APPENDIX BIO-1

SUPPLEMENTAL BIOLOGICAL RESOURCES ASSESSMENT REPORT

HELIX Environmental Planning

Upper Westside Specific Plan

Supplemental Biological Resources Assessment Report

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ACRONYMS AND ABBREVIATIONS

ADWF	average dry weather flow
AC	Agricultural Cropland
AR	Agricultural Residential
Bargas	Bargas Environmental Consulting
BCC	Bird of Conservation Concern
BLM	Bureau of Land Management
BRA	Biological Resources Assessment
BUOW	Western burrowing owl
CBC	Christmas Bird Count
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Sacramento
CLOMR	Conditional Letter of Map Revision
CMU	Commercial Mixed Use
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Sacramento County
CRPR	California Rare Plant Rank
CSA	Community Services Area
CSD	Community Services District
CWA	Clean Water Act
dbh	diameter at breast height
du/acre	dwellings units per acre
Eagle Act	Bald and Golden Eagle Protection Act
eDNA	Environmental DNA
E/HC	Employment/Highway Commercial
° F	Fahrenheit
FESA	Endangered Species Act
FIRM	Flood Insurance Rate Map
G/UF	Greenbelt/Urban Farm
General Plan	Sacramento County General Plan
GGS	giant garter snake

ACRONYMS AND ABBREVIATIONS (cont.)

HCP	Habitat Conservation Plan
HDR	High Density Residential
HELIX	HELIX Environmental Planning, Inc.
I-	Interstate
LC	Landscape Corridor
LDR	Low Density Residential
LMDR	Low Medium Density Residential
MAP	Metro Air Park
MAPHCP	Metro Air Park Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MDR	Medium Density Residential
MGD	million gallons per day
NBHCP	Natomas Basin Habitat Conservation Plan
NCMWC	Natomas Central Mutual Water Company
NCRS	Natural Resource Conservation Service
NNPS	New Natomas Pump Station
NOP	Notice of Preparation
NPPA	Native Plant Protection Act
NUSD	Natomas Unified School District
OHWM	Ordinary High Water Mark
OS	Open Space (within Development Area)
OS-AB	Open Space – Ag Buffer (within Agricultural Buffer Area)
P	Park
PG&E	Pacific Gas and Electric Company
PJD	Preliminary Jurisdictional Determination
Project	Upper Westside Specific Plan
PWWF	Peak Wet Weather Flow
R	Roads (within Development Area)
R-AB	Roads – Ag Buffer (within Agricultural Buffer Area)
RD	Reclamation District
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SAFCA	Sacramento Area Flood Control Agency
SASD	Sacramento Area Sewer District

ACRONYMS AND ABBREVIATIONS (cont.)

SCWA	Sacramento County Water Agency
SMUD	Sacramento Metropolitan Utility District
SSC	Species of Special Concern
sq.ft.	square feet
SSMP	Site Specific Management Plan
SWHA	Swainson's hawk
SWRCB	State Water Resources Control Board
TNBC	The Natomas Basin Conservancy
TPZ	tree protection zone
TRBL	tricolored blackbird
UPA	Urban Policy Area
USACE	U.S. Army Corps of Engineers
USB	Urban Services Boundary
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWSP	Upper Westside Specific Plan
VELB	Valley elderberry longhorn beetle
VHDR	Very High Density Residential
VLDR	Very Low Density Residential
VMT	Vehicle miles traveled
W	Water
WNV	West Nile Virus
WPT	Western pond turtle
WQC	Water Quality Certification

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1.0 INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) prepared this Supplemental Biological Resources Assessment (BRA) Report on behalf of the Upper Westside Specific Plan project (UWSP; Project) proposed by Upper Westside, LLC (Proponent). The purpose of this report is to provide Sacramento County (County), other agencies, and the public with current data on biological resources necessary for reviewing the Project under the California Environmental Quality Act (CEQA) as well as the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA) and related laws. This report includes information on the current biological resources in and adjacent to the Project site, including vegetation, land cover, aquatic resources, general flora and fauna, and natural communities. This BRA includes an analysis of the potential for regionally occurring special-status species to occur on the Project site, potential Project impacts to biological resources that may occur from Project development, and proposed measures to avoid, minimize, and offset impacts to biological resources.

1.1 PROJECT LOCATION

The UWSP encompasses approximately 2,199 acres (Study Area) located in the unincorporated community of Natomas in Sacramento County (County), approximately 3.5 miles northwest of downtown Sacramento (**Appendix A, Figure 1,** *Vicinity Map*). The Study Area is bounded by Interstate 80 Interstate (I-) 80 to the south, West Drainage Canal to the east, Fisherman's Lake Slough to the north, and Garden Highway to the west. Three sides of the Study Area are bordered by the North and South Natomas communities in the City of Sacramento. The Study Area is located outside of the County's current Urban Policy Area (UPA) and Urban Services Boundary (USB).

1.2 DESCRIPTION OF THE PROPOSED PROJECT

The Study Area is comprised of a multiple-owner Specific Plan Area encompassing 2,199 acres, which includes a 1,523.8-acre Development Area, a 542.4-acre Agricultural Buffer Area, and 133.17 acres of off-site improvement areas (**Appendix A, Figure 2, Proposed Project – Upper Westside Specific Plan**, and **Figure 3, Upper Westside Specific Plan and Sacramento Area Flood Control Agency Properties**). Approximately 271 acres of land within the proposed Agricultural Buffer Area has been acquired by the Sacramento Area Flood Control Agency (SAFCA), and is planned to be improved under the U.S. Army Corps of Engineers (USACE) seepage prevention levee improvements project. Improvements proposed by the levee improvements project will include cutoff walls, landside berms, and a new adjacent levee, as well as approximately 80 acres of woodland mitigation and 27.6 acres are under construction by SAFCA within this area.

As described in further detail below, the UWSP proposes a master-planned community encompassing 1,523.8 acres (Developed Area) consisting of mixed land uses, including residential and non-residential including up to 9,356 housing units with a mixture of densities to support all population segments, and over 3 million gross square feet (sq. ft.) of commercial, retail, and office uses that will serve the community's needs. Key project components include a mixed-use Town Center, eight active parks, a system of greenbelts and multi-use trails with linkages to downtown Sacramento, and an extensive agricultural buffer bordering the western edge of the Study Area.

Development within the Study Area is expected to occur in phases over many years, with the full buildout of the Study Area anticipated over a 20-year timeframe.

1.2.1 Proposed Land Use

Proposed land uses within Study Area include a full range of residential designations, from Very Low Density Residential (VLDR) at the north end with an anticipated density of 1.2 dwelling units per acre (du/acre) to Very High Density Residential (VHDR) and Commercial Mixed Use (CMU) within the Town Center District which has an anticipated density of 40 du/acre. Approximately 38 percent of the residential units are proposed for single-family within the VLDR, Low Density Residential (LDR), Low Medium Density Residential (LMDR), and Medium Density Residential (MDR) designations; approximately 7 percent are proposed for multi-family residential located within High Density Residential (HDR), VHDR, and CMU designations.

Three K-8 schools and their adjacent park sites have been distributed throughout the planned community so that approximately 94 percent of future residents are within 0.5 mile of a park and a school. The 25.8-acre Town Center Park is proposed directly east of the roundabout terminus of West El Camino Avenue and the Town Center, which would provide a large open lawn area for sports fields and gathering space for civic events. An Educational Node is planned in the northerly portion of the Study Area and includes a fourth K-8 school, a high school, a community college, and a vocational training campus focused on a 10-acre Urban Farm.

Public/Quasi Public Facilities include a water tank storage site, two electric substation sites, a sewer lift station, and a proposed fire station.

