures, the Project will avoid potential effects to western spadefoot. No cumulative impacts to the species are anticipated.

4.3.8. Discussion of Giant Garter Snake

GGs is a federally listed threatened species. GGS is one of the largest garter snakes and is endemic to the wetlands within the Sacramento and San Joaquin valleys. GGS inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands (USFWS 2017). GGS feed on small aquatic animals such as fish, tadpoles, and frogs. Essential habitat components for GGS consist of: Wetlands with adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; emergent herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; upland habitat with grassy banks and openings in waterside vegetation for basking; and higher elevation uplands for escape cover (vegetation, burrows) and underground refugia (crevices and small mammal burrows) (Hansen 1980). The GGS breeding season extends through March and April, and females give birth to live young from late July through early September (Hansen and Hansen 1990). At birth, young disperse into dense cover and typically double in size by one year of age, while sexual maturity average three years in males and five years for females. According to studies of marked snakes in the Natomas Basin, snakes moved about 0.25-0.5 miles per day (Hansen and Brode 1993). GGS typically inhabit small mammal burrows for winter dormancy, escape and cover, and also as refuge from extreme heat during their active period. Burrows are typically close to wetland or water sources; however, GGS have been documented using burrows as far as 820 feet from the edge of marsh habitat.

4.3.8.1. GIANT GARTER SNAKE SURVEY RESULTS

On March 6, 2020, GGS specialist Eric Hansen performed a GGS habitat assessment within the project area (Appendix G). During the 2020 survey, Mr. Hansen identified and classified potential GGS habitat within the Project area. According to Mr. Hansen's results, habitat surrounding Laguna Creek is deemed suitable habitat due to a combination of features capable of supporting a permanent population of GGS and adjacent to this suitable habitat is Whitehouse Creek, which is marginal at best. Although the landscape surrounding Laguna Creek is considered suitable, landscape changes and urban development that has taken place in the surrounding area since the last CNDDb record of occurrence may reduce the likelihood of GGS persistence in the region. However, patterns of contemporary occupancy and distribution of GGS in this region remain relatively unexplored, and intensive sampling has not been conducted to my knowledge since prior to 2000. Therefore, the aquatic and upland habitats within the BSA are considered potentially suitable habitat for the species.

The closest known occurrence of the species along Laguna Creek is approximately 1 mile west of the BSA (1987). However, this occurrence is characterized as possibly extirpated. The nearest presumed extant occurrence is approximately 4.3 miles west of the BSA and is separated from the BSA by high density development.

In addition to the 2020 survey, a Biological Opinion issued in 2015 by USFWS on the directly adjacent Laguna Creek Trail – Camden Spur North and South Project (Consultation Code: 08ESMF00-2015-F-0302-1), concurred that due to heavy residential development the project is not likely to adversely affect the snake. Due to the presence of potentially suitable habitat and the distance to known extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

4.3.8.2. PROJECT IMPACTS TO GIANT GARTER SNAKE

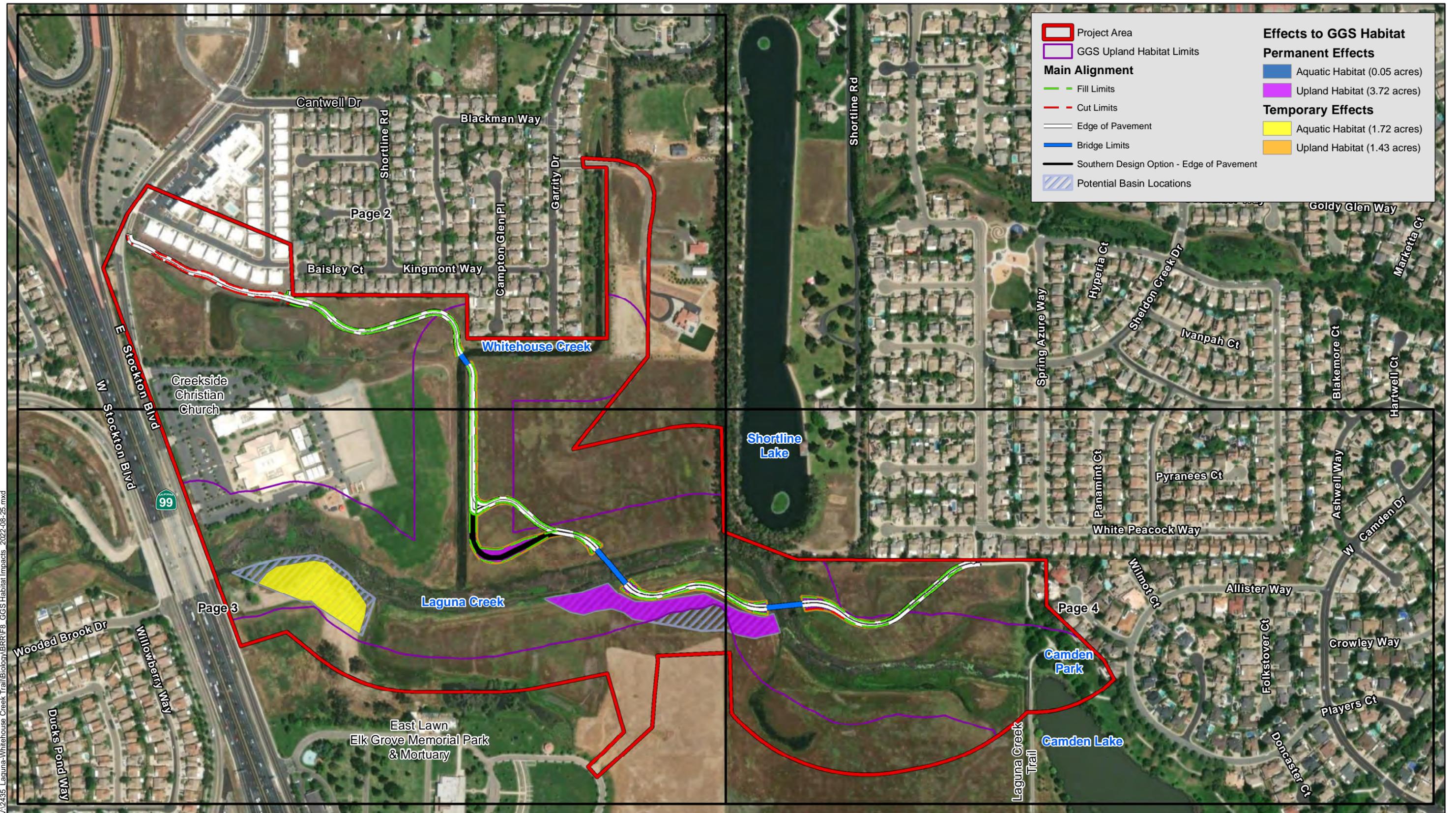
The proposed Project is anticipated to result in temporary and permanent impacts to GGS habitat (Table 5. Project Effects to GGS Habitat; Figure 7. Project Effects to GGS Habitat).

Anticipated temporary effects to GGS habitat would be due to disturbance of approximately 1.43 acres of upland habitat, and 1.72 acres of aquatic habitat. Temporary effects to upland habitat would include vegetation clearing, regrading, staging, access, and other construction activities. These activities are likely to remove vegetative cover and potential basking sites necessary for thermoregulation within the grassland areas adjacent to Laguna Creek and Whitehouse Creek. However, these upland habitats would only be temporarily affected and would be revegetated with native species as part of Project restoration requirements. No temporary effects to aquatic habitat are anticipated.

The proposed Project would result in permanent effects to GGS habitat due to the loss of approximately, 3.72 acres of upland habitat, and 0.05 acres of aquatic habitat (Table 5. Project Effects to GGS Habitat; Figure 8. Project Effects to GGS Habitat). Direct permanent effects would occur due to the placement of fill and the construction of the access road and bridges. Permanent effects to upland habitat would include removal of the grassland dispersal and cover habitat for the new alignment access roadway and bridge abutments. Permanent effects to aquatic habitat would include the removal and filling of marsh and wetland habitat adjacent to Laguna Creek.

Table 5. Project Effects to GGS Habitat

Giant Garter Snake Habitat Type	Temporary Effects (ac)	Permanent Effects (ac)
Upland Habitat	1.43	3.72
Aquatic Habitat	1.72	0.05
Total Habitat	3.15	3.77



	Project Area	Effects to GGS Habitat	
	GGS Upland Habitat Limits	Permanent Effects	
Main Alignment			Aquatic Habitat (0.05 acres)
	Fill Limits		Upland Habitat (3.72 acres)
	Cut Limits	Temporary Effects	
	Edge of Pavement		Aquatic Habitat (1.72 acres)
	Bridge Limits		Upland Habitat (1.43 acres)
	Southern Design Option - Edge of Pavement		
	Potential Basin Locations		

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Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

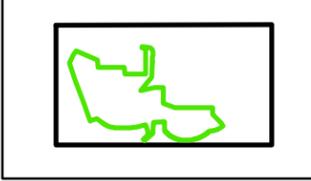
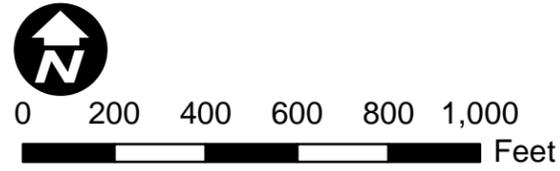
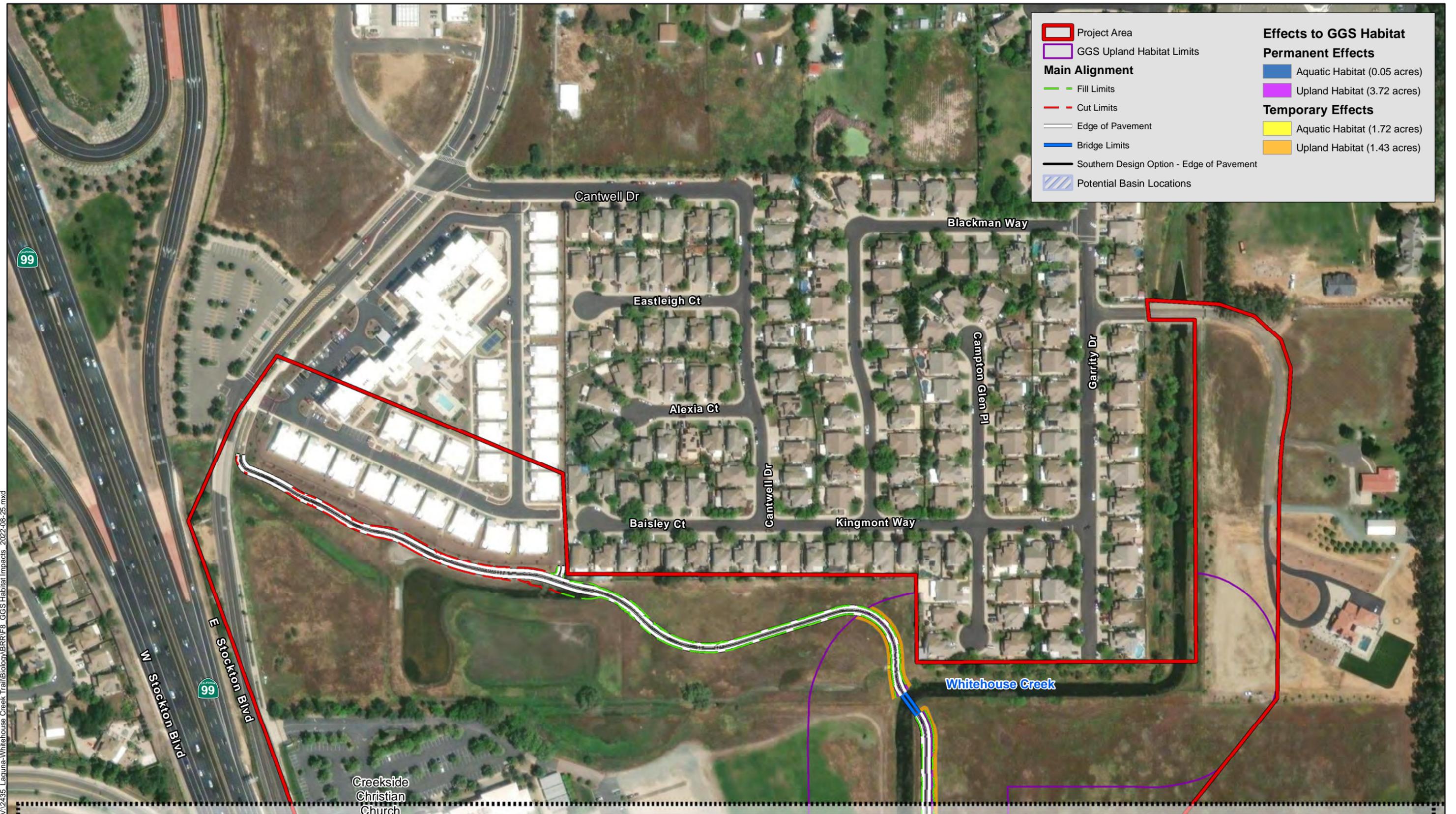


FIGURE 8
GGG Habitat Impacts
 Page 1 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

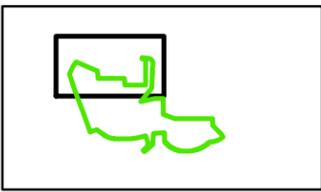
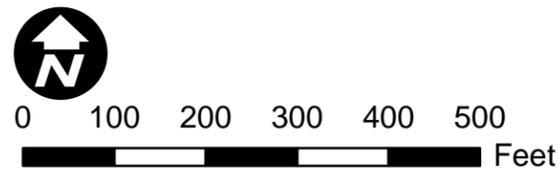
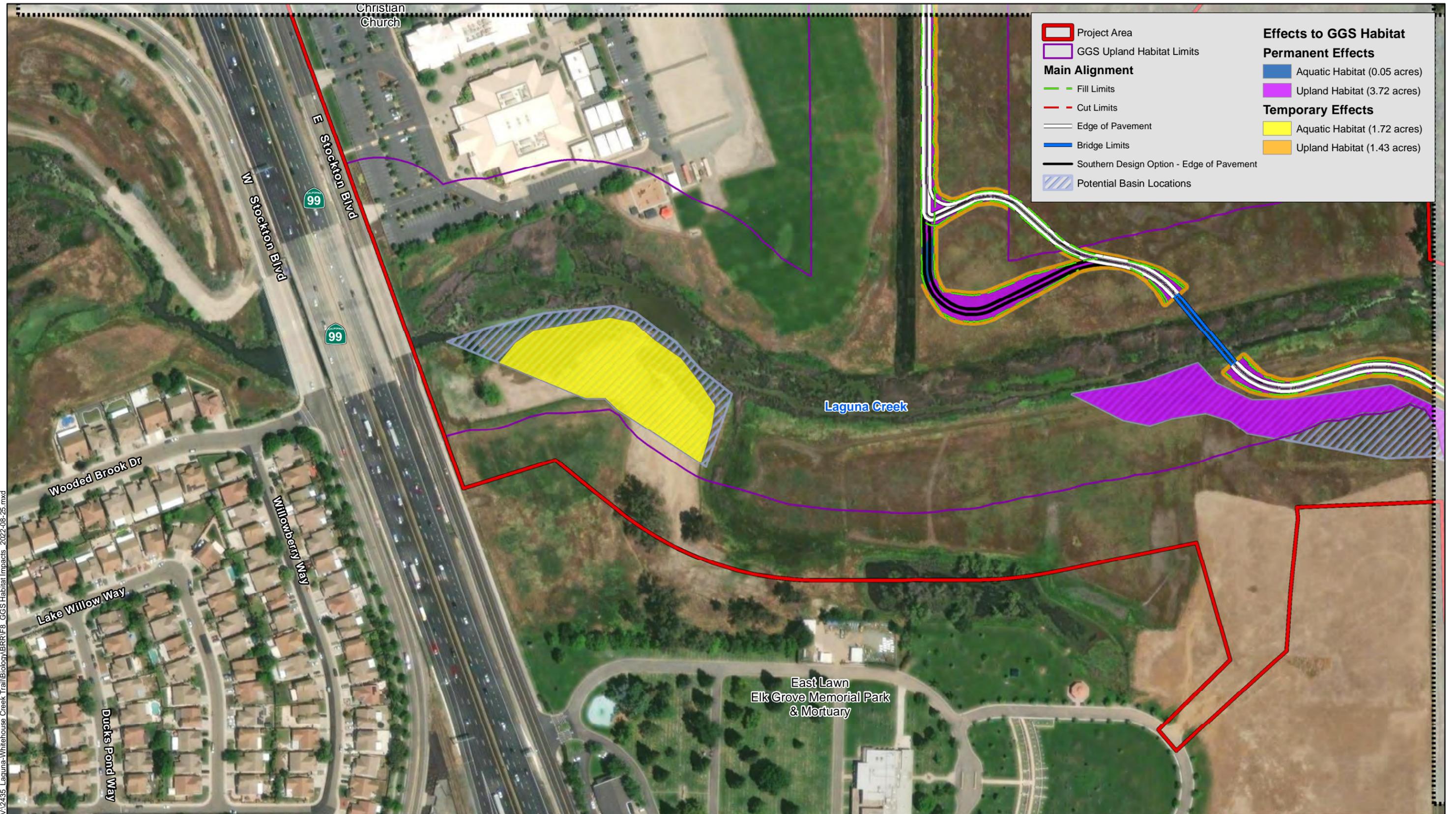


FIGURE 8
GGG Habitat Impacts
 Page 2 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amy