Several different types of Open Space are proposed, including four detention and water quality lake basins, several open drainage channels to convey storm water to the basins, which will be landscaped and provide trails for bicyclists and pedestrians, and an open space corridor. The Corridor and the canal banks will be planted to provide a landscaped buffer along Class 1 bike/pedestrian trails built into those features.

Greenbelt corridors will provide landscaped parkways with a Class I bike/pedestrian trail that will connect to a dispersed program of urban farming elements. A 250-foot open space setback lies south of Fisherman's Lake to create a preserve area for potential sensitive species. To the east, an open space buffer is planned adjacent to the Witter Canal.

The 86.1-acre area of existing agricultural residential located southwest of the proposed Study Area Development Area, will remain as Agricultural Residential to allow the continued operation of small-scale or "specialty" farming and provide a visual buffer and physical separation between the Development Area and residential uses along Garden Highway. Agriculture is designated on 414.3 acres of existing agricultural cropland area located west and northwest of the 1,523.8-acre Development Area. Table 1, Land Use Proposed under UWSP, presents the acres and percentage for each proposed land use in the Study Area. As shown on **Figures 2** and **3**, approximately 133.17 acres of additional off-site areas have been identified where future project-related improvements may be required, including an anticipated Class I bike trail and connection to regional trails to the east, areas of potential roadway tie-ins to Garden Highway, as well as highway interchange expansions, water line tie-in, sewer force main extension, and pump station expansions.

Table 1
LAND USE PROPOSED UNDER UWSP

Land Use	Acreage	Percentage (%)
Residential		
Very Low Density Residential (VLDR)	166.7	8
Low Density Residential (LDR)	390.8	18
Low Medium Density Residential (LMDR)	134.9	6
Medium Density Residential (MDR)	61.9	3
High Density Residential (HDR)	36.4	2
Very High Density Residential (VHDR)	22.6	1
Subtotal	***813.3***	***37***
Commercial/ Employment		
Commercial Mixed Use (CMU)	83.6	4
Employment/Highway Commercial (E/HC)	52.9	2
Subtotal	***136.5***	***6***
Public, Park & Open Space		
School	124.2	6
Park (P)	79.1	4
Greenbelt/ Urban Farm (G/UF)	44.1	2
Open Space (Lake Basins and Open Space Buffers) (OS)	167.9	8
Water (Canal) (W)	15.0	1
Subtotal	***430.3***	***19***
Right-of-Way		
Roads (R)	116.0	5
Landscape Corridors (LC)	27.7	2
Subtotal	***143.7***	***6***
Subtotal Developable Area	**1,523.8**	**69%**
Agricultural Buffer Uses		
Agricultural Cropland (AG)	414.3	19
Agricultural Residential (AR)	86.1	4
Open Space – Ag Buffer (OS-AB)	36.6	2
Roads – Ag Buffer (R-WB)	5.4	0
Subtotal	***542.4***	***25***
Combined Subtotal of Developable Areas and Agricultural Areas	***2,066***	***93%***
Off-site Improvement Areas	**133.17**	**--**
GRAND TOTAL	**2,199**	**100%**

Source: Wood Rodgers, Inc. 2023

1.2.2 Proposed Services

1.2.2.1 Schools

The Study Area is located within the Natomas Unified School District (NUSD). There are three proposed K-8 schools encompassing 49.1 acres, one 81.1-acre high school, and an 11.0-acre vocational training campus. The K-8 schools are located so that they are within walking and biking distance of future students and are adjacent to parks to allow for shared use of green space. The high school and vocational training campus are located on sites already owned by NUSD and the Los Rios Community College District, respectively.

1.2.2.2 Parks and Open Space

The Study Area is not currently within the boundaries of any recreation or park district. Parks are proposed to be distributed throughout the Study Area, within neighborhoods to be within convenient walking distance of future residents, and adjacent to school sites to allow for shared use. The Town Center District will include an "activated median" and may include small plazas or squares associated with adjacent high-density development, and a larger 25.8-acre park is located directly west of the Town Center District.

The proposed greenbelt and urban farm corridors provide connections throughout the Study Area, with trails through the landscaped corridors connecting between neighborhoods and to spaces targeted for urban farming. Amenities placed along these corridors could include raised planter beds to allow for gardening by local residents, sheds for tools, greenhouses, meeting rooms, and/or an outdoor demonstration kitchen. A 10.0-acre urban farm is proposed to be located next to the envisioned Los Rios Community College vocational training campus. This urban farm will allow for the production of crops and provides a place where students would have test plots and study agricultural methods.

The proposed Westside Canal is centrally located and connects north-south through the Project. It is proposed to be approximately one mile long with pedestrian and bike trails on either side, and front-on architecture. It will be similar to "Amsterdam-style" canals, and could provide recreational opportunities on the water with kayaks, canoes, rowboats, water taxis, etc.

Open space is proposed along the western edge of the Development Area as a buffer between existing agricultural residential and agricultural properties and the proposed housing. The open space corridor is proposed to be 30 to 40 feet in width, planted with native vegetation and trees, and will include a hiking/biking trail to facilitate connectivity and access to the area. This corridor will be located over the top of an underground Natomas Central Mutual Water Company water line.

The entity that would be in charge of operation and maintenance of these facilities has yet to be determined but may include the creation of a new recreation and park district, community service area (CSA), and/or community service district (CSD).

1.2.2.3 Sewer Services

An existing gravity sewer main serving the development area located north of the Study Area is located in El Centro Road and continues east 1.1 miles in San Juan Road to the New Natomas Pump Station (NNPS). This existing sewer line has limited remaining capacity. The UWSP is projected to generate approximately 4.3 million gallons of wastewater per day (MGD) during average dry weather flow (ADWF) and 9.2 MGD during peak wet weather flow (PWWF). As a result, the UWSP proposes a centrally located on-site sewer pump station on a ±0.5-acre site northwest of the intersection of Farm Road and El Centro Road. The on-site backbone sewer system will convey via gravity sewer lines within proposed streets to the on-site sewer pump station, and wastewater will then be pumped via sewer force mains approximately 1.7 miles to the NNPS. It is estimated that a 24-inch force main would be required to serve the Project at full buildout. Multiple force mains to accommodate the anticipated buildout flow may be installed within the same trench to allow for phased development. The force main alignment extends from the on-site pump station as noted above, northward approximately 0.35 mile alongside or within El Centro Road, and eastward approximately 0.25 mile alongside or within San Juan Road to the West Drainage Canal (aka Witter Canal), from which point it will continue approximately 1.1 miles off-

site to the east to the NNPS. The sewer force main alignment in San Juan Road will likely require trenching within the existing street right-of-way, but precise designs or construction drawings have not yet been prepared.

An alternative off-site sewer force main route is also being evaluated to extend east in Farm Road following the existing 80-foot Sacramento Area Sewer District (SASD) interceptor sewer easement, and then continue northeast alongside the freeway to the NNPS in the same easement.

1.2.2.4 Water Supply

The Study Area is located within the City of Sacramento's "American River Place of Use", and as such, the City has been identified as the wholesaler of treated water. The Sacramento County Water Agency (SCWA) is anticipated to be the retailer of water to the UWSP and will own and operate the on-site water distribution system. A potential water storage tank and booster pump station are proposed southeast of the intersection of San Juan Road and El Centro Road to support the water distribution system.

The City of Sacramento currently has an existing 24-inch water transmission main that connects to the existing San Juan Tank site, located off-site to the east. This 24-inch transmission main continues north from San Juan Boulevard in El Centro Road to serve existing development areas within North Natomas to the north and connects to the El Centro Tank.