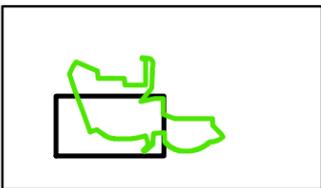
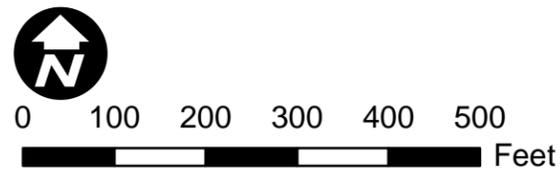
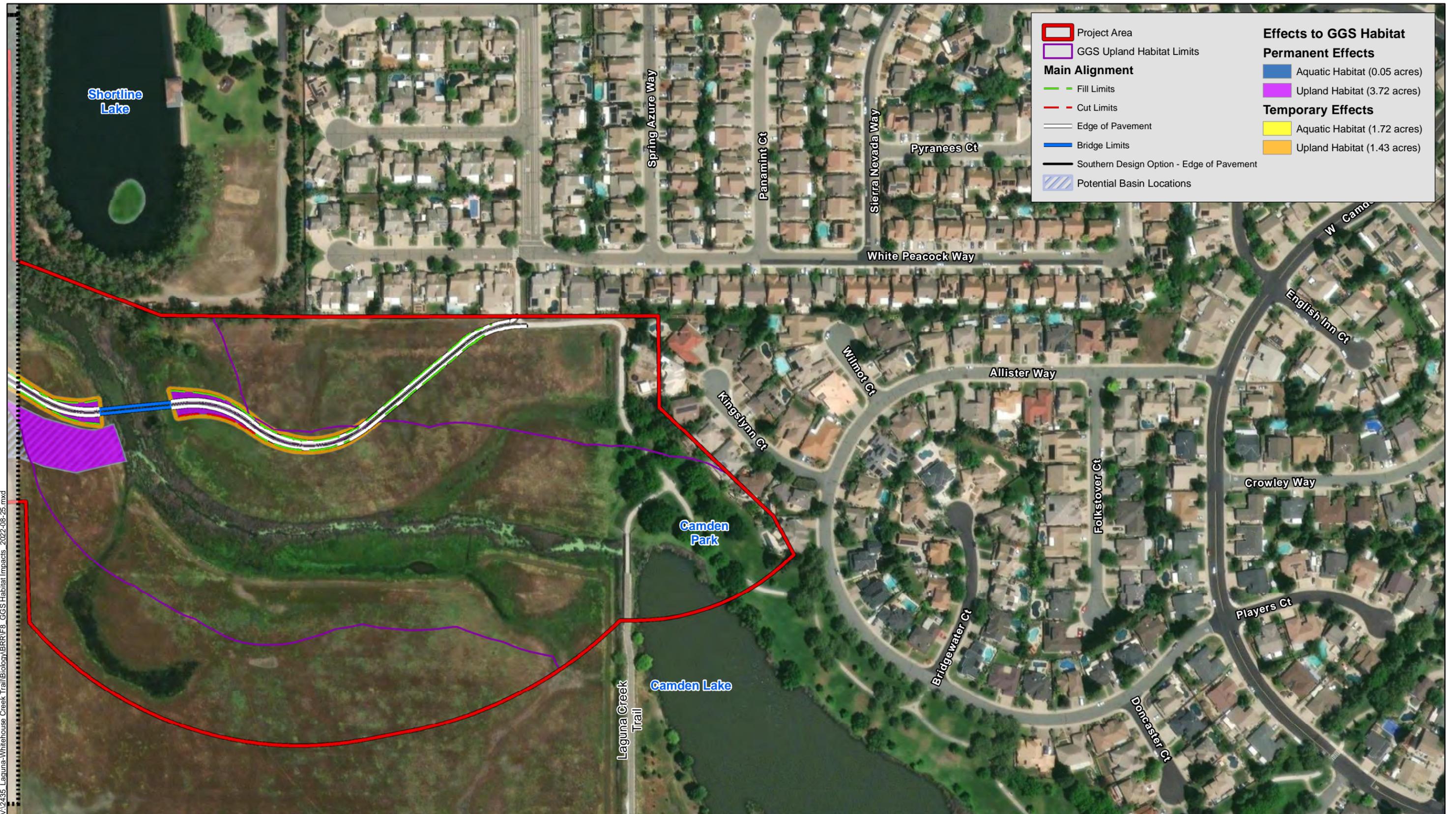


FIGURE 8
GGS Habitat Impacts
 Page 3 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California



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Source: ESRI World Street Maps Online; Dokken Engineering 11/1/2022; Created By: amyd

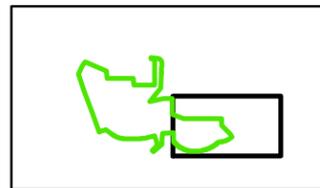
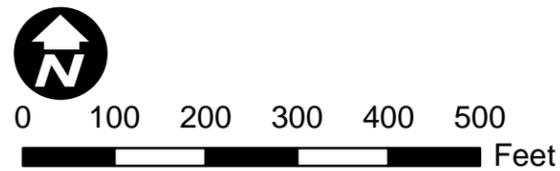


FIGURE 8
GGG Habitat Impacts
 Page 4 of 4
 Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, California

The proposed Project would result in permanent and temporary effects to GGS habitat; however, the closest known occurrence of the snake in the CNDDDB along Laguna Creek is approximately 1 river mile west of the Project area, with another 1 mile beyond. The two occurrences are characterized as possibly extirpated in CNDDDB due to heavy residential development in the area. The closest known extant occurrence of the snake in CNDDDB along Laguna Creek is approximately 5.4 river miles from the Project area. Additionally, in May 2015, the USFWS issued a Biological Opinion (08ESMF00-2015-F-0302-1) on the Laguna Creek Trail – Camden Spur (North and South) Project, determining a may affect, not likely to adversely affect the GGS. The Camden Spur project is a connecting access point for the proposed Project, and the Project would be within this same planning area of Laguna Creek. Through implementation of avoidance, minimization and mitigation measures for jurisdictional waters, the Project does not anticipate to adversely affect the GGS and through USACE Section 7 consultation would request a letter of concurrence with a likely to affect, not likely to adversely affect determination.

4.3.8.3. GIANT GARTER SNAKE AVOIDANCE AND MINIMIZATION EFFORTS

The proposed Project cannot avoid affecting potentially suitable GGS aquatic and upland habitat. The following measures have been incorporated into the Project design to minimize potential Project effects to GGS.

- BIO-17:** Construction activity within habitat should be conducted between May 1st and October 1st. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Between October 2 and April 30 contact the U.S. Fish and Wildlife Service Sacramento Office to determine if additional measures are necessary to minimize and avoid take.
- BIO-18:** Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the Project area as Environmentally Sensitive Areas. The area should be avoided by all construction personnel.
- BIO-19:** Tightly woven erosion control matting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the project site to ensure that snakes are not trapped or become entangled by the erosion control material. The edge of the material shall be buried in the ground to prevent snakes from crawling underneath the material. The use of plastic, monofilament, jute, or similar erosion control netting with mesh sizes larger than 0.25 inch that could entangle snakes will be prohibited.
- BIO-20:** Construction personnel must receive worker environmental awareness training. Awareness training shall be given by the Project biologist(s) who have experience in giant garter snake natural history. This training instructs workers to recognize giant garter snake and their habitat(s).
- BIO-21:** 24-hours prior to construction activities, the Project area should be surveyed for giant garter snakes. Survey of the Project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Report any sightings and any incidental take to the U.S. Fish and Wildlife Service Sacramento Office immediately by telephone at (916) 414-6600
- BIO-22:** Any dewatered habitat must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

BIO-23: After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work includes, as applicable, activities such as replanting species removed from banks or replanting emergent vegetation in the active channel.

4.3.8.4. COMPENSATORY MITIGATION FOR GIANT GARTER SNAKE

Section 7 consultation with USFWS for potential impacts to GGS will occur through federal nexus with the USACE during the CWA Section 404 permitting process. Compensatory mitigation measure **BIO-24** provides options for compensatory mitigation determined during the permitting process and USACE Section 7 consultation with USFWS.

BIO-24: The proposed Project shall mitigate for potential impacts to giant garter snake by one of the following compensatory mitigation strategies:

1. The City shall provide all necessary compensatory mitigation requirements pursuant Section 7 consultation with the USFWS through federal nexus with USACE during Clean Water Act Section 404 permitting process.
2. The City will compensate for the loss of giant garter snake habitat with purchase of required mitigation credits at a USFWS and CDFW approved mitigation bank to offset permanent and temporary impacts. Temporary impacts shall be compensated at 1:1 ratio, and permanent impacts to upland and aquatic GGS habitat shall be compensated at 3:1. Acreages may be adjusted during final design, which would change the total acres of mitigation, but the ratios must stay the same.

4.3.8.5. CUMULATIVE IMPACTS TO GIANT GARTER SNAKE

With the implementation of site-specific avoidance and minimization measures, the Project will avoid potential effects to GGS. No cumulative impacts to the species are anticipated.

4.4. Migratory Birds

Native birds, protected under the MBTA and similar provisions under CFG Code, have the potential to nest within the BSAs and the Project area. To avoid and minimize potential impacts to migratory birds, the following avoidance and minimization measures shall be implemented.

4.4.1. Avoidance and Minimization Measures

With the inclusion of avoidance and minimization measure **BIO-7** discussed in Section 4.3.2., no impacts to migratory birds protected under the MBTA are anticipated.

Chapter 5. Conclusions and Regulatory Determination

5.1. Federal Endangered Species Act Consultation Summary

Vernal Pool Crustaceans

Federally-listed threatened vernal pool fairy shrimp, and federally-listed endangered vernal pool tadpole shrimp were not observed during the biological surveys; however, due to the fact that the proposed project occurs within the range of both species and potentially suitable habitat for the species is present within the BSA, the species does have the potential to occur within the BSA. Direct impacts to vernal pool crustaceans will be avoided; however, indirect impacts to potentially suitable vernal pool crustacean habitat may occur. With the implementation of measures discussed in section 4.1.1.3 and 4.3.5.3; and through Project design avoidance of vernal pool habitat any potential impacts would be reduced to the greatest extent practicable. Prior to completion of the environmental review process, USACE will initiate and complete Section 7 Consultation with USFWS for potential Project related impacts to the species during the Clean Water Act Section 404 permitting process. In compliance with FESA, any additional avoidance and minimization measures or mitigation efforts resulting from the consultation process will be incorporated into the Project design. Considering the avoidance of direct impacts to vernal pool habitat, and only potential indirect effects, it is anticipated that the Project may affect, but is not likely to adversely affect vernal pool fairy shrimp or vernal pool tadpole shrimp.

Giant Garter Snake

Federally-listed threatened GGS was not observed during biological surveys; however, the species has potential to occur within the BSA due to presence of suitable habitat and recent documented regional occurrences. Direct impacts to GGS will be avoided to the greatest extent practicable through the implementation of measures discussed in section 4.3.8.3; however, the Project will involve removal of GGS habitat. Prior to the completion of the environmental review process, USACE will initiate and complete Section 7 Consultation with USFWS for potential Project related impacts to the species during the Clean Water Act Section 404 permitting process. In compliance with FESA, any additional avoidance and minimization measures or mitigation efforts resulting from the consultation process will be incorporated into the Project design. Considering the scale of impact and presumed extirpation of the species within the Project area, it is anticipated that the Project may affect, but is not likely to adversely affect GGS.

5.2. Essential Fish Habitat Consultation Summary

No essential fish habitat is present within the Project limits. No essential fish habitat consultation is required.

5.3. California Endangered Species Act Consultation Summary

Swainson's hawk (State listed as threatened), tricolored blackbird (State listed as threatened), and GGS (State listed as threatened), are considered to have potential of occurring within the BSA. With the inclusion of avoidance and minimization measures, no direct impacts to GGS, Swainson's hawk, or tricolored blackbird are anticipated.

Swainson's Hawk

Swainson's hawk is a State listed threatened species that is known to occur within the Project vicinity. However, the Project vicinity has a lack of suitable nesting habitat, no nesting sites were observed during the biological survey, and no nesting trees with Swainson's hawk will be removed. Considering no Swainson's hawk nesting trees will be removed, the implementation of Project minimization and avoidance measures, use of Standard BMPs, and proposed compensatory mitigation for Swainson's hawk valley grassland foraging habitat, the Project will not result in take of Swainson's hawk. With the avoidance of take, the Project does not anticipate that a CDFW Section 2081 ITP for Swainson's hawk will be necessary. No impacts to the Swainson's hawk are anticipated and further coordination with CDFW under CESA for the species is not required at this time.

Tricolored blackbird

The tricolored blackbird is listed under CESA as a threatened species. This species typically nests in freshwater marsh or other areas with dense, emergent vegetation such as dense cattails or tules, thickets of blackberry and willow. The species or nests were not observed during biological surveys or wetland delineations. With the implementation of Project avoidance and minimization measures (pre-construction nesting bird surveys), and compensatory mitigation for impacts to wetland habitats, the Project does not anticipate take of tricolored blackbird. With the avoidance of take, the Project does not anticipate that a CDFW Section 2081 ITP for tricolored blackbird will be necessary.

Giant Garter Snake

USACE will consult with USFWS through the Section 7 process of FESA for Project related impacts to GGS. The result of this consultation will be a letter of concurrence (Informal Consultation) or BO (Formal Consultation) written by USFWS which specifies conservation measures and includes an incidental take statement for the Project. The statement will include the amount or extent of the take, avoidance/minimization measures, and compensatory mitigation to minimize the take. If CDFW finds that the incidental take statement in the letter of concurrence or BO is consistent with CESA, a consistency determination may be issued under section 2080.1 of the FGC. If CDFW finds that the letter of concurrence or BO is not consistent with CESA, a separate IPT may be required under section 2081(b) of the FGC.

5.4. Wetlands and Other Waters Coordination Summary

The Project will permanently affect a total of approximately 0.40 acres of waters of the United States, state and CDFW jurisdiction. In addition, the Project will have temporary effects to 0.79 acres of waters of the United States, state and CDFW waters.

Prior to work within these areas, the Project will obtain a CWA Section 404 Nationwide Permit from USACE, Section 401 Water Quality Certification from the RWQCB for discharge into state waters, and Section 1600 Streambed Alteration Agreement from CDFW for impacts to waters and wildlife habitat. Because ground disturbance associated with the Project will exceed one acre in size, the Project will be required to obtain a Section 402 Notice of Intent under the National Pollutant Discharge Elimination System from the RWQCB.

5.5. Invasive Species

The following protective measures will be included in the Project plans to ensure that invasive species are not introduced or spread:

BIO-25: Prior to arrival at the Project site and prior to leaving the Project site, construction equipment that may contain invasive plants and/or seeds must be cleaned to reduce the spreading of noxious weeds.

BIO-26: All hydro seed and plant mixes must consist of a biologist approved seed mix.

5.6. Other

5.6.1. Local Wildlife

To prevent harm to local wildlife, the Project will implement the following measures:

BIO-27: The contractor must not use herbicides to control invasive, exotic plants or apply rodenticides during construction.

BIO-28: The contractor must dispose of all food-related trash in closed containers and must remove it from the Project area each day during construction. Construction personnel must not feed or attract wildlife to the Project area.

5.6.2. Migratory Bird Treaty Act

Native birds, protected under MBTA and similar provisions under CFG Code, currently nest or have the potential to nest within the BSA and the Project impact area. During biological surveys, habitat for nesting birds was identified within the BSA. Avoidance and minimization measure **BIO-7** stated in Section 4.3.2 has been incorporated into the Project design to minimize potential impact to migratory birds.

Chapter 6. References

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Appendix A USFWS Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

April 22, 2020

Consultation Code: 08ESMF00-2017-SLI-0085

Event Code: 08ESMF00-2020-E-05206

Project Name: Laguna Creek Trail Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-0085

Event Code: 08ESMF00-2020-E-05206

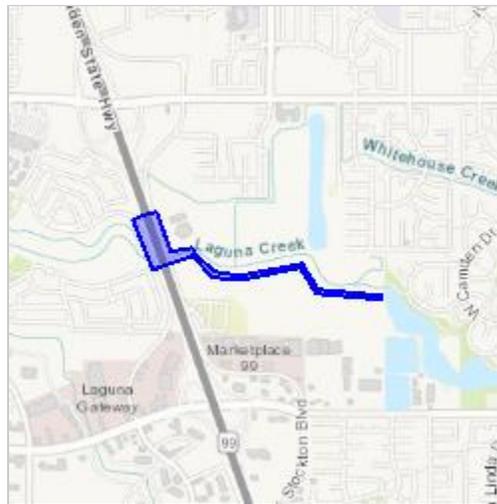
Project Name: Laguna Creek Trail Project

Project Type: RECREATION CONSTRUCTION / MAINTENANCE

Project Description: Construction of new 4,100 long trail segment and bridge to close the gap between the Whitehouse Creek Trail and Laguna Creek Trail

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.43078237010417N121.39794668712466W>



Counties: Sacramento, CA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B CNDDDB Species List



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Florin) OR Elk Grove (3812143) OR Sacramento East (3812154) OR Sacramento West (3812155) OR Galt (3812133) OR Bruceville (3812134) OR Courtland (3812135) OR Carmichael (3812153) OR Clarksburg (3812145)

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Ahart's dwarf rush, American badger, bank swallow, black-crowned night heron, Boggs Lake hedge-hyssop, Bolander's water-hemlock, bristly sedge, burrowing owl, California black rail, California linderiella, California tiger salamander, chinook salmon, Coastal and Valley Freshwater Marsh, Cooper's hawk, Crotch bumble bee, Delta mudwort, and Delta tule pea.



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
double-crested cormorant <i>Phalacrocorax auritus</i>	ABNFD01020	None	None	G5	S4	WL
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2
Elderberry Savanna <i>Elderberry Savanna</i>	CTT63440CA	None	None	G2	S2.1	
Ferris' milk-vetch <i>Astragalus tener var. ferrisiae</i>	PDFAB0F8R3	None	None	G2T1	S1	1B.1
ferruginous hawk <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
golden eagle <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
great blue heron <i>Ardea herodias</i>	ABNGA04010	None	None	G5	S4	
great egret <i>Ardea alba</i>	ABNGA04040	None	None	G5	S4	
Great Valley Cottonwood Riparian Forest <i>Great Valley Cottonwood Riparian Forest</i>	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest <i>Great Valley Mixed Riparian Forest</i>	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest <i>Great Valley Valley Oak Riparian Forest</i>	CTT61430CA	None	None	G1	S1.1	
hairy water flea <i>Dumontia oregonensis</i>	ICBRA23010	None	None	G1G3	S1	
Heckard's pepper-grass <i>Lepidium latipes var. heckardii</i>	PDBRA1M0K1	None	None	G4T1	S1	1B.2
hoary bat <i>Lasiurus cinereus</i>	AMACC05030	None	None	G5	S4	
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
longfin smelt <i>Spirinchus thaleichthys</i>	AFCHB03010	Candidate	Threatened	G5	S1	
marsh skullcap <i>Scutellaria galericulata</i>	PDLAM1U0J0	None	None	G5	S2	2B.2
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	PDAPI19030	None	Rare	G2	S2	1B.1
merlin <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	ICBRA03150	None	None	G2	S2S3	
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	PDAST4R0P2	None	None	G3T2	S2	1B.2
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	PDCUS01111	None	None	G5T4?	SH	2B.2
purple martin <i>Progne subis</i>	ABPAU01010	None	None	G5	S3	SSC
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	IICOL5V010	None	None	G2?	S2?	
Sacramento Orcutt grass <i>Orcuttia viscida</i>	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Sacramento perch <i>Archoplites interruptus</i>	AFCQB07010	None	None	G2G3	S1	SSC
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	AFCJB34020	None	None	GNR	S3	SSC
Sacramento Valley tiger beetle <i>Cicindela hirticollis abrupta</i>	IICOL02106	None	None	G5TH	SH	
saline clover <i>Trifolium hydrophilum</i>	PDFAB400R5	None	None	G2	S2	1B.2
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
side-flowering skullcap <i>Scutellaria lateriflora</i>	PDLAM1U0Q0	None	None	G5	S2	2B.2
slender Orcutt grass <i>Orcuttia tenuis</i>	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
song sparrow ("Modesto" population) <i>Melospiza melodia</i>	ABPBXA3010	None	None	G5	S3?	SSC
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	AFCHA0209K	Threatened	None	G5T2Q	S2	
Suisun Marsh aster <i>Symphyotrichum lentum</i>	PDASTE8470	None	None	G2	S2	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2	S2	
Valley Oak Woodland <i>Valley Oak Woodland</i>	CTT71130CA	None	None	G3	S2.1	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3S4	
watershield <i>Brasenia schreberi</i>	PDCAB01010	None	None	G5	S3	2B.3
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G3	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	PDMAL0H0R3	None	None	G5T3	S3	1B.2
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 69

Appendix C NOAA Fisheries Species List

Andrew Dellas

From: Andrew Dellas
Sent: Wednesday, April 22, 2020 9:39 AM
To: nmfswcrca.specieslist@noaa.gov
Subject: Laguna Creek/Whitehouse Creek Multi-Functional Corridor Project

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project
City of Elk Grove

Quad Name **Florin**
Quad Number **38121-D4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

- East Pacific Green Sea Turtle (T) -
- Olive Ridley Sea Turtle (T/E) -
- Leatherback Sea Turtle (E) -
- North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

- Blue Whale (E) -
- Fin Whale (E) -
- Humpback Whale (E) -
- Southern Resident Killer Whale (E) -
- North Pacific Right Whale (E) -
- Sei Whale (E) -
- Sperm Whale (E) -

ESA Pinnipeds

- Guadalupe Fur Seal (T) -
- Steller Sea Lion Critical Habitat -

Essential Fish Habitat

- Coho EFH -
- Chinook Salmon EFH - **X**
- Groundfish EFH -
- Coastal Pelagics EFH -
- Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

- MMPA Cetaceans -
- MMPA Pinnipeds -



Andrew Dellas, M.S.

Associate Environmental Planner / Biologist
Dokken Engineering
Phone: 916.858.0642
Email: adellas@dokkenengineering.com
110 Blue Ravine Road, Suite 200 | Folsom, CA 95630

Appendix D CNPS Species List

*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

22 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in Quads 3812154, 3812155, 3812153, 3812144, 3812143, 3812135 3812134 and 3812133;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	2B.1	S2?	G5T4T5
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	2B.2	SH	G5T4?
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	1B.2	S1	G2T1
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	2B.2	S2	G5
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	2B.2	S2	G5
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 22 April 2020].

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[California Natural Diversity Database](#)
[The Jepson Flora Project](#)
[The Consortium of California Herbaria](#)
[CalPhotos](#)

Questions and Comments

rareplants@cnps.org

Appendix E Representative Photographs



Representative Photograph 1. View of seasonal wetland (SW-14) (Waters of the U.S.). View is facing southeast.



Representative Photograph 2. View of seasonal wetland (SW-14) (Waters of the U.S.). View is facing east.



Representative Photograph 3. View of Seasonal Wetland Swale (SWS-5) (Waters of the U.S.). View is facing north.



Representative Photograph 4. View of Whitehouse Creek (Waters of the U.S.). View is facing southeast.



Representative Photograph 5. View of Vernal Pool (VP-7) (Waters of the U.S.). View is facing west.



Representative Photograph 6. View of Emergent Marsh (EM-1) (Waters of the U.S.). View is facing northwest.



**Representative Photograph 7. View of Laguna Creek (Waters of the U.S.).
View is facing east.**



**Representative Photograph 8. View of Laguna Creek (Waters of the U.S.).
View is facing north toward Shortline Lake.**



Representative Photograph 9. View of Seasonal Wetland Swale (SWS-1) in foreground and Vernal Pool (VP-1) in background (both Waters of the U.S.). View is facing south.



Representative Photograph 10. View of Seasonal Wetland (SW-8) (Waters of the U.S.). View is facing southeast.

Appendix F Botanical Survey Report

BOTANICAL SURVEY REPORT

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project October 2019

Prepared By:

Dokken Engineering
110 Blue Ravine Road, Suite 200
Folsom, California 95630
(916) 858-0642

Prepared For:

California Department of Fish and Wildlife
Region 2 – North Central Region
1701 Nimbus Road
Rancho Cordova, California 95670
(916) 358-2912

Executive Summary

The City of Elk Grove (City) is proposing to construct the Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project (Project) located within the City in Sacramento County, California (**Appendix A – Project Vicinity and Project Location Maps**). The proposed Project will involve construction of a 2.2-mile long multi-functional corridor along the banks and within the floodplain of Laguna and Whitehouse Creeks, located between East Stockton Boulevard and Camden Park and will result in impacts to Waters of the U.S.

Prior to field work, literature research was conducted through the United States Fish and Wildlife Service (USFWS) Species List (USFWS 2018), California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CNDDDB) (CDFW 2018), the California Native Plant Society (CNPS 2018) *Electronic Inventory of Rare and Endangered Plants* (**Appendix B: Species Lists**) to identify habitats and special-status species having the potential to occur within the BSA. General biological surveys and habitat assessments were conducted on April 4, 2018 which identified suitable habitat for five (5) special status plant species within the BSA. Additional botanical plant surveys were conducted on April 24-26 and June 21, 2018. Botanical field surveys were conducted following the methods outlined in the most recent CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018). Botanical surveys were conducted in the field at times when plants were both evident and identifiable, during flowering and fruiting stages according to the rare plants blooming periods (Jepson eFlora 2018). This included multiple visits in early, mid and late season to capture the floristic diversity within the Biological Study Area (BSA) and to determine if special status plants were present. No adverse conditions within the BSA were identified and all surveys were conducted during appropriate weather and temperature conditions. The following is a list of survey dates and field surveys present:

- April 4, 2018 – Andrew Dellas and Scott Salembier
- April 24th, 25th, and 26th, 2018 –Andrew Dellas and Courtney Owens, and;
- June 21st, 2018 – Andrew Dellas and Scott Salembier.

Sensitive natural communities were identified within the BSA and included: vernal pools, seasonal wetlands, and emergent marsh communities. These areas were identified during habitat assessments; however, none of the special status plants were identified within these or any other natural communities within the BSA. The Project will provide Best Management Practices (BMPs), and avoidance and minimization measures to reduce any chance for impacts to special status plants within the BSA.

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Appendix C – Representative Photographs	

Acronyms and Abbreviations

BSA	Biological Study Area
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
IS/MND	Initial Study/Mitigated Negative Declaration
NEPA	National Environmental Policy Act
NRCS	National Resource Conservation Service
OHWM	Ordinary High Water Mark
USFWS	United States Fish and Wildlife Service

Chapter 1. Introduction

The proposed Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project (Project) is located within the City of Elk Grove, Sacramento County, California (**Appendix A – Project Vicinity and Project Location Maps**).

The Survey Area for this botanical Survey Report includes all areas within the Biological Study Area (BSA). Prior to field surveys, the BSA was defined as the proposed project impact area and a 250-foot buffer from the City's existing floodway easement to accommodate the design and facilitate construction.

The BSA encompasses approximately 125 acres and includes approximately 4,000 linear feet of Laguna Creek from East Stockton Boulevard to Camden Lake. The BSA is approximately 4,300 feet (0.8 miles) from east to west and approximately 1,700 feet (0.33 miles) from north to south. The western terminus of the Project is at Creekside Christian Church at 8939 E. Stockton Boulevard, Elk Grove, California 95624, and the eastern terminus is the current end of the Laguna Creek bike path near the intersection of Beckington Drive and White Peacock Way.

The purpose of this report is to identify and describe natural communities and botanical resources within the BSA, and provide botanical survey results to determine potential Project effects to special status plant species. During the development of California Environmental Quality Act (CEQA) environmental studies and the Initial Study with Proposed Mitigated Negative Declaration (IS/MND) potential Project impacts will also be identified and evaluated. The IS/MND is anticipated for approval August 2018.

This report facilitates efforts to:

1. Avoid or minimize impacts to special status plant species and sensitive natural habitats project design process.
2. Document potential special status plant species that may occur within the Project BSA.
3. Provide results of botanical survey efforts within the BSA.

1.1 Project Description

The Project would be constructed in two phases. Phase I of the Project would include construction of a maintenance access road (paved with no striping) from the existing Laguna Creek Trail multi-use corridor, located south of the intersection of Beckington Drive and White Peacock Way, to a connection at East Stockton Boulevard approximately 750 feet south of the intersection of East Stockton Boulevard and Cantwell Drive. The maintenance access road would be constructed above the 10-year flood plain to provide City maintenance crews accessibility to Laguna and Whitehouse Creeks, especially during storm events. The maintenance access road would consist of 12 to 16 feet of pavement with unpaved shoulders ranging from 2 to 3 feet, and where determined feasible, single span concrete slab bridges providing necessary access across Laguna and Whitehouse Creeks.

Phase II of the Project would consist of converting the maintenance access road into a Class 1 multi-use trail corridor connection between the Camden Park and East Stockton Boulevard, with striping and trail amenities incorporated as necessary. Phase II of the Project would complete a gap within the trail system in accordance with the City's Bicycle, Pedestrian, and Trails Master Plan.

A future phase, Phase III, may be constructed which would preserve, rehabilitate, and enhance the creeks and adjacent wetlands; however, Phase 3 is not part of this Project and will be subject to environmental review at a later time. Permanent right-of-way acquisitions and temporary construction easements are needed where the multi-functional corridor passes through privately-owned parcels.

This Project is funded through the City's Storm Drainage Master Plan and is subject to compliance with the California Environmental Quality Act (CEQA). The lead agency for CEQA compliance is the City. The Project is also subject to compliance with the National Environmental Policy Act (NEPA) due to anticipated federal permitting through the U.S. Army Corps of Engineers federal nexus during the Clean Water Act Section 404 permitting process for project impacts to waters of the U.S.

1.1.1. Purpose

The proposed project would construct approximately 2.2 miles of multi-function corridor to provide maintenance access within the City's floodway easement along Laguna Creek. Additionally, as part of Phase 2 of the Project, the maintenance access road would develop and link a disconnected section of the Laguna Creek Trail system.

1.1.2. Need

The Project is needed to provide maintenance access to the reaches of Laguna Creek and Whitehouse Creek from East Stockton Boulevard to the Camden Park.

1.2. Description of the Existing Physical and Biological Conditions

The following sections discuss ecological conditions of the region and biological resources present within the BSA.

1.2.1. Physical Conditions

1.2.1.1. TOPOGRAPHY

The BSA is within the USGS Elk Grove 7 ½ Minute Quadrangle. The Project area occurs within a single distinct topographic region of valley floor. The topography of the valley floor consists of low-elevation fluvial plains formed on nonmarine sedimentary rock with gently rolling terrain located on the Sacramento valley floor. The BSA occurs between the approximate elevations of 45-50 feet above mean sea level.

1.2.1.2. SOILS

The Natural Resource Conservation Service (NRCS) Custom Soil Resource Report for the Project (NRCS 2018 – **Appendix A. NRCS Report**) identifies soils within the BSA as:

- Bruella sandy loam, 0 to 2 percent slopes (13.5%)
- Dierssen sandy clay loam, drain, 0 to 2 percent slopes (6.0%)
- Madera loam, 0 to 2 percent slopes (8.5%)
- San Joaquin silt loam, leveled, 0 to 1 percent slopes (9.6%)
- San Joaquin silt loam, 0 to 3 percent slopes (62.4%)

1.2.1.3. HYDROLOGICAL RESOURCES

Hydrological resources within the BSA include Laguna Creek, Whitehouse Creek, and associated wetland features: vernal pools, vernal swales, seasonal wetlands, seasonal wetland swales, and emergent marsh. Laguna Creek and Whitehouse Creek are part of the Morrison Creek watershed,

and Laguna Creek subwatershed, within the Lower Sacramento River Hydrologic Unit (HUC 6) (Caltrans 2018). Whitehouse Creek flows from east to west and has been redirected around residential developments north of the BSA. Whitehouse Creek then joins with Laguna Creek within the BSA approximately 0.25 miles east of East Stockton Boulevard. Laguna Creek flows east to west travelling approximately 4000 linear feet through the BSA from Camden Lake to East Stockton Boulevard. All wetland and water features were assessed for Federal and State jurisdiction.

1.2.2. Biological Conditions in the Biological Study Area

The BSA is dominated by undisturbed annual grassland areas and aquatic habitats. Land use within the BSA is designated as low- and medium-density residential and institutional. The BSA is currently zoned as “Agricultural Residential 5-acre min (AR-5) and is surrounded by “Low Density Residential” (RD-4) and “Shopping Center” (SC) according to the City’s General Plan, as amended (City of Elk Grove 2016). Dominant land cover and vegetative communities within the BSA consist of disturbed/urban, annual grassland, eucalyptus, freshwater pond, perennial creeks, vernal pools, vernal swales, seasonal wetlands, seasonal wetland swales, and emergent marsh (**Appendix A. Waters and Vegetation Communities within the BSA**).

1.2.2.1. VEGETATION COMMUNITIES

Disturbed/Urban

The disturbed/urban land cover type is defined as areas that have been subject to previous or ongoing disturbances such as along roadsides, trails, and parking lots. Mowed, scraped or graded land, and gravel areas would be included in this land cover type. Disturbed land cover type is vegetated with diverse weedy flora. Vascular plant species associated with these areas typically include Johnson grass (*Sorghum halepense*), Canadian horseweed (*Conyza canadensis*), milk thistle (*Silybum marianum*), yellow-star thistle (*Centaurea solstitialis*), and field bindweed (*Convolvulus arvensis*).

Annual Grassland

The Project area is dominated by annual grassland areas. The annual grasslands throughout the rural landscape consist of varying non-native species including wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), prickly lettuce (*Lactuca serriola*), and others. These annual grasslands within the BSA are typically used for hay production and are disturbed annually from this process.

Eucalyptus

The Project area has one area of eucalyptus habitat surrounding Shortline Lake. The eucalyptus stand is composed of Tasmanian blue gum (*Eucalyptus globulus*), a Cal-IPC listed invasive species. In most cases, eucalyptus forms a dense stand with a closed canopy, and are planted in rows for wind protection or dense groves for hardwood production. This stand appears to have been planted for wind protection for the Shortline Lake properties. The habitat is a monotypic stand of eucalyptus with little to no shrubby understory.

Freshwater Pond

The BSA includes a portion of Shortline Lake as freshwater pond habitat. This habitat his highly managed but the Shortline Lake properties, which use the pond as a water skiing course. Shortline Lake is a human-made excavated unnatural water body, managed to prevent algae and wetland vegetation from growing.

Perennial Creeks

A portion of the BSA includes Whitehouse Creek and Laguna Creek. The streams and creeks habitat type is defined as the average wetted area within the intermittent, seasonal and perennial linear water features such as rivers, streams, creeks, jurisdictional ditches & canals and drainages (continuous, ephemeral and intermittent). Habitat types typically found immediately adjacent to the stream and creek habitat include mixed riparian woodland, mixed riparian scrub, valley oak woodland, seasonal wetland, seasonal wetland swales, freshwater marsh, and valley grassland habitats.

Vernal Pool

Vernal pools are characterized by seasonal inundation and their potential to support vernal pool species. A wide variety of herbaceous species are associated with this community type, including Italian ryegrass, Mediterranean barley, coyote thistle (*Eryngium* spp.), smooth goldfields (*Lasthenia glaberrima*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and woolly marbles (*Psilocarphus* spp.). Additional species that may be present include Sacramento mint (*Pogogyne zizyphoroides*), hyssop loosestrife (*Lythrum hyssopifolium*), toad rush (*Juncus bufonius*), popcorn flower (*Plagiobothrys* spp.), alkali weed, mayweed, and curly dock. Vernal pool communities have the potential to support special-status vernal pool invertebrates, such as fairy shrimp (*Branchinecta* spp.) and tadpole shrimp (*Lepidurus* spp.).

Vernal Swale

Vernal pools are sometimes connected to each other by small drainages known as vernal swales, forming complexes of vernal pools. Vernal swales differ from vernal pools in that they function distinctly as shallow, seasonal conveyance channels. They typically connect vernal pools or convey shallow seasonal flows down gradual inclines often collecting water in a vernal pool or seasonal wetland. Vernal swales and pools typically share plant species and successive "rim bloom" plant assemblages and soil types (California Open Lands 2018).

Seasonal Wetland

Seasonal wetlands are defined as ephemeral wetlands that pond during the rainy season and dry during the summer dry season. This habitat type is dominated by hydrophytic vegetation types of grasses, herbs, and forbs. The seasonal wetland habitat type occurs in the adjacent lands of the Stone Lakes NWR in the northwest quadrant of the BSA. Seasonal wetlands can provide habitat for vernal pool associates, and habitat for a wide variety of wildlife including song birds, waterfowl, reptiles, and other wildlife species.