The UWSP is planned to be served by a series of transmission mains that will extend from the existing 24-inch City of Sacramento transmission main at two points of connection. The first point of connection is at the proposed water storage tank and booster pump site (noted above), while the second point of connection is located in the northern Development Area along El Centro Road. On-site water mains are configured to provide "looped" water service by way of interconnection with service mains which will accommodate phased development.

Alternatively, if the City of Sacramento becomes the retailer of domestic water, then the need for a water storage tank site and booster pump station may be eliminated. In this case, two off-site connections, extending under I-80 to existing infrastructure south of I-80, would be required.

1.2.2.5 Drainage

Four separate approximately 20-acre detention basins are proposed to serve the UWSP and the four main drainage sheds, which generally can be described as the south, west, east, and north basins. This configuration will allow the phased buildout of the UWSP. The backbone storm drainage system illustrates how the four sheds are configured to direct storm drainage via gravity pipes or open channel flow to the basins. These basins will be excavated to a depth that allows a permanent water surface elevation (i.e., "wet" basins) to be maintained, and side slopes will be landscaped to create a passive Open Space amenity. All four basins will have pumping systems to discharge storm water.

The South and West Basins will pump into existing and ultimately improved drainage channels (e.g., Westside Canal) that will convey runoff north and east to the East Basin, where the existing San Juan Pump Station will be upgraded to discharge stormwater into the RD-1000 West Drainage Canal (aka Witter Canal). The north shed drains to the North Basin, where the existing Riverside Pump Station will be upgraded to discharge flows into the RD-1000 West Drainage Canal.

Open drainage channels are proposed north of Farm Road and are located on the east side of Bryte Bend Road, the south side of San Juan Road, and the west side of El Centro Road and will convey storm water to the East Basin. The side slopes of these drainage channels will be planted to create a landscaped corridor and buffer.

Flood protection for the UWSP has also been carefully considered. The UWSP is within the Natomas Basin Federal Emergency Management Agency Zone A Flood Area, and the UWSP boundary abuts the Garden Highway levee. The SAFCA and the USACE are engaged in a separate process and are the lead agencies responsible for constructing levee improvements to provide 100-year and 200-year flood protection for the Natomas Basin, including along Garden Highway adjacent to the UWSP. Their efforts have been ongoing and are anticipated to be completed by 2025.

There is an existing local 100-year floodplain depicted by Flood Insurance Rate Map (FIRM) panels for ±380 acres within the central portion of the Development Area. A separate Conditional Letter of Map Revision (CLOMR) will be prepared as future phases of development advance on the parcels impacted by this designation. A conceptual mass grading plan was prepared for the entire Development Area to illustrate how earthwork from the basins and drainage channels can be utilized to raise development areas to allow the removal of this designation.

1.2.2.6 Electricity

The UWSP is currently bisected by two overhead high-power electrical transmission lines. A Pacific Gas and Electric Company (PG&E) 120kV power line extends across the southerly tip of the UWSP north along Bryte Bend Road, continuing east on the north side of future Street 2, ultimately crossing Interstate 80. A Sacramento Metropolitan Utility District (SMUD) 69kV power line extends north-south along the east side of El Centro Road. Based on discussions with SMUD and the ever-increasing demands on the electrical grid due to electric vehicle charging and other current trends of usage, SMUD directed that the UWSP include two electrical sub-station sites that measure approximately 1.4 acres in size. The substations are planned to be located southwest of the intersection of El Centro Road and Street 2, and southeast of El Centro Road and San Juan Road. A location is also identified for the 12kV power line, which would loop underground through the UWSP along Collector Roads. No off-site electrical system improvements are anticipated.

1.2.2.7 Natural Gas

Currently, there is an existing PG&E natural gas line transmission main that traverses the UWSP from the north down El Centro Road and then southwest along Interstate 80 to the southerly tip of the UWSP by Garden Highway. Given the trend toward electrification of residential development, it is anticipated that there will be significantly less residential demand for natural gas in the future but there could be certain commercial uses or public uses that require access to natural gas supply lines. Gas lines could be extended west in West El Camino Avenue, east in Farm Road, or west in Radio Road. No off-site natural gas system improvements are anticipated.

1.2.2.8 Fire Protection

The UWSP is located within the boundaries of the Natomas Fire Protection District. Although the UWSP is not within the City of Sacramento's jurisdiction, fire protection and prevention services are currently provided by the City's Fire Department through a contract with the Natomas Fire Protection District. The

City's Fire Station 43, at 4201 El Centro Road, is the closest station to the UWSP and is located approximately two miles north of the town center district.

1.2.3 Project Phasing

The UWSP is designed to be constructed in four phases. Phase 1 initial project implementation will include mass grading for backbone infrastructure and development of centralized initial project components. Project development will commence upon receipt of approvals/certifications of all necessary permits, entitlements, and environmental documents (anticipated Spring 2024).

1.2.4 Project Objectives

The primary objectives defined for the Project[1] are outlined below:

1. Formulate a specific plan and related land use planning documents and regulatory approvals for the Project area as a means of expanding the USB and UPA in an orderly manner and accommodating the County's share of future regional population growth.
2. Create a land use plan that satisfies County policies, regulations, and expectations, as defined in the Sacramento County General Plan (General Plan), including Policies LU-114, LU-119, and LU-120.
3. Provide a comprehensively planned, high quality, large-scale, residential-based community in northwestern Sacramento County, directly northwest of the City of Sacramento, with a balanced mix of uses, employment opportunities, a wide variety of housing types, park and open space, and supporting public and quasi-public uses.
4. Develop a master-planned community that can be efficiently served by existing infrastructure or proposed infrastructure that would encourage logical, orderly development and would discourage leapfrog or piecemeal development and sprawl.
5. Provide residential housing within five miles of the existing job centers of downtown Sacramento and West Sacramento, as well as in close proximity to newly developing or proposed job centers.
6. Create a development that has an overall positive economic impact on Sacramento County and achieves a neutral to positive fiscal impact on the County's finances and existing ratepayers.
7. Create a community that can be logically and efficiently phased to allow the orderly build-out of the community.
8. Provide a safe and efficient circulation system that interconnects land uses and promotes pedestrian and bicycle circulation and transit options that will encourage non-vehicular trips, thereby reducing vehicle miles traveled (VMT).
9. Incorporate parks and open space, including an urban farm-greenbelt and canal, into the project design in a manner that provides community connectivity and encourages walking and bicycle use.
10. Make efficient use of development opportunities as the project site is bordered on three sides by existing or planned urban development.

[1] Project objectives identified by the CEQA Notice of Preparation (NOP).

11. Plan for enough units to provide housing choices in varying densities to respond to a range of market segments, including opportunities for rental units and affordable housing, and significant commercial uses, consistent with the General Plan and Housing Element.
12. Design a land use plan where the development footprint avoids impacts to wetland resources to the extent feasible.
13. Develop a specific plan that maintains existing agricultural land uses and operations to the west of the proposed Development Area.
14. Provide for development that meets the seven identified Sacramento Area Council of Governments (SACOG) Blueprint principles, including the provision of transportation choice, compact development, mixed-use development, housing choice and diversity, use of existing assets, natural resource conservation, and quality design.
15. Develop the Project and any associated on- and/or off-site mitigation to complement the Natomas Basin Habitat Conservation Plan (NBHCP) and the Metro Air Park Habitat Conservation Plan (MAPHCP).
16. Designate open space preserves along the south side of Fisherman's Lake Slough or along the West Drainage Canal that provide a natural buffer to these features, and along the westerly edge of the proposed Development Area to provide a transition between residential and agricultural designations to the west, which will provide a regional benefit for habitat, resources, and open space amenities.
17. Balance development with resource protection in an inter-connected, permanent open space.
18. Create multi-functional habitat within open space corridors that provide on-site habitat and contribute to water quality.

2.0 REGULATORY SETTING

Policies, regulations, and plans pertaining to the protection of biological resources on the project site are summarized in the following sections.

2.1 FEDERAL REQUIREMENTS

2.1.1 Federal Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3) (19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed Project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) would be initiated if development resulted in the potential for take of a threatened or endangered species or if the issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

2.1.2 Executive Order 13186: Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 United States Code [USC], Sec. 703, Supp. I, 1989) regulates and prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR §10.13. The MBTA protects whole birds, parts of birds, and bird eggs and nests and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the Department of the Interior (April 16, 2003, Migratory Bird Permit Memorandum). Nest starts (nests that are under construction and do not yet contain eggs) are not protected from destruction. This international treaty for the conservation and management of bird species that migrate through more than one country is enforced in the United States by the USFWS. Additionally, as discussed below, §3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. This provides California Department of Fish and Wildlife (CDFW) with enforcement authority for project-related impacts that would result in the "take" of bird species protected under the MBTA. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

2.1.3 The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to "take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof." Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

2.2 STATE REQUIREMENTS

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. "Take" under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The CDFW can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines

that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the "take" of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.2.2 California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species in carrying out projects. However, Senate Bill 618 (2011) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

2.2.3 California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These "special-status" species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included in CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, and 2B are generally considered special-status species under CEQA.[2] Plants from the database with a rank of "A" were considered special-status species under CEQA for the purpose of this report.

Although threatened and endangered species are protected by specific federal and state statutes, State CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) of the State CEQA Guidelines allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project

[2] The California Rare Plant Rank system can be found online at https://www.cnps.org/rare-plants.

until the respective government agency has an opportunity to designate the species as protected, if warranted.

2.2.4 California Native Plant Protection Act

The Native Plant Protection Act (NPPA), enacted in 1977, allows the Fish and Game Commission to designate plants as rare or endangered. The NPPA prohibits take of endangered or rare native plants, with some exceptions for agricultural and nursery operations and emergencies. Vegetation removal from canals, roads, and other sites, changes in land use, and certain other situations require proper advance notification to CDFW.

2.2.5 Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take (CDFW 2018).

2.2.6 California Food and Agriculture Code Section 403

CDFA Code Section 7271 designates the CDFA as the lead department in noxious weed management responsible for implementing state laws concerning noxious weeds. Representing a statewide program, noxious weed management laws and regulations are enforced locally in cooperation with the County Agricultural Commissioner.

Under state law, noxious weeds include any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed (CDFA Code Section 5004).

2.3 LOCAL PLANS AND POLICIES

2.3.1 Native Trees and Other Protected Trees

Sacramento County has adopted measures for the preservation of native trees through the County Code and the General Plan.

Chapter 19.12 of the County Code, titled “Tree Preservation and Protection”, provides protection for native oak trees in the designated urban area of the unincorporated county. Native oaks are defined as valley oak (*Quercus lobata*), interior live oak (*Q. wislizeni*), blue oak (*Q. douglasii*), and oracle oak (*Q. x morehus*) trees having a diameter at breast height (dbh) of at least 6 inches for a single stem tree or a combined dbh of 10 inches for a tree with multiple stems. Grading, trenching, or filling within the dripline, or removal, destruction, or killing of a tree as defined in the ordinance is prohibited without a

tree permit. Tree permits are issued by the Director of Public Works or by the body approving a discretionary action such as a conditional use permit. Section 19.12.150 provides authority to the approving bodies to adopt mitigation measures as conditions of approval for discretionary projects in order to protect other species of trees in addition to native oaks. The Tree Preservation Ordinance does not specify replacement obligations for native oaks removed under a tree permit; the approving body may impose "reasonable conditions of approval as are necessary to minimize the environmental, health, or safety effects of the development or use" and may require financial security to ensure completion of "additional work" specified in the conditions of approval. "Additional work" may include replanting.

The Conservation Element of the General Plan includes a section regarding landmark and heritage tree protection. The stated objective of the plan is that "heritage and landmark tree resources [are] preserved and protected for their historic, economic, and environmental functions." The plan states that:

> *"Conservation of native tree species other than oaks and preservation of native oaks and landmark trees is the primary intent of the policies in the section. However, if preservation cannot be attained, then loss of the protected trees shall be compensated. Compensation for tree loss may be achieved by on-site or off-site replacement or payment into a Tree Preservation Fund."*

The section discusses thresholds of significance under CEQA for impacts to trees and concludes that tree impacts are "circumstantial". The section states that projects that exceed the threshold of significance may have significant impacts even after mitigation, and conversely, tree loss of some species that exceed the threshold in certain circumstances may not constitute a significant impact. The section states that the final determination of significance will be made by the Environmental Coordinator. The section does not include a definition of "tree" based on dbh.

Policy CO-139 of the General Plan states that "Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed." Tree replacement values are stipulated as follows:

- one D-pot seedling = 1 inch dbh
- one 15-gallon tree = 1 inch dbh
- one 24-inch box tree = 2 inches dbh
- one 36-inch box tree = 3 inches dbh.

2.3.2 Wetlands and Riparian

The Conservation Element of the General Plan includes policies regarding the preservation of natural habitats and land uses adjacent to rivers and streams. Policy CO-58 requires that the County ensure no net loss of wetlands, riparian woodlands, and oak woodlands; Policy CO-59 requires mitigation for loss or modification of vernal pools, wetlands, riparian, native vegetation, and special-status species habitat.

2.3.3 Swainson's Hawk Mitigation Fee Program

CDFW requires that mitigation for foraging habitat be provided within the known foraging radius of a nesting Swainson's hawk (SWHA). In 1997, in response to the need to mitigate for the loss of SWHA foraging habitat in Sacramento County, the County Board of Supervisors adopted an ordinance that

established a Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code). The Swainson's Hawk Impact Mitigation Program has been amended several times; the latest amendment went into effect in December 2009. By adopting the Swainson's Hawk Impact Mitigation Program, the Board of Supervisors found that "*the most effective means of mitigation for the loss of suitable Swainson's hawk foraging habitat is the direct preservation, in perpetuity, of equally suitable foraging habitat on an acre-per acre basis based on the Project's determined acreage impact*". The Sacramento County Department of Planning and Environmental Review administers the Swainson's Hawk Impact Mitigation Program.

Statewide, the CDFW recommends implementing the measures set forth in the CDFW *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFW 1994) for impacts to SWHA foraging habitat unless local jurisdictions develop an individualized methodology designed specifically for their location. Sacramento County has developed such a methodology and received confirmation from CDFW in May of 2006 that the methodology is a better fit for unincorporated Sacramento County and should replace the statewide, generalized methodology for determining impacts to foraging habitat.

Swainson's hawk foraging habitat value is greater in large expansive open space and agricultural areas than in areas that have been fragmented by agricultural-residential or urban development. The methodology for unincorporated Sacramento County is based on the concept that impacts to SWHA foraging habitat occur as properties develop to increasingly more intensive uses on smaller minimum parcel sizes. Therefore, the methodology relies mainly on the minimum parcel size allowed by zoning to determine habitat value. For the purpose of the methodology, properties with AR-5 zoning and smaller are assumed to have lost all foraging habitat value for the purposes of the mitigation fee program. The parcels that make up the project site are all zoned greater than AR-5 and impacts to foraging habitat will be greater than 40 acres. Therefore, mitigation for the loss of SWHA foraging is required for the project under the County's Swainson's Hawk Impact Mitigation Program.