Seasonal Wetland Swale

The seasonal swale land cover type is defined as low meandering channels that tend to be saturated long enough to support vegetative associations. Swale features often represent the headwaters of streams, connect seasonal wetlands, and/or drain small watersheds into defined creeks. Swales can be supported by minor groundwater seepage. Swales contain rabbitsfoot grass (*Polypogon monspeliensis*), fireweed (*Epilobium pygmaeum*), fiddle dock (*Rumex pulcher*), and pricklyseed buttercup (*Ranunculus muricatus*). Seasonal swales that occur within and between vernal pool complexes are classified as vernal swales.

Emergent Marsh

Freshwater emergent wetlands are characterized by erect, rooted herbaceous hydrophytes such as common cattail. Emergent wetlands are flooded frequently enough so that the roots of the vegetation are in an anaerobic environment. On the upper margins of this habitat, saturated or periodically flooded soils support several moist soil plant species including Baltic rush (*Juncus*

balticus), tall flatsedge, smartweed (*Persicaria spp.*), and, on more alkali sites, saltgrass (*Distichlis spicata*). Lower, wetter portions of freshwater emergent wetlands in the Project area are composed of cattails, bulrush, and floating primrose. In the Project area, several freshwater emergent wetlands exist west of Franklin Boulevard.

Freshwater marshes are among the most productive wildlife habitats in California. Many species rely on freshwater marshes for their entire life cycle. The rare giant garter snake uses these wetlands as its primary habitat. Slow-moving waters provide important resting and foraging habitats for migratory water birds such as the mallard (*Anas platyrhynchos*) and cinnamon teal (*Anas cyanoptera*). Wetlands also provide habitat for the American coot (*Fulica americana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and black phoebe (*Sayornis nigricans*).

Chapter 2. Methods

Prior to field work, literature research was conducted through the United States Fish and Wildlife Service (USFWS) Species List (USFWS 2018), California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CNDDDB) (CDFW 2018), the California Native Plant Society (CNPS 2018) *Electronic Inventory of Rare and Endangered Plants* (**Appendix B: Species Lists**) to identify habitats and special-status species having the potential to occur within the BSA. General biological surveys and habitat assessments were conducted on April 4, 2018 which identified suitable habitat for five (5) special status plant species within the BSA. Additional botanical plant surveys were conducted on April 24-26 and June 21, 2018. Botanical field surveys were conducted following the methods outlined in the most recent CDFW *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018). Botanical surveys were conducted in the field at times when plants were both evident and identifiable, during flowering and fruiting stages according to the rare plants blooming periods (Jepson eFlora 2018). This included multiple visits in early, mid and late season to capture the floristic diversity within the BSA and to determine if special status plants were present. No adverse conditions within the BSA were identified and all surveys were conducted during appropriate weather and temperature conditions. The following is a list of survey dates and field surveys present:

- April 4, 2018 – Andrew Dellas and Scott Salembier
- April 24th, 25th, and 26th, 2018 –Andrew Dellas and Courtney Owens, and;
- June 21st, 2018 – Andrew Dellas and Scott Salembier.

Chapter 3. Results

Preliminary literature research was conducted to determine the special status plant species with the potential to occur in the vicinity of the project. A review of USFWS, CNDDDB, and CNPS online databases concluded that 23 special status plant species, within a the 9 Quad USGS 7.5-minute Quadrangle search area, had the potential to occur within the BSA. Based on preliminary research, aerial reconnaissance, and habitat assessments within the BSA, it was determined that 5 special status plant species had a low to high potential to occur within the BSA: Boggs Lake hedge-hyssop (*Gratiola heterospeala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), Sanford's arrowhead (*Sagittaria sanfordii*), and woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*). Table 1 below provides a list of all plant species identified within the BSA. Table 2 provides a list each of the rare or special status plant species, status, general habitat requirements, and potential the determined potential for each species to occur within the BSA. Below is a discussion of sensitive plant species with the potential to occur within the BSA, potential project impacts, and avoidance and minimization measures proposed for the Project.

Discussion of Sensitive Plant Species

BOGGS LAKE HEDGE-HYSSOP

Boggs Lake hedge-hyssop (*Gratiola heterospeala*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Boggs Lake hedge-hyssop is an annual herb inhabiting clay soils and shallow waters of marshes and swamps, lake margins, and vernal pools. The species flowers from April-August at elevations ranging from 33-7,792 feet.

DWARF DOWNINGIA

Dwarf downingia (*Downingia pusilla*) is not a state or federal listed species, but is a CNPS rare plant rank 2B.2. Dwarf downingia is an annual herb inhabiting vernal pools and mesic valley and foothill grassland communities. The species flowers from March-May at elevations ranging from 3-1,460 feet.

LEGENERE

Legenere (*Legenere limosa*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.1. Legenere is an annual herb inhabiting wet areas, vernal pools, and ponds. The species flowers from May-June at elevations ranging from 0-2,887 feet.

SANFORD'S ARROWHEAD

Sanford's arrowhead (*Sagittaria sanfordii*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Sanford's arrowhead is a perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds and ditches. The species flowers from May-October at elevations ranging from 0-2,132 feet.

WOOLLY ROSE-MALLOW

Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*) is not a state or federal listed species, but is a CNPS rare plant rank 1B.2. Woolly rose-mallow is a perennial rhizomatous herb inhabiting freshwater wetlands, wet banks, and marsh communities, and is often found in-between riprap on levees. The species flowers from June-September at elevations ranging from 0-394 feet

Table 1: Plant Species Observed within the BSA

Common Name	Scientific Name	Native (N)/ Non-native (X)
black mustard	<i>Brassica nigra</i>	X (Invasive) ¹
blue dicks	<i>Dichelostemma capitatum</i>	N
broadleaf cattail	<i>Typha latifolia</i>	N
bullthistle	<i>Cirsium vulgare</i>	X (Invasive) ¹
California brome	<i>Bromus carinatus</i>	N
California bulrush	<i>Schoenoplectus californicus</i>	N
California manroot	<i>Marah fabacea</i>	N
California poppy	<i>Eschscholzia californica</i>	N
California Wild Rose	<i>Rosa californica</i>	N
Canary Island pine	<i>Pinus canariensis</i>	X
carpet clover	<i>Trifolium monanthum</i>	N
Chinese pistache	<i>Pistacia chinensis</i>	X
Chinese privet	<i>Ligustrum sinense</i>	X
Chinese Tallow	<i>Triadica sebifera</i>	X (Invasive) ¹
Cichory	<i>Cichorium intybus</i>	X
coast redwood	<i>Sequoia sempervirens</i>	N
common fiddleneck	<i>Amsinckia intermedia</i>	N
common lippia	<i>Phyla nodiflora</i>	N
common smartweed	<i>Persicaria hydropiperoides</i>	X
common Sow-thistle	<i>Sonchus oleraceus</i>	X
common Spike-rush	<i>Eleocharis palustris</i>	N
common stork's-bill	<i>Erodium cicutarium</i>	X (Invasive)
common tarweed	<i>Centromadia pungens</i>	N
coyote brush	<i>Baccharis pilularis</i>	N
coyote-thistle	<i>Eryngium castrense</i>	N
curled dock	<i>Rumex crispus</i>	X (Invasive)
curvepod yellowcress	<i>Rorippa curvisiliqua</i>	N
cut-leaved crane's-bill	<i>Geranium dissectum</i>	X (Invasive)
Dallis grass	<i>Paspalum diatatum</i>	X
english plantain	<i>Plantago lanceolata</i>	X (invasive)
field sedge	<i>Carex praegracilis</i>	N
floating primerose-willow	<i>Ludwigia peploides</i>	N
fountain grass	<i>Pennisetum setaceum</i>	X (Invasive) ¹
foxtail Barley	<i>Hordeum murinum</i>	X (Invasive) ¹
Fremont cottonwood	<i>Populus fremontii</i>	N
French lavender	<i>Lavandula stoechas</i>	X
Goodding's willow	<i>Salix gooddingii</i>	N
hairy hawkbit	<i>Leontodon saxatilis</i>	X
hairy vetch	<i>Vicia villosa ssp. villosa</i>	X
harvest brodiaea	<i>Brodiaea elegans</i>	N

* CNPS sensitive

¹ California Invasive Plant Council (Cal-IPC) Moderate or High invasive rating

² Sacramento County Agricultural Commission High or Watch list rating

³ California Department of Food and Agriculture (CDFA) List C rating

Common Name	Scientific Name	Native (N)/ Non-native (X)
Himalayan Blackberry	<i>Rubus armeniacus</i>	X (Invasive) ¹
Hyssop loosestrife	<i>Lythrum hyssopifolia</i>	X (Invasive)
interior live oak	<i>Quercus wislizeni</i>	N
Italian Ryegrass	<i>Lolium multiflorum</i>	X (Invasive) ¹
Italian thistle	<i>Carduus pycnocephalus</i>	X (Invasive) ^{1,3}
jointed charlock	<i>Raphanus sativus</i>	X (Invasive)
little quaking-grass	<i>Briza minor</i>	X
London plane tree	<i>Platanus hispanica</i>	X
lupine sp.	<i>Lupinus</i>	N
Mediterranean barley	<i>Hordeum marinum gussoneanum</i>	X (Invasive) ¹
medusa head	<i>Taeniatherum caput-medusae</i>	X (Invasive) ^{1,2,3}
Mexican Fan Palm	<i>washingtonia robusta</i>	X (Invasive) ¹
milk thistle	<i>Silybum marianum</i>	X (Invasive) ¹
Muehlenberg's Centaury	<i>Zeltnera muehlenbergii</i>	N
narrow leaf milkweed	<i>Asclepias fascicularis</i>	N
narrowleaf willow	<i>Salix exigua</i>	N
Pacific poison oak	<i>Toxicodendron diversilobum</i>	N
pennyroyal	<i>Mentha pulegium</i>	X (Invasive) ¹
purple owl's-clover	<i>Castilleja exserta exserta</i>	N
ripgut brome	<i>Bromus diandrus</i>	X (Invasive) ^{1,3}
rose Clover	<i>Trifolium hirtum</i>	X (invasive)
rough cocklebur	<i>Xanthium strumarium</i>	N
scarlet oak	<i>Quercus coccinea</i>	X
small six-weeks grass	<i>Vulpia microstachys</i>	N
soft chess brome	<i>Bromus hordeaceus</i>	X (invasive)
Spikeweed	<i>Centromedia fitchii</i>	N
spreading Rush	<i>Juncus patens</i>	N
sturdy sedge	<i>Carex alma</i>	N
sweet fennel	<i>Foeniculum vulgare</i>	X (Invasive) ¹
tall flatsedge	<i>Cyperus eragrostis</i>	N
Tasmanian blue gum	<i>Eucalyptus globulus</i>	X (invasive)
tumbleweed	<i>Salsola tragus</i>	X (invasive)
valley oak	<i>Quercus lobata</i>	N
vernal pool buttercup	<i>Ranunculus bonariensis trisepalus</i>	
wall bedstraw	<i>Galium parisiense</i>	X
watercress	<i>Nasturtium officinale</i>	N
Western redbud	<i>Cercis occidentalis</i>	N
White stemmed filaree	<i>Erodium brachycarpum</i>	X
wild pea	<i>Pisum sativum elatius</i>	X
wildoats	<i>Avena fatua</i>	X (Invasive) ¹
yellow starthistle	<i>Centaurea solstitialis</i>	X (Invasive) ^{1,2,3}

* CNPS sensitive

¹ California Invasive Plant Council (Cal-IPC) Moderate or High invasive rating

² Sacramento County Agricultural Commission High or Watch list rating

³ California Department of Food and Agriculture (CDFA) List C rating

Table 2. Special Status Species with Potential to Occur in the Project Vicinity

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Plant Species					
Ahart's dwarf rush	<i>Juncus leisperrmus var. aharti</i>	Fed: -- State: -- CNPS: 1B.2	An annual herb inhabiting grassland swales, gopher mounds and vernal pool margins of mesic valley and foothill grassland communities. Flowers March – May (98-751 feet).	HP	Presumed Absent: The BSA does contain potentially suitable grassland and vernal pool habitat; however, the BSA is below the species known elevation range, and the nearest presumed extant occurrence is approximately 10 miles from the BSA. The species is presumed absent from the BSA.
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	Fed: -- State: -- CNPS: 1B.2	An annual herb inhabiting clay soils and shallow waters of marshes and swamps, lake margins, and vernal pools. Flowers April-August (33-7,792 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable shallow water and vernal pool habitat. The nearest presumed extant occurrence is approximately 3 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrence the species has a low to moderate potential to occur within the BSA.
Bolander's water-hemlock	<i>Cicuta maculata var. bolanderi</i>	Fed: -- State: -- CNPS: 2B.2	A perennial herb inhabiting coastal marshes and swamps with fresh or brackish water. Blooms July-September (6-660 feet).	A	Presumed Absent: The BSA does not contain suitable coastal marsh or brackish waters, and the nearest presumed extant occurrence is approximately 13 miles from the BSA within the Sacramento Delta. Due to the lack of suitable habitat and distance to presumed extant occurrences the species is presumed absent from the BSA.
bristly sedge	<i>Carex comosa</i>	Fed: -- State: -- CNPS: 2B.1	A perennial herb inhabiting coastal prairies, marshes and swamps along lake margins, and valley foothill grasslands communities. Blooms May-September (0-2,050 feet).	A	Presumed Absent: The BSA does not contain suitable coastal prairies, marshes, swamps, or valley foothill grassland communities. The nearest presumed extant occurrence of the species is approximately 7 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.
Delta mudwort	<i>Limosella australis</i>	Fed: -- State: -- CNPS: 1B.2	A perennial stoloniferous herb inhabiting low elevation muddy banks of riparian scrub, freshwater or brackish marshes and swamps, and intertidal flats. Flowers May-August (0 - 32feet).	HP	Presumed Absent: The BSA does contain suitable freshwater emergent marsh; however, the nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the distance

						to extant populations the species is presumed absent from the BSA.
Delta tule pea	<i>Lathyrus jepsonii</i> var <i>jepsonii</i>	Fed: State: CNPS:	-- -- 1B.2	A perennial herb inhabiting freshwater and brackish marshes of coastal and estuarine communities. Flowers May - August (0 - 98 feet).	A	Presumed Absent: The BSA does not contain suitable coastal and estuarine communities. The nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.
dwarf downingia	<i>Downingia pusilla</i>	Fed: State: CNPS:	-- -- 2B.2	An annual herb inhabiting vernal pools and mesic valley and foothill grassland communities. Flowers March-May (3-1,460 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable vernal pool habitat. The nearest presumed extant occurrence is approximately 2 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrences the species has a low to moderate potential to occur within the BSA.
Ferris' milk-vetch	<i>Astragalus tener</i> var. <i>ferrisiae</i>	Fed: State: CNPS:	-- -- 1B.1	An annual herb inhabiting vernal mesic meadows and seeps and sub-alkaline flats within valley and foothill grassland communities. Known only from six extant occurrences. Flowers April - May (6-246 feet).	A	Presumed Absent: The BSA does contain valley grasslands; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 15 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
Heckard's pepper-grass	<i>Lepidium latipes</i> var. <i>heckardii</i>	Fed: State: CNPS:	-- -- 1B.2	An annual herb found in alkaline flats within valley or foothill grasslands. Flowers March-May (0 - 660 feet).	A	Presumed Absent: The BSA does contain valley grasslands; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 7 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.

legenere	<i>Legenere limosa</i>	Fed: -- State: -- CNPS: 1B.1	An annual herb inhabiting wet areas, vernal pools, and ponds. Flowers May-June (0-2,887 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable wet areas and vernal pool habitat. The nearest presumed extant occurrence is approximately 1.5 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the presumed extant occurrences the species has a low to moderate potential to occur within the BSA.
marsh skullcap	<i>Scutellaria galericulata</i>	Fed: -- State: -- CNPS: 2B.2	A perennial rhizomatous herb inhabiting wet sites and streambanks of lower montane coniferous forest, mesic meadows and seeps, and marsh and swamp communities. Flowers June-September (0 -6,889 feet).	A	Presumed Absent: The BSA does not contain suitable lower montane coniferous forest or mesic meadow habitat. The nearest presumed extant occurrence of the species is approximately 12 miles from the BSA. Due to the lack of potentially suitable habitat and the distance to extant populations the species is presumed absent from the BSA.
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	Fed: -- State: -- CNPS: 1B.2	A perennial rhizomatous herb found exclusively in the Sacramento-San Joaquin River Delta and San Francisco Bay. Found in low elevation freshwater and brackish marshes adjacent to surface water. Flowers June - August (0 - 100 feet).	HP	Presumed Absent: The BSA is not located within the Sacramento-San Joaquin River Delta or San Francisco Bay area. The nearest presumed extant occurrence of the species is approximately 10 miles from the BSA within the Sacramento Delta channel. Due to the location of the BSA and the distance to extant populations, the species is presumed absent from the BSA.
Northern California black walnut	<i>Juglans hindsii</i>	Fed: -- State: -- CNPS: 1B.1	A deciduous tree inhabiting along streams and slopes within riparian forest and riparian woodland communities. Flowers April-May (0-1,444 feet).	A	Presumed Absent: The BSA does not contain suitable riparian forest or woodland communities. The nearest presumed extant populations of the species exist along the Sacramento River, approximately 10 miles from the BSA. Due to the lack of suitable habitat and the distance from extant occurrences, the species is presumed absent from the BSA.
Pappose tarplant	<i>Centromadia parryi ssp. parryi</i>	Fed: -- State: -- CNPS: 1B.2	An annual herb inhabiting chaparral, coastal scrub, meadows, seeps, marshes, swamps (coastal salt), and valley foothill grasslands often with alkaline soils. Flowers May - November (0 - 1377 ft.).	A	Presumed Absent: The BSA does contain potentially suitable valley grassland habitat; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 9 miles from the BSA. Due to

						the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
Peruvian dodder	<i>Cuscuta obtusiflora</i> <i>var. glandulosa</i>	Fed: State: CNPS:	-- -- 2B.2	An annual parasitic vine inhabiting freshwater marsh communities on herbs such as <i>Alternanthera</i> sp., <i>Dalea</i> sp., <i>Lythrum</i> sp., <i>Polygonum</i> sp., and <i>Xanthium</i> sp. Flowers July - October (49-1,640 feet).	HP	Presumed Absent: The BSA does contain potentially suitable habitat; however, the species has not been documented since the 1940's within California, of which one occurrence is noted as questionable by CNDDDB within approximately 3 miles from the BSA.
Sacramento Orcutt grass	<i>Orcuttia viscida</i>	Fed: State: CNPS:	E -- 1B.2	An annual herb inhabiting vernal pools. Flowers April-July (98-328 feet).	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 11 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	Fed: State: CNPS:	E -- 1B.2	A perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds and ditches. Flowers May-October (0-2,132 feet).	HP	High Potential: The BSA does contain potentially suitable freshwater marsh and creek channels. The nearest presumed extant occurrence of the species is approximately 1 mile from the BSA. Due to the presence of potentially suitable habitat and the proximity to CNDDDB presumed extant occurrences, the species is considered to have a high potential to occur within the BSA.
saline clover	<i>Trifolium hydrophilum</i>	Fed: State: CNPS:	-- -- 1B.2	An annual herb inhabiting mesic, alkaline soils of salt marsh, marshes and swamps, vernal pools, and valley and foothill grasslands. Flowers April-June (0 - 1,000 feet).	A	Presumed Absent: The BSA does contain potentially suitable marsh, vernal pool and valley grassland habitat; however, the web soil survey report (NCRS 2018) for the Project does not indicate any of the soils within the BSA to be highly alkaline. Therefore, suitable soils for the species do not exist within the BSA. The nearest presumed extant occurrence is approximately 10 miles from the BSA. Due to the lack of suitable soils and the distance from extant occurrences, the species is presumed absent from the BSA.
side-flowering skullcap	<i>Scutellaria lateriflora</i>	Fed: State:	-- --	A perennial rhizomatous herb inhabiting mesic meadow and seeps and marsh	HP	Presumed Absent: The BSA is not located within the Sacramento-San Joaquin River

		CNPS:	2B.2	and swamp communities. Known in CA from only three occurrences in the Sacramento-San Joaquin Delta. Flowers July (0-1,640 feet).		Delta. The nearest presumed extant occurrence of the species is approximately 10 miles from the BSA within the Sacramento Delta channel. Due to the location of the BSA and the distance to extant populations, the species is presumed absent from the BSA.
slender Orcutt grass	<i>Orcuttia tenuis</i>	Fed: State CNPS:	E -- --	An annual herb inhabiting vernal pools, often within gravelly soils. Flowers May-October (115-5,774 feet).	HP	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 6 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.
Suisun marsh aster	<i>Symphyotrichum lentum</i>	Fed: State CNPS:	-- -- 2B.3	A perennial rhizomatous herb inhabiting wetlands, freshwater marsh, and brackish-marsh communities. Flowers May-November (0-984 feet).	HP	Presumed Absent: The BSA does contain potentially suitable freshwater marsh and wetland habitat; however, the nearest presumed extant occurrence of the species is approximately 15 miles northwest of the BSA within the Yolo Bypass. Due to the distance of presumed extant occurrences, the species is presumed absent from the BSA.
watershield	<i>Brasenia schreberi</i>	Fed: State CNPS:	-- -- 2B.3	A perennial rhizomatous aquatic herb inhabiting ponds, slow streams and freshwater marsh and swamp communities. Flowers June-September (98-7,217 feet).	A	Presumed Absent: The BSA does contain potentially suitable vernal pool habitat; however, the BSA is below the known elevation range of the species. The nearest presumed extant population is approximately 8 miles from the BSA with the species known elevation range. Due to being outside of the species known elevation range, the species is presumed absent from the BSA.
woolly rose-mallow	<i>Hibiscus lasiocarpus</i> <i>var. occidentalis</i>	Fed: State: CNPS:	-- -- 1B.2	A perennial rhizomatous herb inhabiting freshwater wetlands, wet banks, and marsh communities. Often found in-between riprap on levees. Flowers June-September (0-394 feet).	HP	Low to Moderate Potential: The BSA does contain potentially suitable freshwater wetlands and marsh communities. The nearest presumed extant occurrence is within approximately 5 miles of the BSA. Due to the presence of potentially suitable habitat and the distance to extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA.

Project Impacts to Special Status Plants

BOGGS LAKE HEDGE-HYSSOP

The BSA does contain potentially suitable shallow water and vernal pool habitat. The nearest presumed extant occurrence is approximately 3 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrence the species has a low to moderate potential to occur within the BSA. No observations of the species were recorded during the botanical surveys on April 4, April 24-April 26, 2018 and June 21, 2018. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in the avoidance and minimization measures below. No direct impacts to the species are anticipated.

DWARF DOWNINGIA

The BSA does contain potentially suitable vernal pool habitat. The nearest presumed extant occurrence is approximately 2 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the extant occurrences the species has a low to moderate potential to occur within the BSA. No observations of the species were recorded during the botanical surveys on April 4, April 24-April 26, 2018 and June 21, 2018. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in the avoidance and minimization measures below. No direct impacts to the species are anticipated.

LEGENERE

The BSA does contain potentially suitable wet areas and vernal pool habitat. The nearest presumed extant occurrence is approximately 1.5 miles from the BSA. Due to the presence of potentially suitable habitat and the proximity to the presumed extant occurrences the species has a low to moderate potential to occur within the BSA. No observations of the species were recorded during the botanical surveys on April 4, April 24-April 26, 2018 and June 21, 2018. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in the avoidance and minimization measures below. No direct impacts to the species are anticipated.

SANFORD'S ARROWHEAD

The BSA does contain potentially suitable freshwater marsh and creek channels. The nearest presumed extant occurrence of the species is approximately 1 mile from the BSA. Due to the presence of potentially suitable habitat and the proximity to CNDDDB presumed extant occurrences, the species is considered to have a high potential to occur within the BSA. No observations of the species were recorded during the botanical surveys on April 4, April 24-April 26, 2018 and June 21, 2018. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in the avoidance and minimization measures below. No direct impacts to the species are anticipated.

WOOLLY ROSE-MALLOW

The BSA does contain potentially suitable freshwater wetlands and marsh communities. The nearest presumed extant occurrence is within approximately 5 miles of the BSA. Due to the presence of potentially suitable habitat and the distance to extant occurrences, the species is considered to have a low to moderate potential to occur within the BSA. No observations of the species were recorded during the botanical surveys on April 4, April 24-April 26, 2018 and June 21, 2018. Pursuant to the recommendations in the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018), a single season of negative surveys is not sufficient to determine absence of a species. A second round of rare plant surveys will be conducted during the bloom period prior to construction as described in the avoidance and minimization measures below. No direct impacts to the species are anticipated.

Avoidance and Minimization Efforts for Special Status Plant Species

All of the special status plant species with the potential to occur within the BSA are associated with aquatic natural communities within the BSA (vernal pools, seasonal wetlands, marsh, and perennial creeks). With the incorporation of project construction Best Management Practices (BMPs) as described in the Biological Resources Report and IS/MND for the Project, no direct impacts to special status plant species are anticipated. The following is a list of avoidance and minimization measures for potential impacts to aquatic features and special status plant species.

BIO-1: Prior to the start of construction activities, the project limits in proximity to jurisdictional waters must be marked with high visibility Environmentally Sensitive Area (ESA) fencing or staking to ensure construction will not further encroach into waters. The project biologist will periodically inspect the ESA to ensure sensitive locations remain undisturbed.

BIO-2: Contract specifications will include the following BMPs, where applicable, to reduce erosion during construction:

- Implementation of the project will require approval of a site-specific Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Program (WPCP) that would implement effective measures to protect water quality, which may include a hazardous spill prevention plan and additional erosion prevention techniques;
- Existing vegetation will be protected in place where feasible to provide an effective form of erosion and sediment control;
- Stabilizing materials will be applied to the soil surface to prevent the movement of dust from exposed soil surfaces on construction sites as a result of wind, traffic, and grading activities;
- Roughening and/or terracing will be implemented to create unevenness on bare soil through the construction of furrows running across a slope, creation of stair steps, or by utilization of construction equipment to track the soil surface. Surface roughening or terracing reduces erosion potential by decreasing runoff velocities, trapping sediment, and increasing infiltration of water into the soil, and aiding in the establishment of vegetative cover from seed.
- Soil exposure must be minimized through the use of temporary BMPs, groundcover, and stabilization measures;

- The contractor must conduct periodic maintenance of erosion- and sediment-control measures.

BIO-3: To conform to water quality requirements, the project must implement the following:

- Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants must be a minimum of 100 feet from surface waters. Any necessary equipment washing must occur where the water cannot flow into surface waters. The project specifications will require the contractor to operate under an approved spill prevention and clean-up plan;
- Construction equipment will not be operated in flowing water;
- Construction work must be conducted according to site-specific construction plans that minimize the potential for sediment input to waters of the U.S. and State;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life must be prevented from contaminating the soil or entering surface waters;
- Equipment used in and around surface waters must be in good working order and free of dripping or leaking contaminants; and,
- Any surplus concrete rubble, asphalt, or other debris from construction must be taken to an approved disposal site.

BIO-4: All temporarily disturbed areas will be restored onsite to pre-project conditions or better prior to project completion. Where possible, vegetation will be trimmed rather than fully removed with the guidance of the project biologist.

BIO-5: A focused rare plant survey will be conducted during the blooming season of each special status plant species with potential to occur within the project area prior to the start of construction (Boggs Lake hedge-hyssop, dwarf downingia, legenera, Sanford's arrowhead, and wooly rose-mallow). If rare plants are discovered during these surveys, additional ESA fencing or relocation will be implemented to avoid and minimize impact to the species. Coordination with CDFW may be required to determine appropriate buffer distances and/or relocation of species populations.

Chapter 5. References

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Appendix A - Supporting Materials

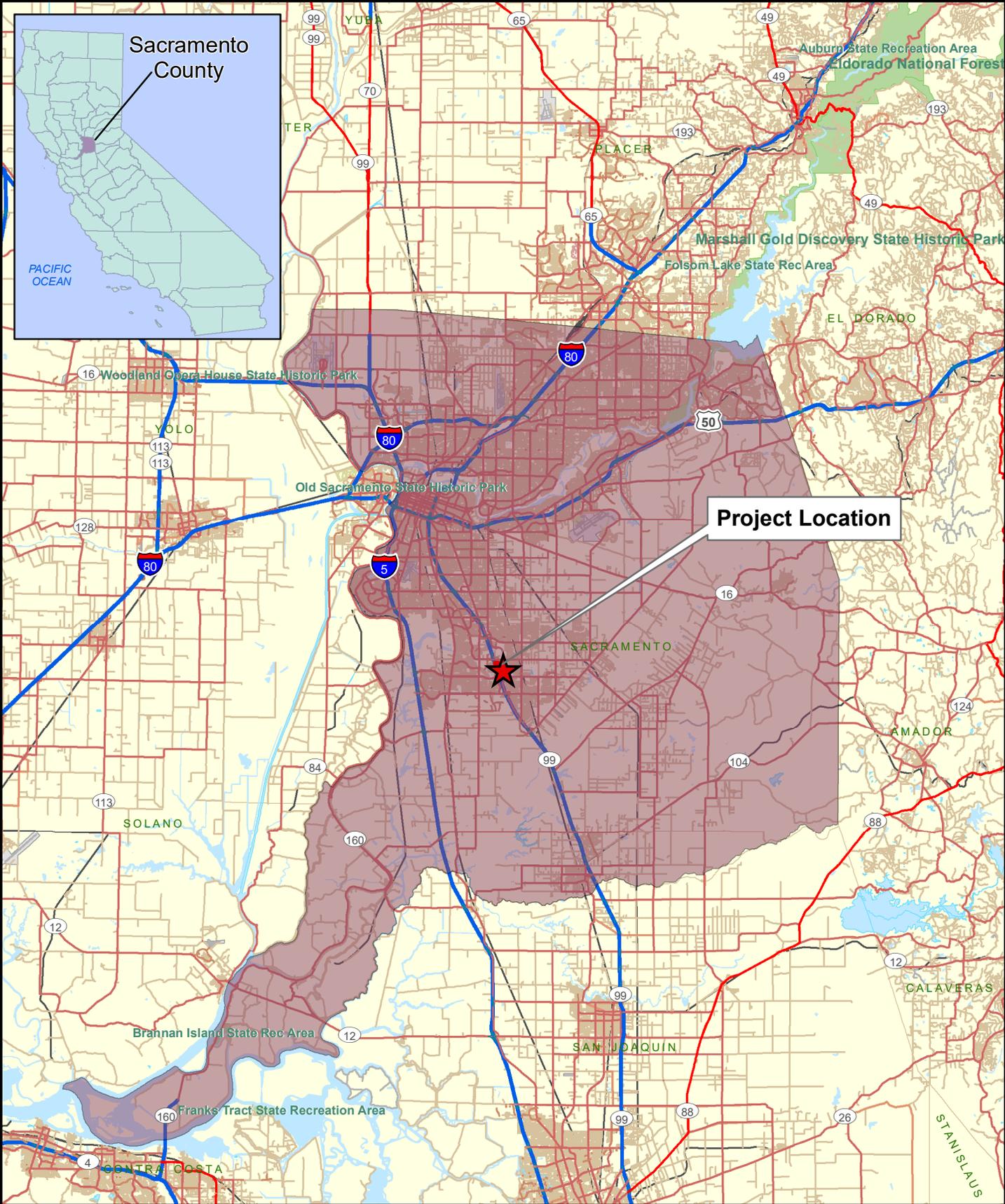
Vicinity Map

Location Map

Topographic Map

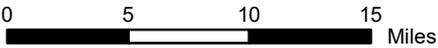
NRCS Report

Waters and Vegetation Communities Map



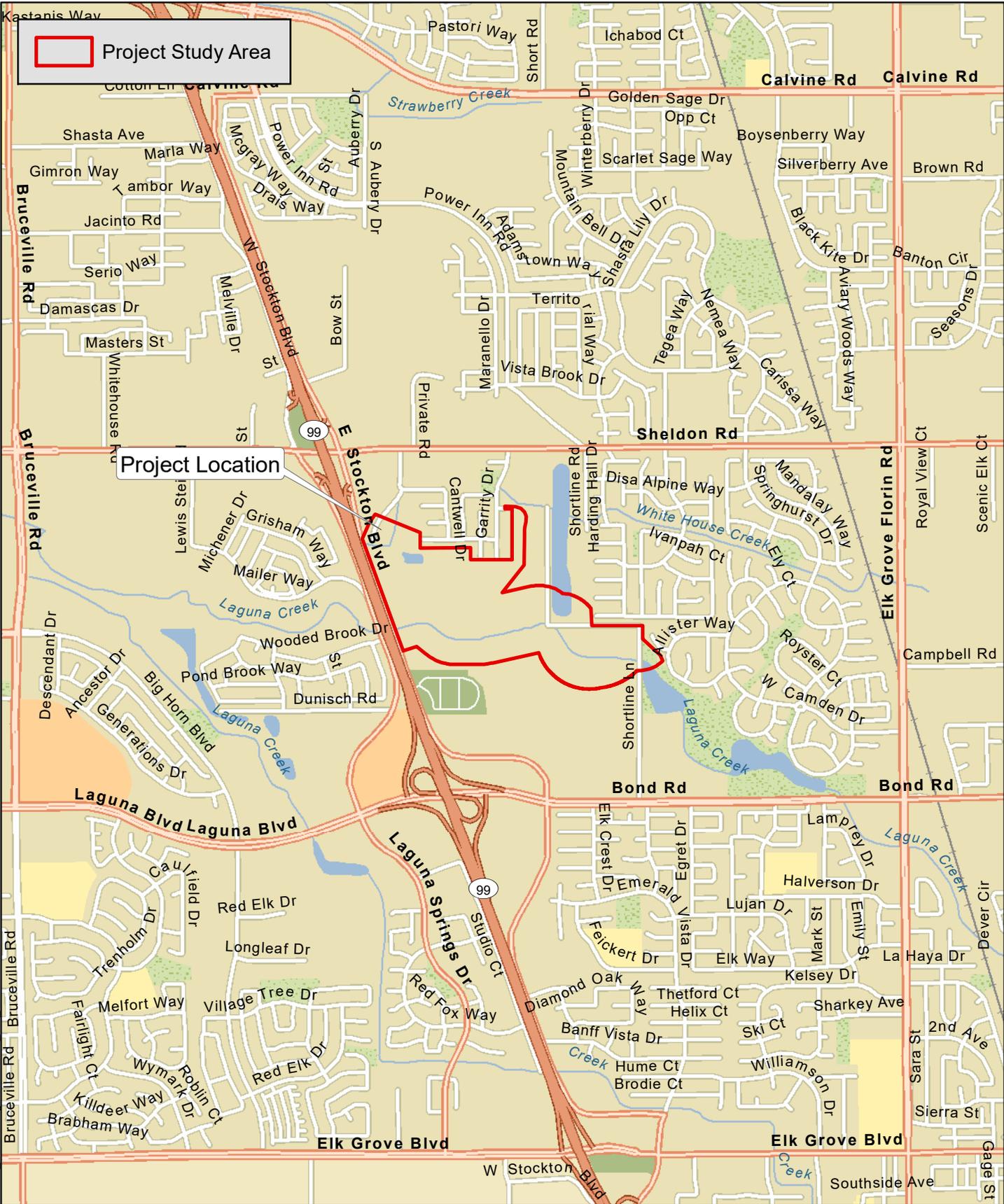
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Source: ESRI 2008; Dokken Engineering/3/30/2018; Created By: amyd



Project Vicinity

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
City of Elk Grove, Sacramento County, California