2.3.4 Metro Air Park Habitat Conservation Plan

The MAPHCP is an additional guiding program developed by the Metro Air Park (MAP) Property Owners' Association as the MAP site was outside of the City of Sacramento limit lines and thus could not receive coverage under the NBHCP. The MAPHCP was designed to support the regional Conservation Strategy of the NBHCP. As a result, the MAPHCP Covered Species is a subset of species covered under the NBHCP, and its biological goals and objectives are a subset of the NBHCP's goals and objectives.

2.3.5 Natomas Basin Habitat Conservation Plan

The NBHCP was developed to satisfy the requirements of FESA and CESA to provide an overarching program that facilitates and mitigates for incidental take of threatened and endangered species (Covered Species) for project proponents planning projects within the NBHCP's boundaries. The NBHCP is intended to minimize incidental take of up to 22 Covered Species and habitat loss associated with urban development. Incidental "Take" is defined by FESA as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species. Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction)."

The NBHCP and MAPHCP authorize approximately 17,500 acres of development collectively in the MAP, City of Sacramento, and Sutter County Permit Areas, and stipulate the preservation of 8,750 acres outside of these areas in a reserve system intended to mitigate for impacts to the 22 Covered Species. At full build-out, the planned TNBC reserve system will consist of approximately 4,375 acres of rice, 2,187 acres of created marsh, and 2,187 acres of upland habitat. In this reserve system, the land is planned to be managed to enhance its values for the Covered Species.

The USFWS established the reserve system within habitat created/managed by the NBHCP to mitigate and offset the effects of the loss of 17,500 acres of habitat. Consequently, most of the NBHCP's goals and objectives are related to creating a reserve system that provides interconnected habitat that is intended to sustain Covered Species' populations in the Natomas Basin for the foreseeable future. The NBHCP also includes avoidance, minimization, and mitigation measures to reduce the effects of development on Covered Species and to ensure the creation and effective operation of the TNBC reserve system.

2.4 JURISDICTIONAL WATERS

2.4.1 Federal Jurisdiction

2.4.1.1 Waters of the U.S.

On May 25, 2023, the U.S. Supreme Court issued a decision in the case of Sackett v. Environmental Protection Agency (Supreme Court of the United States 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in Sackett v. Environmental Protection Agency determined that "the CWA extends to only those 'wetlands with a continuous surface connection to bodies that are "waters of the U.S." in their own right,' so that they are 'indistinguishable' from those waters." The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review issued a final rule to replace the 2023 rule that amends the "Revised Definition of "Waters of the U.S." to conform key aspects of the regulatory text to the U.S. Supreme Court's May 25, 2023, decision in the case of Sackett v. Environmental Protection Agency.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act (CWA), any person, firm, or agency planning to alter or work in "waters of the U.S.," including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 United States Code (USC) 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

2.4.2 State Jurisdiction

2.4.2.1 Waters of the State

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the CWA is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that the issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter-Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

I. A wetland definition;
II. A framework for determining if a feature that meets the wetland definition is a water of the state;
III. Wetland delineation procedures; and,
IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "Waters of the U.S."

More specifically, a wetland is defined as: "*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation*." The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in the discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

2.4.2.2 California Department of Fish and Wildlife

CDFW is a trustee agency that has jurisdiction under Section 1600 *et seq*. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds… except when the department has been notified pursuant to Section 1601." Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in dbh. If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow the protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends applying for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.5 CEQA SIGNIFICANCE

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study Checklist included in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

3) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and

6) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

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

2.5.1 California Native Plant Society

The CNPS maintains a rank of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS Rare Plant Ranking System:

- Rank 1A: Plants presumed Extinct in California and either rare or extinct elsewhere
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- Rank 2A: Plants presumed extirpated in California but common elsewhere
- Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere
- Rank 3: Plants about which we need more information – A Review List

All plants appearing on CNPS Rank 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. The CDFW, in consultation with the CNPS, assigns a California Rare Plant Rank (CRPR) to native species according to rarity; plants with a CRPR of 1A, 1B, 2A, 2B, or 3 are generally considered special-status species under CEQA. Furthermore, the CNPS CRPR includes levels of threat for each species. These threat ranks include the following:

0.1 - Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat);

0.2 - Moderately threatened in California (20 to 80% occurrences threatened/moderate degree and immediacy of threat); and

0.3 - Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

Threat ranks do not designate a change of environmental protections, so that each species (i.e., CRPR 1B.1, CRPR 1B.2, CRPR 1B.3, etc.), be fully considered during the preparation of environmental documents under CEQA.

2.5.2 California Department of Fish and Wildlife Species of Concern

Additional fish, amphibian, reptile, bird, and mammal species may receive consideration by CDFW and lead agencies during the CEQA process, in addition to species that are formally listed under FESA and CESA or listed as fully protected. These species are included on the Special Animals List, which is maintained by CDFW. This list tracks species in California whose numbers, reproductive success, or

habitat may be in decline. In addition to "Species of Special Concern" (SSC), the Special Animals List includes species that are tracked in the California Natural Diversity Database (CNDDB) but warrant no legal protection. These species are identified as "California Special Animals".

3.0 METHODS

Studies conducted for the preparation of this BRA included a desktop evaluation and background research to identify sensitive biological communities and/or special-status species with the potential to occur on or near the project site, as well as biological field surveys to document baseline conditions and special-status species and/or their habitats on and adjacent to the site. These included biological reconnaissance surveys, aquatic resource delineations, habitat assessments and focused surveys for Swainson's hawk (*Buteo swainsoni*), giant garter snake (*Thamnophis gigas*) (GGS), and focused botanical surveys. Methods are presented below in Section 3.2.

3.1 DATABASE AND LITERATURE REVIEW

The most current available lists of special-status species known to occur and/or having the potential to occur in the project region were reviewed to determine their potential to occur on the project site or otherwise be affected by project-related activities on the project site.

For the purposes of this analysis, special-status species are defined as those species meeting one or more of the following criteria:

- Listed as Threatened or Endangered under FESA;
- Listed as Threatened or Endangered under CESA;
- Under review for listing under FESA or CESA (Candidate);
- "Fully Protected" under California Fish and Game Code Section 3511, 4700, 5050, or 5515;
- Included on the list of SSC by the CDFW;
- Included on the Watch List of species that may qualify as SSC by the CDFW;
- Having a California Rare Plant Rank (CRPR) of 1A (presumed extinct in California and rare elsewhere), 1B (rare in California and elsewhere), 2A (presumed extinct in California but more common elsewhere), 2B (rare in California but more common elsewhere), or 3 (more information needed); or

The following lists were reviewed and are included in Appendix B:

- The Sacramento Fish and Wildlife Office list of threatened and endangered species that may occur in the project site and/or may be affected by the project (USFWS 2024).
- The CNPS list of special-status plants documented in the *Sacramento West, Sacramento East, Saxon, Davis, Grays Bend, Rio Linda, Taylor Monument, Clarksburg,* and *Florin* 7.5-minute quads (CNPS 2024);

- The California Natural Diversity Database (CNDDB; CDFW 2024 list of special-status species documented in the *Sacramento West, Sacramento East, Saxon, Davis, Grays Bend, Rio Linda, Taylor Monument, Clarksburg,* and *Florin* 7.5-minute quads.

Table C-1 in Appendix C presents the general habitat requirements, status, the potential for the species to occur, and the rationale for each species evaluated. Species determined to have no potential to occur in the project site or be otherwise affected by activities in the site were excluded from further evaluation. Species having the potential to occur in the project site and/or be affected by project activities are evaluated in detail in Section 5 of this BRA.