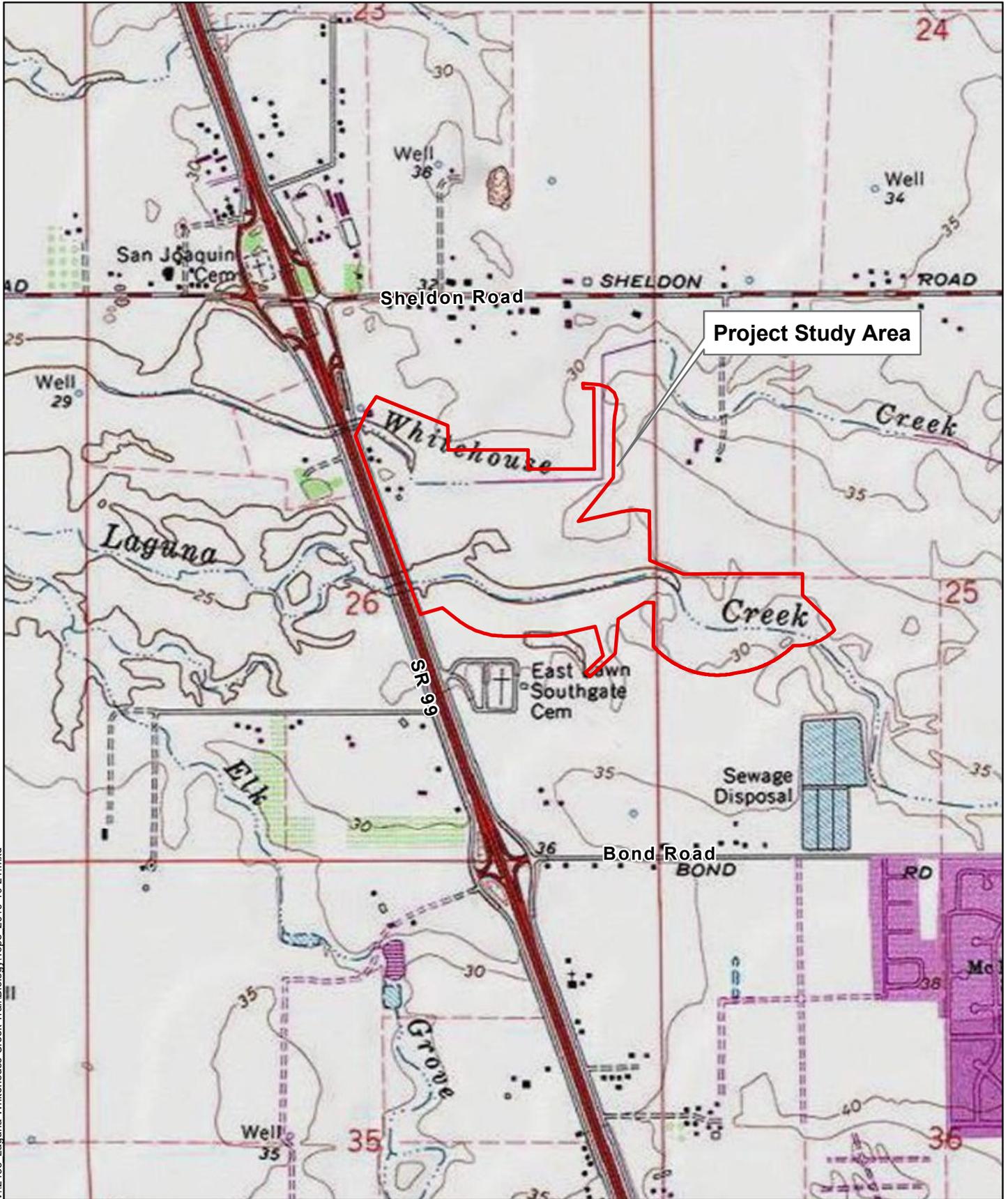
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Source: ESRI World Street Maps Online; Dokken Engineering 10/14/2019; Created By: adellas



Project Location

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
City of Elk Grove, Sacramento County, California



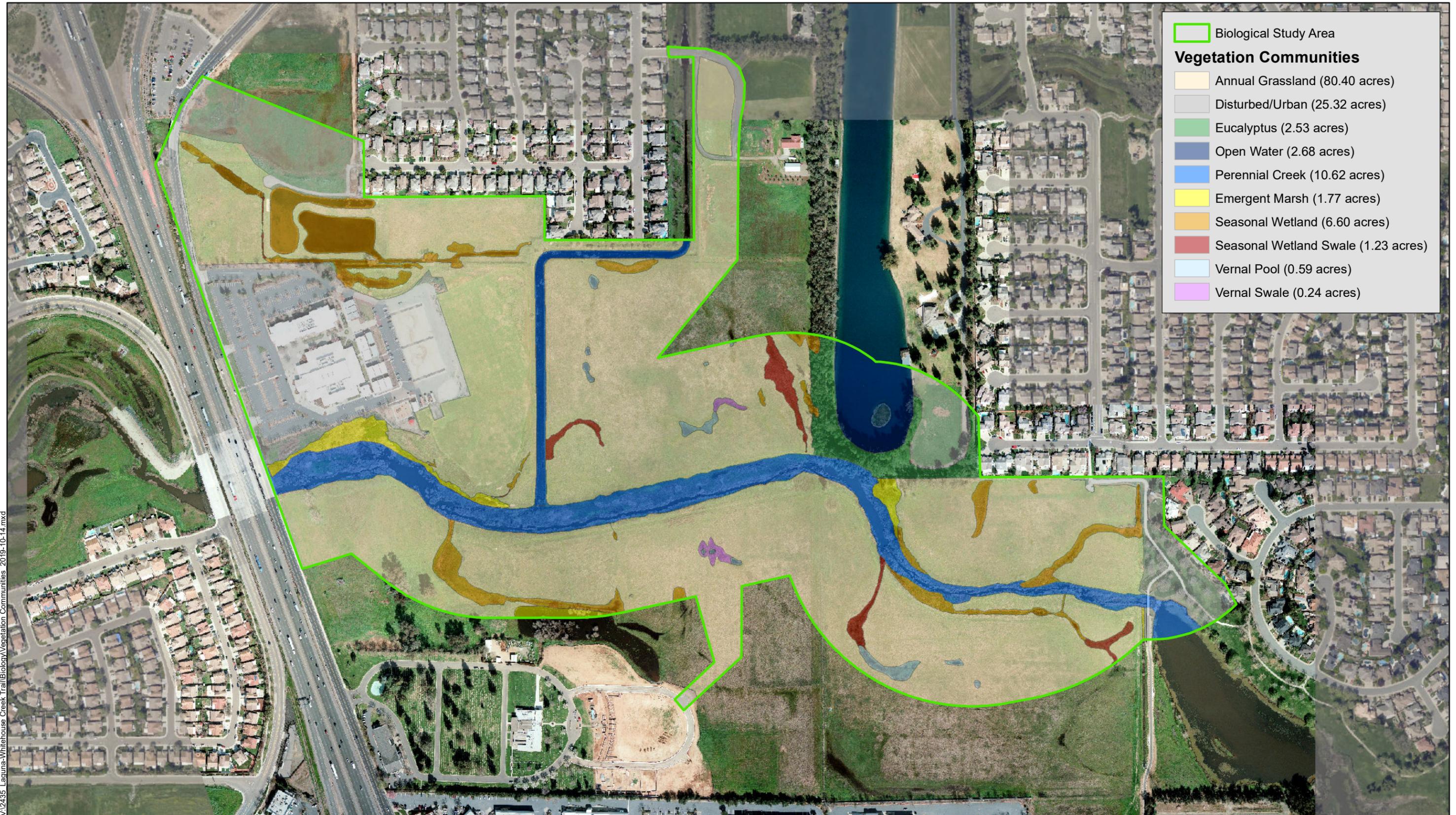
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Source: ESRI Maps Online; Dokken Engineering 10/21/2019; Created By: adellas

Topographic Map

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
 City of Elk Grove, Sacramento County, California





V:\2435 Laguna-Whitehouse Creek Trail\Biology\Vegetation Communities 2019-10-14.mxd

Source: ESRI Online; Dokken Engineering 10/15/2019; Created By: adellas



0 200 400 600 800 1,000
Feet

Waters and Vegetation Communities within the Biological Study Area

Laguna Creek and Whitehouse Creek Multi-Functional Corridor Project - WDR018
City of Elk Grove, California



United States
Department of
Agriculture

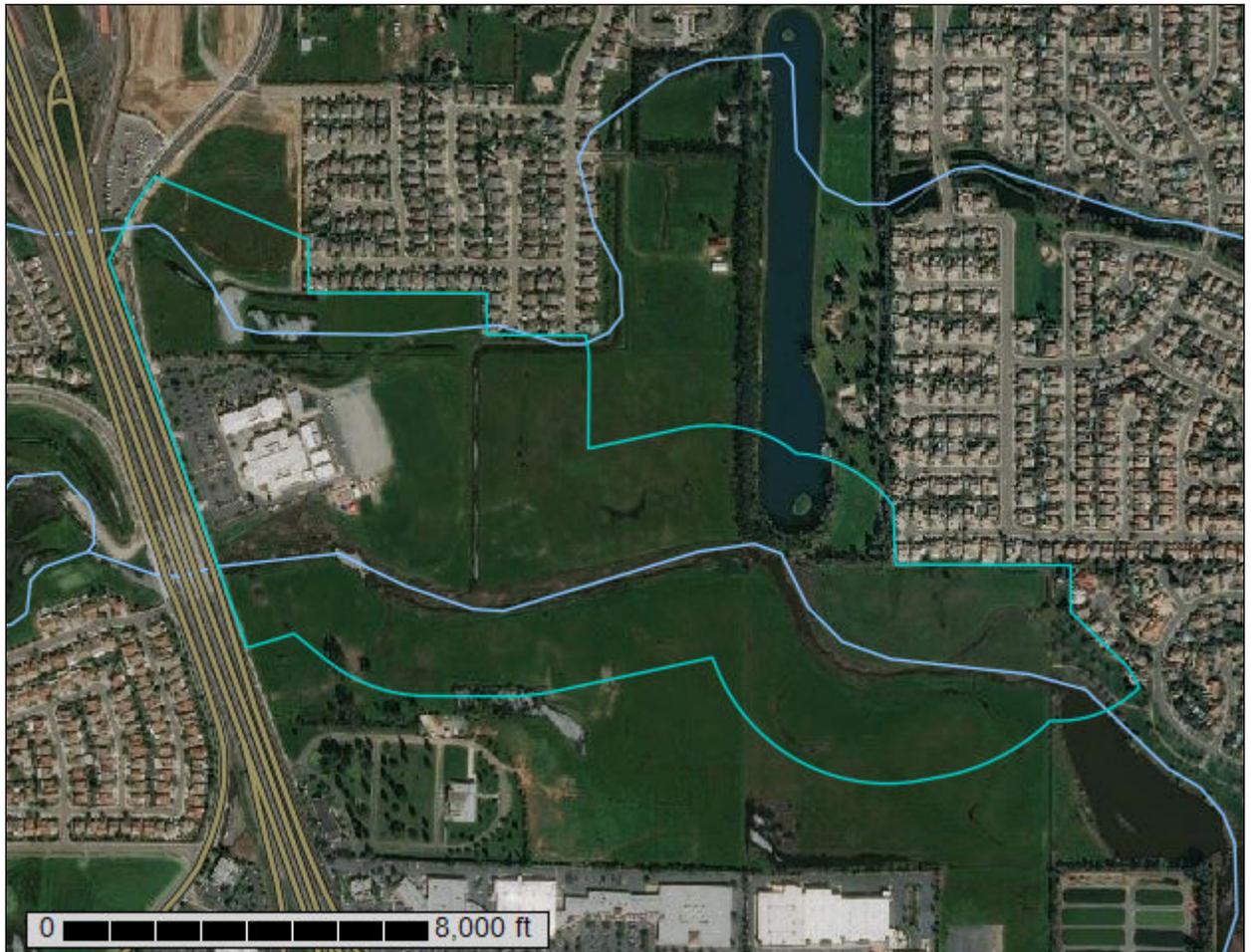
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Sacramento County, California**

WDR018-LCWC



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

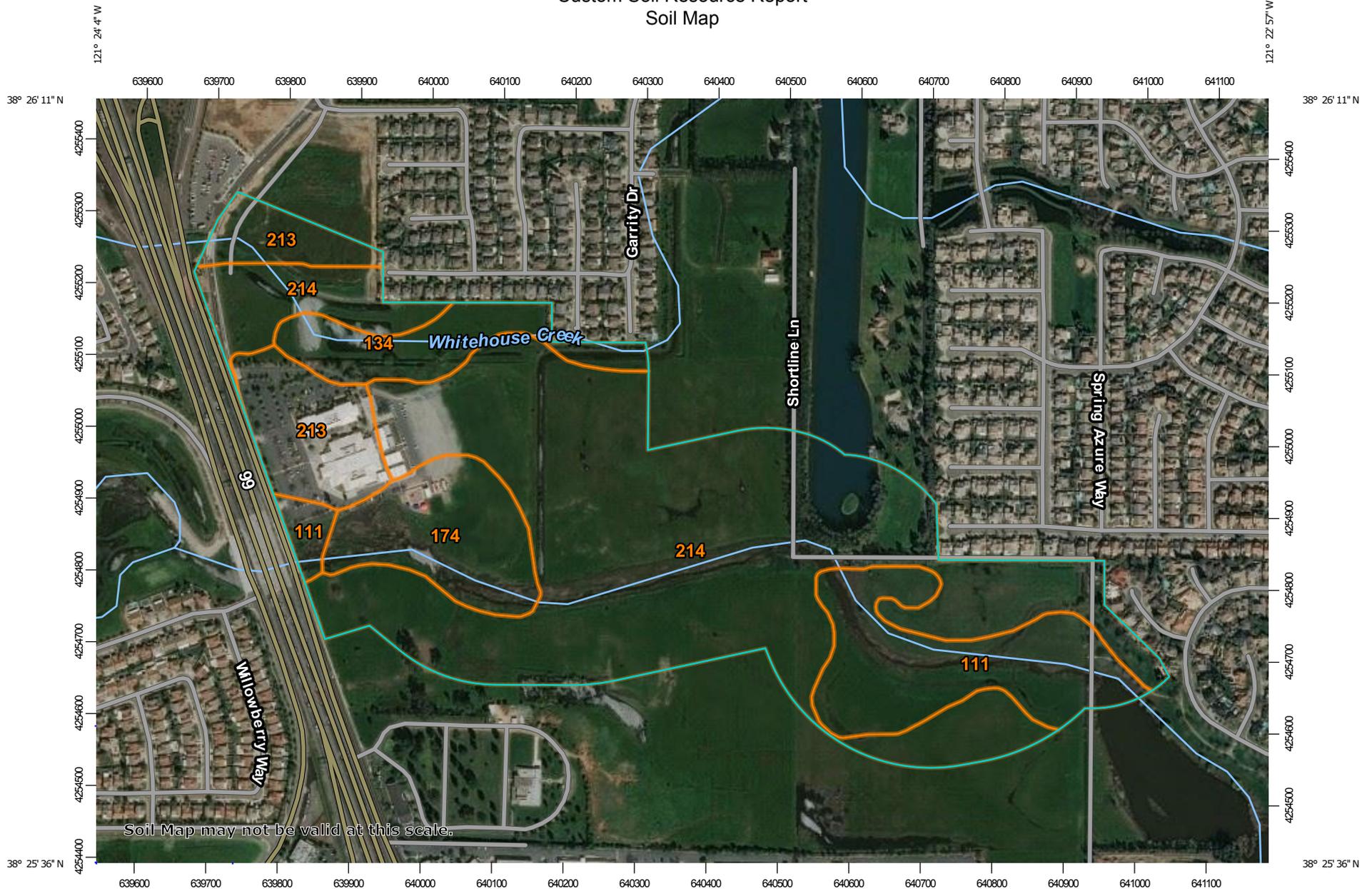
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

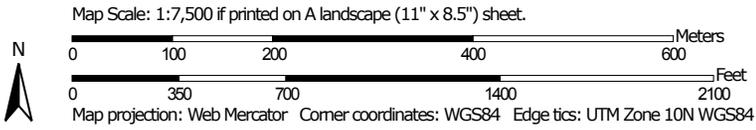
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sacramento County, California
 Survey Area Data: Version 16, Sep 26, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 12, 2016—Mar 28, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
111	Bruella sandy loam, 0 to 2 percent slopes	16.9	13.5%
134	Dierssen sandy clay loam, drained, 0 to 2 percent slopes	7.6	6.0%
174	Madera loam, 0 to 2 percent slopes	10.6	8.5%
213	San Joaquin silt loam, leveled, 0 to 1 percent slopes	12.0	9.6%
214	San Joaquin silt loam, 0 to 3 percent slopes	78.0	62.4%
Totals for Area of Interest		125.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sacramento County, California

111—Bruella sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhlk
Elevation: 30 to 150 feet
Mean annual precipitation: 15 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Bruella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bruella

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: sandy loam
H2 - 18 to 42 inches: sandy clay loam
H3 - 42 to 61 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Kimball

Percent of map unit: 5 percent
Hydric soil rating: No

San joaquin

Percent of map unit: 5 percent

Hydric soil rating: No

Xerarents

Percent of map unit: 5 percent

Hydric soil rating: No

134—Dierssen sandy clay loam, drained, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhm9

Elevation: 20 feet

Mean annual precipitation: 17 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 to 275 days

Farmland classification: Not prime farmland

Map Unit Composition

Dierssen and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dierssen

Setting

Landform: Basin floors

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: sandy clay loam

H2 - 14 to 31 inches: clay loam

H3 - 31 to 60 inches: cemented

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 31 to 60 inches to duripan

Natural drainage class: Somewhat poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: Rare

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Custom Soil Resource Report

Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Galt

Percent of map unit: 4 percent

Landform: Basin floors

Hydric soil rating: Yes

Tinnin

Percent of map unit: 3 percent

Hydric soil rating: No

Unnamed, lack clay subsoil

Percent of map unit: 2 percent

Hydric soil rating: No

Unnamed, occasional flooded

Percent of map unit: 2 percent

Hydric soil rating: No

Clear lake

Percent of map unit: 1 percent

Landform: Basin floors

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

Cosumnes

Percent of map unit: 1 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

Egbert

Percent of map unit: 1 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

Scribner

Percent of map unit: 1 percent

Landform: Flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

174—Madera loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhn1
Elevation: 20 to 250 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Madera and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Madera