Will Not Occur: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the Study Area;

Not Expected: Species moves freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur in the Study Area, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100 percent certainty;

Presumed Absent: Habitat suitable for residence and breeding occurs in the Study Area; however, focused surveys conducted for the current project were negative;

May Occur: Species was not observed on the site and breeding habitat is not present, but the species has the potential to utilize the site for dispersal;

High: Habitat suitable for residence and breeding occurs in the Study Area and the species has been recorded recently in or near the Study Area, but was not observed during surveys for the current project; and

Present: The species was observed during biological surveys for the current project and is assumed to occupy the Study Area or utilize the Study Area during some portion of its life cycle.

Only those species that are known to be present, have a high potential to occur, or may occur are discussed further in the following sections.

The USFWS National Wetlands Inventory (USFWS 2023) was reviewed to determine the presence of wetlands and water features in the project area.

3.2 BIOLOGICAL SURVEYS

3.2.1 Biological Surveys

HELIX and staff from Bargas Environmental Consulting, LLC (Bargas) conducted numerous biological surveys over the last five years. Biological surveys conducted at the Project site are summarized. A list of plant and animal species observed during the general biological surveys conducted by HELIX (not including protocol surveys) is included in Appendix D. Biological surveys are described briefly below.

3.2.2 General Biological Reconnaissance

HELIX senior Biologist and wetland scientist Patrick Martin and HELIX Botanist/wetland scientist Greg Davis conducted biological reconnaissance surveys at the project site. Mr. Martin and Mr. Davis conducted biological reconnaissance surveys on March 7 and 8, 2023. Biological reconnaissance surveys included habitat mapping and recording plant and wildlife inventories. Boundaries of biological habitats were primarily determined based on the composition of dominant plant species. Transects were walked within accessible parcels to gather as much visual site coverage as possible. Inaccessible parcels were reviewed on aerial photographs and viewed remotely in the field via binoculars. Habitat types and animal species (and sign) observed on-site were documented. Representative photos of the site are provided in Appendix E.

3.2.3 Botanical Surveys

Bargas conducted botanical surveys (Bargas 2020) on a 568.7-acre portion of the Study Area. The surveys were conducted by Bargas biologists in March, April, May, June, and July 2019, which encompassed the appropriate blooming periods for each of the target species. Additional site visits were conducted by Bargas biologist Krystal Pulsipher in April and June 2020. Bargas stated that botanical inventories were conducted in compliance with the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018), *CNPS Botanical Survey Guidelines* (CNPS, 2001), and USFWS's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS, 2000). Habitat types and plant species observed on-site were documented (Bargas 2020).

3.2.4 Swainson's Hawk Surveys

Bargas conducted protocol SWHA surveys (Bargas 2019) on a 568.7-acre portion of the Study Area, including a half-mile buffer around the 568.7-acre area. The surveys were conducted by Bargas biologists in March, April, and July 2019 that consisted of seven separate site visits. Bargas stated that protocol SWHA surveys were conducted following the methodology recommended by the Swainson's Hawk Technical Advisory Committee (2000). Habitat types and plant species observed on-site were documented (Bargas 2020). Surveys were conducted by vehicle using public roads, with limited vehicle access on unimproved interior roads where access had been granted. Some portions of the Project Vicinity were surveyed on foot where publicly accessible, such as along canals and in public parks. The interior portion of the Study Area was viewed using powerful optics that allowed sufficient viewing of all portions of the entire Project. Habitat types and animal species (and sign) observed on-site were documented.

3.2.5 Giant Garter Snake Habitat Assessment and Surveys

3.2.5.1 Giant Garter Snake Habitat Assessment

Bargas performed a habitat assessment and surveys for GGS on a 568.7-acre portion of the Study Area from May 4 to May 16, 2018 (Bargas 2020). Bargas limited the field assessment to four areas that included canals and irrigation ditches that were considered suitable habitat for GGS. Upland habitat between the areas of interest and other wetland features were also assessed for GGS habitat.

3.2.5.2 Giant Garter Snake Presence/Absence Surveys

Giant garter snake presence/absence studies were conducted by Eric Hansen to investigate the presence or absence of GGS in a 568.7-acre portion of the Study Area. Per Bargas, Mr. Hansen performed focused aquatic trapping conducted according to accepted protocols and searched for the occurrence of GGS using environmental DNA (eDNA) sampling techniques (Hansen 2019; Hansen 2020). Trapping took place from June through September in both 2019 and 2020. Mr. Hansen deployed 400 floating aquatic traps across suitable aquatic habitat and monitored them for a total of 40,703 trap-days. Full descriptions of the methods of this study are contained in Hansen (2019; 2020).

3.3 WETLANDS AND OTHER WATERS

Bargas biologists conducted an aquatic resources delineation of potential wetlands and other waters of the U.S. and State on the Project site on July 11 and 12, 2019, and April 22, 2020 (Bargas 2020). The presence of wetlands and other waters were determined based on the USACE three-parameter method described in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0*; 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). Aquatic resources in the Project site were also evaluated for their potential to qualify as waters of the State subject to RWQCB jurisdiction and/or CDFW jurisdiction.

USACE issued a Preliminary Jurisdictional Determination (PJD) for the 568.7-acre Surveyed Area, which documented 18 aquatic resource features encompassing 11.22 acres of Other Waters potentially subject to jurisdiction under Section 404 of the Clean Water Act (CWA) (USACE 2020). Thirty-two features of the 38 identified features appear to be substantially interconnected through culverts or other infrastructure utilized for agricultural irrigation/drainage (Bargas 2022). One feature (R5UBFx-21) appears to receive water from the Sacramento River via the Riverside Pumping Plant. Five features (R5UBFx-25, -33, -34, -36, and -37) have an evident or likely hydrologic connection to the West Drainage Canal through either the pumping station (Bargas 2022), culverts, or other agricultural infrastructure.

The Bargas aquatic resource assessment did not include areas outside of the UWSP. HELIX prepared an aquatic resources delineation for the remaining Study Area that is summarized in Section 5.4 below.

3.3.1 Subsections 1 and 3

HELIX biologists Patrick Martin and Greg Davis conducted an aquatic resources delineation of potential wetlands and other waters of the U.S. and State on the Project site on March 7, 2023. Previously mapped jurisdictional features were reviewed in the field, and the remaining features in the 1,497.3-acre Study Area were assessed from publicly accessible areas. No new data was taken in the Study Area to classify the site's soils, vegetation, and hydrologic characteristics since access to the remaining 1497.3 acres of the Study Area not previously analyzed by Bargas (2020) was not available. HELIX followed the procedures from Subsection 1 and Subsection 3 of the Methods from the Wetlands Delineation Manual (USACE 1987) for the remaining 1,497.3-acre Study Area of the Study Area by applying information already collected from the 568.7-acre aquatic resources delineation completed by Bargas (2020). Subsections 1 and 3 of Section D. Routine Determinations of the Wetlands Delineation Manual (USACE 1987) describe procedures to prepare an aquatic resources delineation by using existing data that have already been collected for a portion of the Project site and applying those data to the

balance of the Study Area without an additional site visit. HELIX used existing resources, databases, and imagery to synthesize Bargas' data to map aquatic resources within the 1,497.3-acre area within the Study Area and within Phase I off-site areas. The USACE concurred with the request of a preliminary jurisdiction determination (SPK-2020-00237) that the aquatic resource boundaries for the 568.7-acre portion of the Study Area are regulated under Section 404 of the Clean Water Act. The original 44.94 acres of aquatic resources included in the 2023 delineation by HELIX are comprised of a total of 11.22 acres of aquatic resources that were verified by the USACE in 2020 (SPK-2020-00237), and a total of 33.72 acres of aquatic resources that were delineated by HELIX in 2023. A Preliminary Jurisdictional Determination has also been issued for the 33.72 acres of wetlands on February 23, 2024 (SPK-2020-00237). The additional 0.14 acre of added aquatic resources are likely potential jurisdictional waters, and have been added to the appropriate Project permit applications.