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 15 inches: loam
H2 - 15 to 29 inches: clay
H3 - 29 to 60 inches: indurated

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: About 15 inches to abrupt textural change; 29 to 60 inches to duripan
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D

Custom Soil Resource Report

Ecological site: LOAMY CLAYPAN (R017XD047CA)

Hydric soil rating: No

Minor Components

Kimball

Percent of map unit: 5 percent

Hydric soil rating: No

Clear lake

Percent of map unit: 4 percent

Landform: Drainageways

Hydric soil rating: Yes

Galt

Percent of map unit: 4 percent

Landform: Terraces

Hydric soil rating: Yes

Unnamed, rarely flooded

Percent of map unit: 2 percent

Hydric soil rating: No

213—San Joaquin silt loam, leveled, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hhpv

Elevation: 20 to 500 feet

Mean annual precipitation: 10 to 22 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

San joaquin and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 23 inches: silt loam

H2 - 23 to 28 inches: clay loam

H3 - 28 to 54 inches: indurated

Custom Soil Resource Report

H4 - 54 to 60 inches: stratified sandy loam to loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: About 23 inches to abrupt textural change; 28 to 54 inches to duripan

Natural drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Bruella

Percent of map unit: 3 percent

Hydric soil rating: No

Durixeralfs

Percent of map unit: 3 percent

Hydric soil rating: No

Galt

Percent of map unit: 2 percent

Landform: Depressions

Hydric soil rating: Yes

Hedge

Percent of map unit: 2 percent

Hydric soil rating: No

Kimball

Percent of map unit: 2 percent

Hydric soil rating: No

Xerarents

Percent of map unit: 2 percent

Hydric soil rating: No

Unnamed, rarely flooded

Percent of map unit: 1 percent

Hydric soil rating: No

214—San Joaquin silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hhpw

Elevation: 20 to 500 feet

Mean annual precipitation: 10 to 22 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

San joaquin and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 23 inches: silt loam

H2 - 23 to 28 inches: clay loam

H3 - 28 to 54 inches: indurated

H4 - 54 to 60 inches: stratified sandy loam to loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: About 23 inches to abrupt textural change; 28 to 54 inches to duripan

Natural drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Ecological site: LOAMY (R017XD045CA)

Hydric soil rating: No

Minor Components

Galt

Percent of map unit: 4 percent

Landform: Depressions

Hydric soil rating: Yes

Bruella

Percent of map unit: 4 percent

Hydric soil rating: No

Hedge

Percent of map unit: 3 percent

Hydric soil rating: No

Kimball

Percent of map unit: 3 percent

Hydric soil rating: No

Unnamed, rarely flooded

Percent of map unit: 1 percent

Hydric soil rating: No

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Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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Appendix B – USFWS, CNDDDB, and CNPS Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

October 15, 2019

Consultation Code: 08ESMF00-2017-SLI-0085

Event Code: 08ESMF00-2020-E-00295

Project Name: Laguna Creek Trail Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-0085

Event Code: 08ESMF00-2020-E-00295

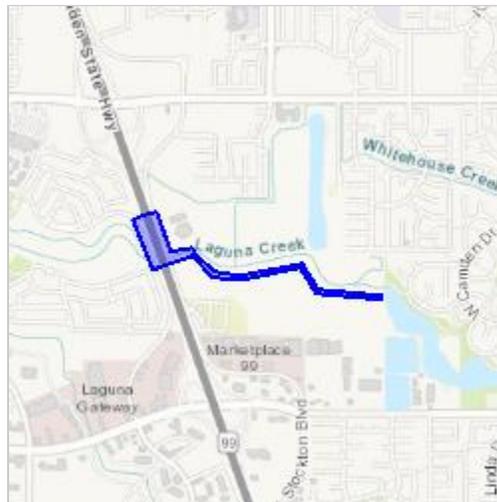
Project Name: Laguna Creek Trail Project

Project Type: RECREATION CONSTRUCTION / MAINTENANCE

Project Description: Construction of new 4,100 long trail segment and bridge to close the gap between the Whitehouse Creek Trail and Laguna Creek Trail

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.43078237010417N121.39794668712466W>



Counties: Sacramento, CA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad (Florin (3812144) OR Elk Grove (3812143) OR Sacramento East (3812154) OR Sacramento West (3812155) OR Galt (3812133) OR Bruceville (3812134) OR Courtland (3812135) OR Carmichael (3812153) OR Clarksburg (3812145))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	PMJUN011L1	None	None	G2T1	S1	1B.2
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
bank swallow <i>Riparia riparia</i>	ABPAU08010	None	Threatened	G5	S2	
black-crowned night heron <i>Nycticorax nycticorax</i>	ABNGA11010	None	None	G5	S4	
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	PDSCR0R060	None	Endangered	G2	S2	1B.2
Bolander's water-hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
bristly sedge <i>Carex comosa</i>	PMCYP032Y0	None	None	G5	S2	2B.1
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California black rail <i>Laterallus jamaicensis coturniculus</i>	ABNME03041	None	Threatened	G3G4T1	S1	FP
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander <i>Ambystoma californiense</i>	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i> pop. 6	AFCHA0205A	Threatened	Threatened	G5	S1	
chinook salmon - Sacramento River winter-run ESU <i>Oncorhynchus tshawytscha</i> pop. 7	AFCHA0205B	Endangered	Endangered	G5	S1	
Coastal and Valley Freshwater Marsh <i>Coastal and Valley Freshwater Marsh</i>	CTT52410CA	None	None	G3	S2.1	
Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040	None	None	G5	S4	WL
Delta mudwort <i>Limosella australis</i>	PDSCR10030	None	None	G4G5	S2	2B.1
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	PDFAB250D2	None	None	G5T2	S2	1B.2
double-crested cormorant <i>Phalacrocorax auritus</i>	ABNFD01020	None	None	G5	S4	WL



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2
Elderberry Savanna <i>Elderberry Savanna</i>	CTT63440CA	None	None	G2	S2.1	
Ferris' milk-vetch <i>Astragalus tener var. ferrisiae</i>	PDFAB0F8R3	None	None	G2T1	S1	1B.1
ferruginous hawk <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
golden eagle <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
great blue heron <i>Ardea herodias</i>	ABNGA04010	None	None	G5	S4	
great egret <i>Ardea alba</i>	ABNGA04040	None	None	G5	S4	
Great Valley Cottonwood Riparian Forest <i>Great Valley Cottonwood Riparian Forest</i>	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest <i>Great Valley Mixed Riparian Forest</i>	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest <i>Great Valley Valley Oak Riparian Forest</i>	CTT61430CA	None	None	G1	S1.1	
hairy water flea <i>Dumontia oregonensis</i>	ICBRA23010	None	None	G1G3	S1	
Heckard's pepper-grass <i>Lepidium latipes var. heckardii</i>	PDBRA1M0K1	None	None	G4T1	S1	1B.2
hoary bat <i>Lasiurus cinereus</i>	AMACC05030	None	None	G5	S4	
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
longfin smelt <i>Spirinchus thaleichthys</i>	AFCHB03010	Candidate	Threatened	G5	S1	
marsh skullcap <i>Scutellaria galericulata</i>	PDLAM1U0J0	None	None	G5	S2	2B.2
Mason's lilaepsis <i>Lilaepsis masonii</i>	PDAP19030	None	Rare	G2	S2	1B.1
merlin <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL
midvalley fairy shrim <i>Branchinecta mesovallensis</i>	ICBRA03150	None	None	G2	S2S3	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
pappose tarplant <i>Centromadia parryi ssp. parryi</i>	PDAST4R0P2	None	None	G3T2	S2	1B.2
Peruvian dodder <i>Cuscuta obtusiflora var. glandulosa</i>	PDCUS01111	None	None	G5T4?	SH	2B.2
purple martin <i>Progne subis</i>	ABPAU01010	None	None	G5	S3	SSC
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	IICOL5V010	None	None	G2?	S2?	
Sacramento Orcutt grass <i>Orcuttia viscida</i>	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Sacramento perch <i>Archoplites interruptus</i>	AFCQB07010	None	None	G2G3	S1	SSC
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	AFCJB34020	None	None	GNR	S3	SSC
Sacramento Valley tiger beetle <i>Cicindela hirticollis abrupta</i>	IICOL02106	None	None	G5TH	SH	
saline clover <i>Trifolium hydrophilum</i>	PDFAB400R5	None	None	G2	S2	1B.2
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
side-flowering skullcap <i>Scutellaria lateriflora</i>	PDLAM1U0Q0	None	None	G5	S2	2B.2
slender Orcutt grass <i>Orcuttia tenuis</i>	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
song sparrow ("Modesto" population) <i>Melospiza melodia</i>	ABPBXA3010	None	None	G5	S3?	SSC
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus pop. 11</i>	AFCHA0209K	Threatened	None	G5T2Q	S2	
Suisun Marsh aster <i>Symphotrichum lentum</i>	PDASTE8470	None	None	G2	S2	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2	S2	
Valley Oak Woodland <i>Valley Oak Woodland</i>	CTT71130CA	None	None	G3	S2.1	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3S4	
watershield <i>Brasenia schreberi</i>	PDCAB01010	None	None	G5	S3	2B.3
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G3	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	PDMAL0H0R3	None	None	G5T3	S3	1B.2
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 68

*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

22 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in Quads 3812154, 3812155, 3812153, 3812144, 3812143, 3812135 3812134 and 3812133;

[Modify Search Criteria](#)
[Export to Excel](#)
[Modify Columns](#)
[Modify Sort](#)
[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	2B.1	S2?	G5T4T5
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	2B.2	SH	G5T4?
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	1B.2	S1	G2T1
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Scutellaria galericulata	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	2B.2	S2	G5
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	2B.2	S2	G5
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

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Questions and Comments

rareplants@cnps.org

Appendix C – Representative Photographs



Representative Photograph 1. View of seasonal wetland/detention basin in northwestern quadrant of BSA, facing west.



Representative Photograph 2. View of seasonal wetland along north side of Creekside Church, facing east.



Representative Photograph 3. View of Whitehouse Creek, facing south toward confluence with Laguna Creek.



Representative Photograph 4. View of Vernal Pool north of Laguna Creek and east of Whitehouse Creek, facing south.



Representative Photograph 5. View of Emergent Marsh adjacent Laguna Creek, south of Shortline Lake, facing northwest.



Representative Photograph 6. View of Laguna Creek and aquatic vegetation, facing east.



Representative Photograph 7. View of Laguna Creek and aquatic vegetation south of Shortline Lake, facing north.



Representative Photograph 8. View of annual grassland and seasonal wetland swale south of Laguna Creek, facing south.

Appendix G GGS Habitat Assessment

Eric C. Hansen
Consulting Environmental Biologist

4200 N. Freeway Blvd., Suite 4
Sacramento, CA
95834-1235



Phone 916-921-8281
Fax 916-921-8278
Mobile 916-214-7848

Date:

To: Amy Dunay
Dokken Engineering
110 Blue Ravine Road, Ste 200
Folsom, CA 95630

Re: Giant gartersnake (*Thamnophis gigas*) Habitat Assessment on the City of Elk Grove's Laguna Creek / Whitehouse Creek Trail Project, Sacramento County, California.

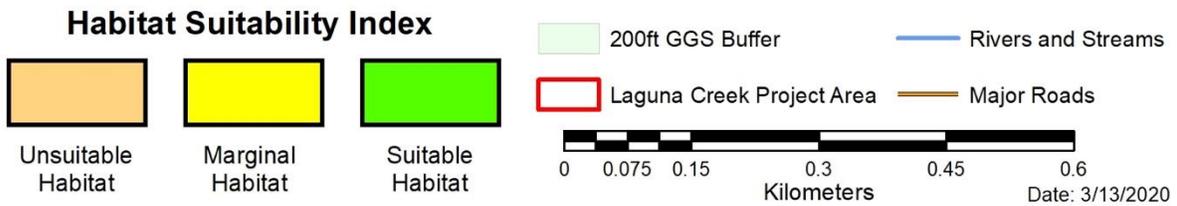
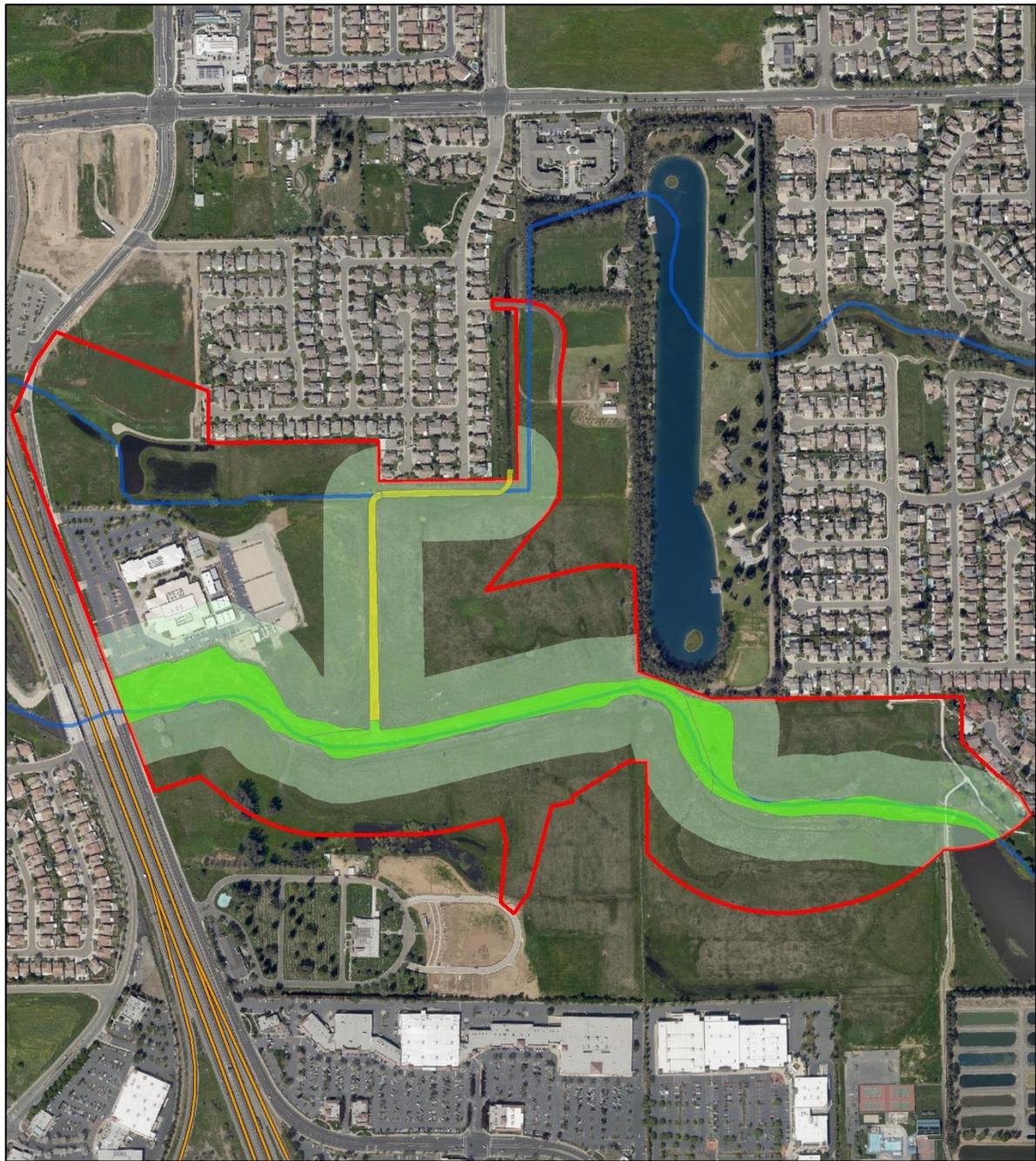
Dear Ms. Dunay,

This memorandum provides the results of the 6 March, 2020 survey at Elk Grove's Laguna Creek/Whitehouse Creek in Sacramento County, California. This survey was conducted to assess potential habitat for the giant garter snake (*Thamnophis gigas*) and was completed in reference to figures provided by Dokken Engineering via electronic mail on **6 February 2019**. Potential habitat was evaluated using a combination of ground-level surveys, National Agricultural Imagery Program (NAIP) aerial imagery, and Geographic Information System (GIS) program ArcGIS 10.6 to roughly quantify existing habitat, to assess the overall suitability of the site based on the prevailing character of the landscape, and to examine the site's location in regard to historical and recent giant garter snake occurrence records. This memorandum provides a thorough species background (Appendix A), details the methodology used to assess habitat suitability (Appendix B), and includes a discussion of the site's suitability for giant garter snake conservation. Photographs illustrating the site's general character are provided in a separate photo appendix at the end of this document (Appendix C).

The lands encompassing this reach of Laguna Creek (Figure 1) area characterized by a combination of suitable features required to support permanent populations of garter snakes, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; 4) high ground or upland habitat above the annual high water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

The lands encompassing this reach of Whitehouse Creek constitute marginal habitat, which is characterized by any combination of those features listed above needed to support transient giant garter snakes on a temporary basis, or to act as connective corridors between areas of more stable or desirable habitat.

Figure 1. Map of giant gartersnake landscape suitability values



Project Description

The following is a project description provided by Dokken Engineering via electronic mail on 18 February, 2020:

“The Project would be constructed in two phases. Phase I of the Project would include construction of a maintenance access road (paved with no striping) from the existing Laguna Creek Trail, located south of the intersection of Beckington Drive and White Peacock Way, to a connection at East Stockton Boulevard approximately 750 feet south of the intersection of East Stockton Boulevard and Cantwell Drive. The project may also consider a connection to the west end of the existing trail at Camden Park. The maintenance access road would be constructed above the 10-year flood plain to provide City maintenance crews and contractors access to Laguna and Whitehouse Creeks, especially during storm events. The maintenance access road would consist of 12 to 16 feet of pavement with unpaved shoulders ranging from 2 to 3 feet. While the majority of the maintenance access road would be paved, the segments of the maintenance road which provide direct access to Laguna Creek may be unpaved. Where determined feasible, single span pre-fab steel or concrete bridges providing necessary access across Laguna and Whitehouse Creeks.