3.4 INVASIVE SPECIES

Plant species observed on the Project site were compared to the list of invasive plants in California maintained by the California Invasive Plant Council (Cal-IPC; 2006) and the list of noxious weeds maintained by the CDFA (2021). Several invasive and noxious weed species listed by Cal-IPC and CDFA occur in the Project site, as would be expected due to its highly disturbed nature. Invasive and noxious weeds are identified on the plant species observed list in Appendix D and discussed further in Section 5.6.3.

CDFA List "C" species warrant state-endorsed holding action and eradication only when found in a nursery; actions to retard spread outside of nurseries are conducted at the discretion of the commissioner; and warrant rejection only when found in a crop seed for planting or at the discretion of the commissioner. In addition, the Cal-IPC categorizes plants as "high, moderate, or limited," reflecting the level of each species' negative ecological impact in California. Each plant on the list received an overall rating of high, moderate, or limited based on the following evaluation criteria:

- High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

- Moderate – These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

- Limited – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

4.0 RESULTS: ENVIRONMENTAL SETTING

4.1 ENVIRONMENTAL SETTING

The Study Area is contained within the Natomas Basin. Lands within the Study Area are primarily agricultural, with existing agricultural residential homes inside the northeastern and southwestern boundaries, and commercial uses located near the intersection of El Centro Road and West El Camino Avenue. Existing General Plan Land Use designations include Agricultural Cropland (1,858.3 acres); Agricultural Residential (97.0 acres); Commercial and Office (52.2 acres); and Recreation (58.8 acres).

The Study Area predominantly consists of graded agricultural land, including row crops and dry farming. Well-known agriculturally related uses include Goblin Gardens Pumpkin Patch at Bastiao Farms and Perry's Garden. Several large agricultural residences are located along the southwestern border and northeastern corner of the Study Area. One of these residences, located in the northeastern corner, is used for farm equipment, automobile, and scrap metal storage. Numerous unlined drainage canals and ditches cross the agricultural areas and are generally oriented north-south and east-west along section lines and parcel boundaries to provide irrigation water and drainage.

The southwest quadrant next to the I-80 interchange is currently auto-oriented Highway Commercial and includes gas stations, restaurants, motels, self-storage facilities, and vacant lots. The northwest quadrant next to the interchange is currently "heavy" highway oriented with the 49er Truck Stop, the Pape Machinery & Equipment sales and repair yard, and two single-story industrial buildings that measure approximately 20,000 sq. ft. There are also several vacant or underutilized parcels. A radio broadcast tower is located in the northern part of the Study Area, and a television broadcast tower is located within the agricultural residential area along the southwestern boundary.

The Study Area is comprised of a multiple-owner Specific Plan Area encompassing 2,199 acres, which includes a 1,523.8-acre Development Area, a 542.4-acre Agricultural Buffer Area, and 133.17 acres of off-site improvement areas. Approximately 271 acres of land within the proposed western Agricultural Buffer Area has been acquired by the Sacramento Area Flood Control Agency (SAFCA) and is planned to be improved under the USACE seepage prevention levee improvements project, and will include cutoff walls, landside berms, and a new adjacent levee, as well as approximately 80 acres of mitigation and 27.6 acres of wetland creation. The SAFCA lands also incorporate what is known as the Allegheny Reserve – an approximately 50-acre reserve that is currently part of the NBHCP reserve system.

4.2 CLIMATE

The climate in Sacramento County is Mediterranean, characterized by wet, cool winters and dry, hot summers. The nearest weather station to the Study Area, which is similarly situated on the landscape with complete climate data is located at the Sacramento Metropolitan Airport approximately three miles northwest of the Study Area. Average daily minimum and maximum temperatures are 60° and 94° Fahrenheit (°F) in July (Natural Resource Conservation Service [NRCS] 2023a). Average daily maximum and minimum temperatures are 55° and 38° F in January (NRCS 2023a). The mean annual precipitation is 16.89 inches. The weather station received approximately 18.26 inches of rainfall in the 2022 rain season leading up to the first field delineation visit on March 7, 2023 (NRCS 2023a), which was above average for this time of year or 48 percent above average for this time of year through February 2023. In

the 2021/2022 rain year, the weather station received 15.03 inches, which was 89 percent of normal (NRCS 2023a).

4.3 SOILS

The NRCS has mapped nine soil units within the Study Area: Clear Lake clay, hardpan substratum, drained, 0-1% slopes, Columbia sandy loam, clayey substratum, partially drained, 0-2% slopes, Cosumnes silt loam, partially drained, 0-2% slopes, Cosumnes silt loam, drained, 0-2% slopes, Durixeralfs, 0-1% slopes, Egbert clay, partially drained, 0-2% slopes, Jacktone clay, drained, 0-2% slopes, Sailboat silt loam, partially drained, 0-2% slopes, MLRA 16, and San Joaquin-Xerarents complex, leveled, 0-1% slopes (**Appendix A, Figure 4, Soils Map**). The general characteristics and properties associated with these soil types are described below (NRCS 2024).

Clear Lake clay, hardpan substratum, drained, 0-1% slopes is a somewhat poorly-drained soil that consists of clay, clay loam, and cemented layers derived from alluvium. Clear Lake clay, hardpan substratum, drained, 0-1% slopes is found on basin floors and toeslopes. The restrictive layer consists of duripan at 48 to 64 inches below the surface. This soil series is considered prime farmland when irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

Columbia sandy loam, clayey substratum, partially drained, 0-2% slopes, is a somewhat poorly-drained soil that consists of sandy loam, stratified loamy sandy to silt loam, and clay loam derived from alluvium. Columbia sandy loam, clayey substratum, partially drained, 0-2% slopes is found on floodplains, natural areas, toeslopes, and summits. The depth to the restrictive layer is more than 80 inches below the surface. This soil series is considered prime farmland if irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

Cosumnes silt loam, partially drained, 0-2% slopes, is a somewhat poorly-drained soil that consists of silt loam and stratified silty clay loam to clay that is alluvium derived from igneous rock and metamorphic rock. Cosumnes silt loam, partially drained, 0-2% slopes is found on floodplains. The depth to the restrictive layer is more than 80 inches below the surface. This soil series is considered prime farmland if irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

Cosumnes silt loam, drained, 0-2% slopes, is a somewhat poorly-drained soil that consists of silt loam, stratified clay loam, and clay that is derived from alluvium. Cosumnes silt loam, drained, 0-2% slopes is found on floodplains and toeslopes. The depth to the restrictive layer is more than 80 inches below the surface. This soil series is considered prime farmland if irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

Durixeralfs, 0-1% slopes, is a somewhat poorly-drained soil that consists of clay, clay loam, and underlain by an indurated layer that is alluvium derived from granite. Durixeralfs, 0-1% slopes is found on terraces and toeslopes. The depth to the restrictive layer is more than 80 inches below the surface. This soil series is not considered prime farmland. The minor components of this soil unit are considered hydric (NRCS 2023b).

Egbert clay, partially drained, 0-2% slopes, is a poorly-drained soil that consists of clay, silty clay loam, and stratified sandy clay loam that is derived from alluvium. Egbert clay, partially drained, 0-2% slopes is found on floodplains and backswamps. The depth to the restrictive layer is more than 80 inches below

the surface. This soil series is considered prime farmland if irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

Jacktone clay, drained, 0-2% slopes, is a somewhat poorly-drained soil that consists of clay, clay loam, and stratified loam to clay loam that is derived from alluvium. Jacktone clay, drained, 0-2% slopes is found on basin floors and toeslopes. The restrictive layer consists of a duripan found between 34 to 52 inches below the surface. This soil series is considered prime farmland of statewide importance. This soil unit and some of its minor components are considered hydric (NRCS 2024).