Phase II of the Project would consist of converting the maintenance access road into a Class 1 multi-use trail corridor connection between the Camden Park and East Stockton Boulevard, with striping, paving unpaved segments of the access road, and trail amenities incorporated as necessary. Phase II of the Project would complete a gap within the trail system in accordance with the City’s Bicycle, Pedestrian, and Trails Master Plan.

A future phase, Phase III, may be constructed which would preserve, rehabilitate, and enhance the creeks and adjacent wetlands; however, Phase III is not part of this Project and will be subject to environmental review at a later time.

Right-of-way acquisitions and temporary construction easements are needed where the multi-functional corridor passes through privately-owned parcels.

This Project is funded through the City’s Storm Drainage Master Plan and is subject to compliance with the California Environmental Quality Act (CEQA). The lead agency for CEQA compliance is the City. The Project is also subject to compliance with the National Environmental Policy Act (NEPA) due to anticipated federal permitting through the U.S. Army Corps of Engineers federal nexus during the Clean Water Act Section 404 permitting process for project impacts to waters of the U.S.”

Proximity to Known Records

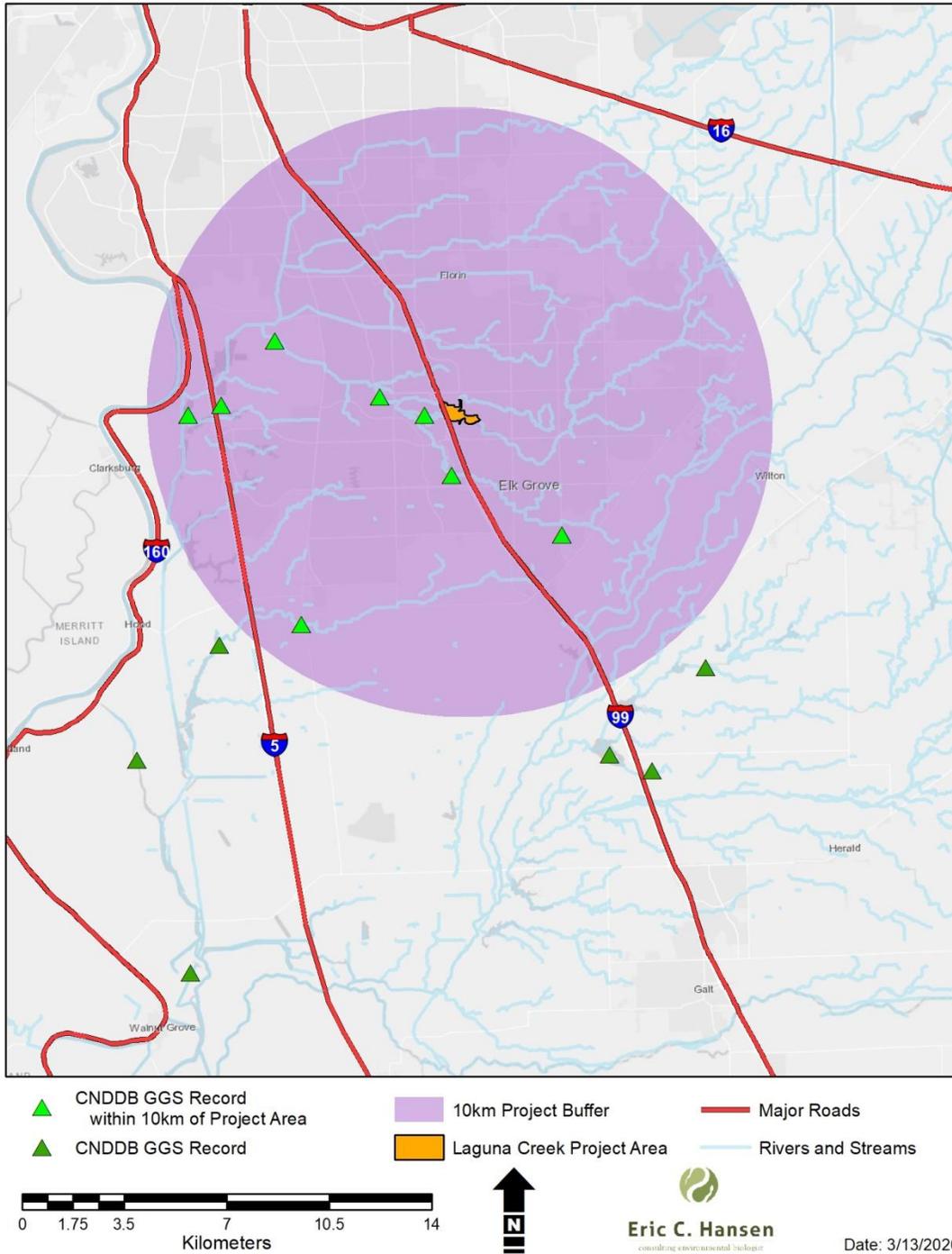
Giant gartersnakes have been documented within the project vicinity. A search of the California Natural Diversity Database (CNDDDB 2020) shows 8 GGS records within a 10-kilometer radius of the project area (Table 1, Figure 2), with at least 4 GGS documented within a 5-kilometer radius

of the project. While the CNDDDB search resulted in several occurrences of GGS near the project area, over half of the occurrences are nearly 30+ years old. In addition to the lapse of time since the majority of occurrences, there have been significant land use changes in this area which greatly reduce the likelihood these occurrences are still viable.

Table 1. CNDDDB GGS occurrence records within 10 km of the Project site

Occ. No.	USGS 7.5' Topographic Quadrangle(s)	Township	Range	Section	County	Year Last Seen
52	Bruceville	6N	5E	17	Sacramento	1976
169	Elk Grove	6N	6E	08	Sacramento	2002
13	Florin	7N	5E	35	Sacramento	1982
84	Florin	7N	5E	26	Sacramento	1982
15	Florin	7N	4E	25	Sacramento	1992
147	Florin	7N	4E	25	Sacramento	1965
14	Florin	7N	5E	27	Sacramento	1976
198	Florin	7N	5E	17	Sacramento	2005

Figure 2. CNDDDB occurrences within 10 Km of the Project site



Results and Discussion

Results from this survey were determined by a habitat assessment conducted on 6 March 2020 at Elk Grove's Laguna Creek/White House Creek.

During the 2020 survey to identify and classify areas of potential giant gartersnake habitat in the Project area, aquatic features were evaluated using a list of 22 variables associated with giant gartersnake life history to characterize features using Geographic Information Systems (GIS), resulting in a database file depicting cumulative habitat scores for each feature. Aquatic reaches within the entirety of the Project area have been projected as polygon features on maps and classified by cumulative habitat score to show suitability for giant gartersnakes. This evaluation provides a series of GIS-generated maps illustrating habitat value by colored code, supporting a detailed classification, by trait, of habitat variables within the Project area that can be used to guide planning and mitigation (Hansen 2017).

The habitat surrounding Laguna Creek is deemed suitable habitat due to a combination of features capable of supporting a permanent population of GGS and adjacent to this suitable habitat is Whitehouse Creek, which is marginal at best. Although the landscape surrounding Laguna Creek is considered suitable, landscape changes and urban development that has taken place in the surrounding area since the last CNDDDB record of occurrence may reduce the likelihood of GGS persistence in the region. However, patterns of contemporary occupancy and distribution of GGS in this region remain relatively unexplored, and intensive sampling has not been conducted to my knowledge since prior to 2000.

If you have questions regarding this evaluation, the methodologies, or any of the subsequent comments, please do not hesitate to contact me. I will gladly expand on any of these topics upon request.

Sincerely,

A handwritten signature in black ink that reads "Eric C. Hansen". The signature is written in a cursive, flowing style.

Eric C. Hansen
Consulting Environmental Biologist

Appendix A

The giant gartersnake (GGS) is a federal- and state-listed species endemic to California's Great Central Valley. Described as among California's most aquatic gartersnakes (Fitch 1940), GGS are associated with low-gradient streams and the wetlands and marshes of the valley floor. The conversion of Central Valley wetlands for agriculture and urban uses has resulted in the loss of as much as 95% of historical habitat for the GGS (Wylie et al. 1997). In some instances where wetlands have been reclaimed, GGS have adapted successfully to rice agriculture and the irrigation infrastructure supporting its practice (G. Hansen and J. Brode 1992; G. Hansen 1998; USFWS 1999; Wylie et al. 1997). GGS once ranged from Buena Vista Lake near Bakersfield, Kern County, north toward the vicinity of Chico in Glenn and Colusa Counties (Hansen and Brode 1980). Due mainly to loss or degradation of aquatic habitat resulting from agricultural and urban development, GGS has been either extirpated or else suffered serious declines throughout much of its former range. The current known distribution of GGS extends from near Chico in Butte County south to the Mendota Wildlife Area in Fresno County. GGS now occupy two geographically separate distributions within the Sacramento Valley and the Central San Joaquin Valley.

In areas where GGS has adapted to agriculture, maintenance activities such as vegetation and rodent control, bankside grading or dredging, and discharge of contaminants may also threaten their survival (Hansen and Brode 1980, Brode and Hansen 1992, Hansen and Brode 1993, USFWS 1999, Wylie et al. 2004). Continued loss of wetland or other suitable habitat resulting from agricultural and urban development constitutes the greatest threat to this species' survival, particularly in the southern aspect of its range.

Appendix B

Habitat Assessment

To identify and classify areas of potential giant gartersnake habitat in the Project area, aquatic features were evaluated using a list of 22 variables associated with giant gartersnake life history to characterize features using Geographic Information Systems (GIS), resulting in a database file depicting cumulative habitat scores for each feature. Aquatic reaches within the entirety of the Project area have been projected as polygon features on maps and classified by cumulative habitat score to show suitability for giant gartersnakes. This evaluation provides a series of GIS-generated maps illustrating habitat value by colored code, supporting a detailed classification, by trait, of habitat variables within the Project area that can be used to guide planning and mitigation.

Methods

Though no formal habitat assessment protocol exists for the giant gartersnake, the proposed assessment will assess attributes similar to those developed and provided by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (formerly Department of Fish and Game) for California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*). The work product characterizes suitability based on giant gartersnake life history parameters, the condition and contiguity of regional landscape features, including aquatic corridors providing linkages to suitable habitats, and proximity and connectedness to historical and recent giant gartersnake observations. Though informal, this approach has been applied repeatedly under varying scenarios (both large- and small-scale) to inform decision making through the NEPA/CEQA process.

Habitat evaluation criteria in this evaluation are based on recognized minimum ecological requirements for giant gartersnakes. Each criterion is scored, with a final numerical total represented categorically using GIS. Where possible, all results are based on a visual assessment of habitat; where visual confirmation was not possible; values are based on interpretation of aerial imagery. All surveys were conducted in publically accessible waters by watercraft. Aquatic habitat values assigned to agricultural ditches, canals, and drains in the study area are based on aerial imagery and cursory observations made from public waterways, public access roads and private roads transited during the study. No trapping, water sampling or other data collection activities occurred on agricultural ditches, canals, and drains in the study area. This evaluation provides a GIS-generated map illustrating habitat value by colored code, supporting a detailed classification, by trait, of habitat variables within the Project area. Scoring methodologies used for this assessment are modified from Appendix D (Page 157) of the USFWS 1999 Draft Recovery Plan for the Giant Garter Snake. The evaluation form has been updated for greater rigor in assessing habitat value, incorporates a step-wise scale to reduce scoring ambiguity, and is modified for use in GIS analyses.

For scoring the values of specific habitat attributes, this assessment includes a consideration of aquatic and upland habitat within 200 feet of identified ditches, drains, channels, or swales. In its Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects

Appendix B

with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California (USFWS 1997, 2004), the USFWS incorporated a standard of 200 feet of upland on each bank side of linear habitat as suitable upland for giant gartersnakes when assessing a project's disturbance area. The 200-foot upland buffer has become standard in subsequent Biological Opinions and impact analyses and is used as a set criterion for assessing outlying habitat value. However, because an overarching goal of this assessment is to place the study area in regional perspective, both directly- and remotely-sensed land cover data was used to characterize landscapes outside of the 200-foot buffer to interpret the influence this may have on the aquatic features of interest.

GIS analysis was completed using the program ArcGIS Version 10.4. Georectified orthographic aerial photos acquired through the National Agriculture Imagery Program (NAIP) were used as base templates to ensure the accurate depiction of habitat surveyed. GIS files delineating the Project area, provided by Dokken, were used as a base to create an attribute table containing all ranking variables, with associated variables documented for each segment and tallied to provide a total habitat score. The symbol legend of these layers was then separated into three classes based on the total score. This classification results in a map of aquatic habitat with corresponding habitat values of individual segments distinguished by unique legend colors. Legend classes with corresponding point ranges are summarized in **Table 1**, below.

Table 1: Scoring value and range

Habitat Value	Point Range
Unsuitable	0-7
Marginal	8-14
Suitable	15-25

Classification values are based upon recognized habitat characteristics and personal experience and knowledge of giant gartersnakes and their life history, distribution, and habitat covariates. Although point breaks within this valuation (Table 1) are based upon giant gartersnake habitat and ecological requirements, they are somewhat arbitrary in nature. The scores for each habitat feature provided within the database should be consulted when considering specific habitat types or trends. Valuation categories for potential habitats are defined below.

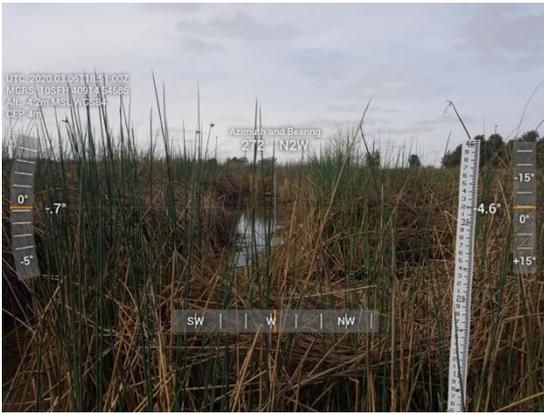
Suitable habitat is characterized by all of the features required to support permanent populations of gartersnakes, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; 4) high ground or upland habitat above the annual high water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

Appendix B

Marginal habitat is characterized by any combination of those features listed above needed to support transient giant gartersnakes on a temporary basis, or to act as connective corridors between areas of more stable or desirable habitat. This habitat need only possess the water, vegetation, and refugia required to provide minimal coverage for dispersing snakes. On its own, marginal habitat is considered incapable of supporting permanent populations of giant gartersnakes and is typically ephemeral, providing no permanent source of prey.

Unsuitable land is devoid of the water, vegetation, and refugia necessary to support giant gartersnakes for a meaningful time. Such habitat is generally composed of large rivers, lakes, gunitite drains or temporary swales that possess no water during the active spring and summer seasons. As such, unsuitable corridors are no more likely to support giant gartersnakes than any non-aquatic environment, and if they do so, they do so only by chance. Transient features, such as shallow trenches and furrows intended only to direct winter runoff, typically do not persist through the remainder of the season, do not provide the aquatic features necessary to support giant gartersnakes for a meaningful time, and should therefore be assigned to this category. However, because transient features still exhibit characteristics such as winter water, bank sun, and bank or upland vegetation, they can accumulate the number of points necessary to qualify as *marginal* habitat in this evaluation scheme. Wetted features lacking any supporting characteristics are also deemed unsuitable if the distance or connectivity to suitable, occupied habitat is likely to preclude their use as migration corridors.

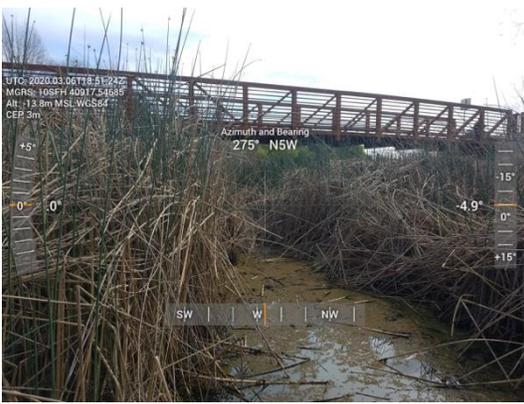
Appendix C



Laguna Creek – East end facing west



Laguna Creek – East end facing south



Laguna Creek – East end facing east



Laguna Creek – East end facing north



Laguna Creek – Eastern end facing west



Laguna Creek – Eastern end facing north

Appendix C



Laguna Creek – Eastern end facing south



Burrows found near Laguna Creek



Burrows found near Laguna Creek



Laguna Creek upland facing west



South side of Laguna Creek facing northeast



South side of Laguna Creek facing north

Appendix C



Central Laguna Creek facing east



Central Laguna Creek facing northeast



Laguna Creek – western end facing west



Small creek connecting to west end Laguna Creek



Laguna Creek – west end facing east



Laguna Creek – western most end facing north

Appendix C



Laguna Creek – western most end facing south



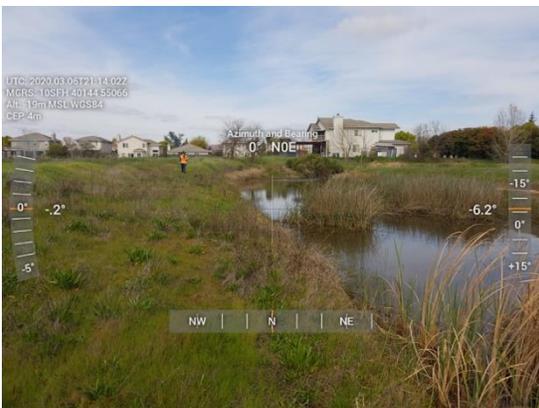
Whitehouse Creek – northeast end facing southwest



Whitehouse Creek – north end facing east



Whitehouse Creek – middle section facing east



Whitehouse Creek – middle section facing north



Whitehouse Creek – southern end facing north

Appendix C



Whitehouse Creek – southern end facing west



Whitehouse Creek – southern end facing south

Appendix D

References

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