Sailboat silt loam, partially drained, 0-2% slopes, MLRA 16, is a somewhat poorly-drained soil that consists of silt loam, clay loam, and loam that is alluvium derived from igneous, metamorphic, and sedimentary rock. Sailboat silt loam, partially drained, 0-2% slopes, MLRA 16 is found on floodplains and natural levees. The depth to the restrictive layer is more than 80 inches below the surface. This soil series is considered prime farmland if irrigated. This soil unit and its minor components are considered hydric (NRCS 2024).

San Joaquin-Xerarents complex, leveled, 0-1% slopes, is a somewhat poorly-drained soil that consists of silt loam, clay loam, an indurated layer, and stratified sandy loam that is alluvium derived from granite. San Joaquin-Xerarents complex, leveled, 0-1% slopes is found on terraces and toeslopes. The depth to the restrictive layer is more than 80 inches below the surface, but a duripan may exist between 28 to 54 inches below the surface. This soil series is considered prime farmland of statewide importance. Some of the minor components of this soil unit are considered hydric (NRCS 2024).

4.4 TOPOGRAPHY AND GEOLOGY

The Study Area is characterized and dominated by nearly flat agricultural land ranging from approximately 12 feet above mean sea level (msl) along the eastern border to approximately 27 feet above msl along the western border. The Study Area is located in the central portion of the Great Valley geomorphic province of California, which includes most of Sacramento County. The Great Valley province is an approximately 50-mile-wide by 400-mile-long alluvial plain that lies between the Sierra Nevada mountains to the east and the Coast Range mountains to the west. Once covered by ocean, this alluvial plain valley is underlain by an asymmetrical depression formed by intersecting, downward-sloping folds of bedrock in which sedimentary deposits have accumulated in a sequence of units (i.e., Great Valley Sequence) for over 100 million years.

Formation of the Great Valley Sequence began with marine sediments precipitating out of receding ocean waters followed more recently by layers of alluvial deposits washing down from creeks and rivers draining from the Sierra Nevada, Klamath, Cascade, and Coast Range mountains. The U.S. Geological Survey (USGS) Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills shows the Study Area to be underlain by undivided Holocene basin deposits and the lower member of the Riverbank Formation (Helley and Harwood 1985). The Holocene basin deposits of the last 10,000 years consist of fine-grained silt and clay derived from the nearby mountain ranges and deposited by the Sacramento and American Rivers. The lower member of the Riverbank Formation consists of red semi-consolidated gravel, sand, silt, and clay derived from the nearby mountain ranges and deposited by the Sacramento and American Rivers. Deposits include the following:

- **Recent crevasse splay deposits** (Rcs) – Generally consist of medium stiff silts and very stiff lean clays. These deposits typically overlie Rob, Hob, or Qa.

- **Recent overbank deposits** (Rob) – Generally consist of soft to very stiff lean and fat clays, and typically overlie deposits of Hob or Qa.
- **Holocene overbank deposits** (Hob) – Generally consist of very soft to medium stiff silts and lean clays.
- **Quaternary alluvium** (Qa) –Typically consisting of very loose to very dense, poorly to well-graded sands with varying amounts of silty fines and some poorly or well-graded gravel lenses.
- **Quaternary marsh deposits overlying alluvial deposits** (Qs/Qa) – Typically consists of stiff silt and lean clay.
- **Holocene overflow channel deposits** (Hofc) – these deposits were "vertically stratified sand, silt, and clay."
- **Holocene basin deposits** (Qhb) – generally consist of stiff to hard fat clay blanketing older alluvium.
- **Pleistocene Riverbank Formation** (Qr) – nearby data suggests the Riverbank Formation includes very stiff to hard lean clays and silts as well as medium dense to very dense sands with varying amounts of fines.

4.5 HYDROLOGY

Consistent with the geologic history of the area, the Natomas Basin historically contained marshland and a variety of wetlands from the multiple rivers and creeks of surrounding mountains draining into the Basin. After the Sacramento River levee system was completed ca. 1915, the Natomas Basin area was drained and converted to farmland with a network of channels and pumping stations constructed in the 1930s for flood control and irrigation. The Natomas Central Mutual Water Company (NCMWC) maintains and operates water delivery channels throughout the Natomas Basin, and Reclamation District (RD) 1000 maintains and operates agricultural drainage and flood control channels.

4.6 LAND COVERS

Naturally-occurring vegetative communities (i.e., habitats) are typically classified based on the dominant plant species, whereas vegetative communities characterized by a high level of anthropogenic disturbance are often classified by the dominant land use. The NBHCP categorizes land cover within the Natomas Basin into 18 broad classifications. However, to refine mapping and better define the characteristics of lands within the Study Area, HELIX compiled new land cover data for the Study Area by combining portions of data from State and commercial sources (HELIX 2022). Land cover data were obtained from the Central Valley Flood Protection Planning Area Update project and the 2019 i5 Statewide Crop Mapping data. Aquatic resource data were obtained via Wood Rodgers and Bargas (Bargas 2022).

Table 2, *Land Cover Summary Crosswalk Table*, summarizes land cover classifications assigned by the NBHCP and the correlated classification used by HELIX in its comprehensive mapping of land cover in the Natomas Basin (HELIX 2022). Land cover descriptions have been taken from the BRA (Bargas 2022) with some modifications in the text for brevity, as well as refinement based on the data associated with the HELIX mapping sources. Land cover mapping for the Study Area, which is displayed on **Appendix A, Figure 5, Aquatic Resources Map,** displays aquatic resources, and **Appendix A, Figure 6**, **Existing Upper Westside Specific Plan Land Cover***,* which includes both upland and aquatic resources.

Table 2
LAND COVER CROSSWALK

HELIX 2022 Land Cover	NBHCP 2003 Land Cover
Annual Grasses and Forbs	Grassland
California Sycamore	Tree Groves
Deciduous	Orchard
Eucalyptus	Tree Groves
Field Crops	Non-Rice Crops
Fremont Cottonwood	Riparian
Grain and Hay	Alfalfa
Partially Irrigated Crops	Non-Rice Crops
Pasture	Pasture
Rice	Rice
Riparian Mixed Hardwood	Riparian
Riparian Mixed Shrub	Riparian
Ruderal	Ruderal
Truck Crops	Non-Rice Crops
Tule – Cattail	Riparian
Urban/Developed (General)	Urban
Valley Oak	Tree Groves
Vernal Pool	—
Vineyard	—
Water (General)	Canals
Wet Meadows	Ponds/Wet Areas
Willow	Riparian
Willow (Shrub)	Riparian

Land cover classifications carried forward throughout this document are summarized below in Table 3, UWSP Land Cover Acreages, by acreage within the UWSP, as well as the percentage of the UWSP.

Table 3
UWSP LAND COVER ACREAGES

Classification	UWSP Acreage	(%) Percent of Total UWSP Acreage
Annual Grasses and Forbs	17.31	0.79
Deciduous	4.38	0.20
Field Crops	334.71	15.22
Fremont Cottonwood	1.00	0.05
Grain and Hay	792.79	36.05
Partially Irrigated Crops	272.50	12.39
Pasture	17.91	0.81
Ruderal	285.5	12.98
Truck Crops	74.44	3.38
Urban/Developed (General)	258.18	11.74
Valley Oak	34.66	1.58
Vineyard	17.23	0.78

Classification	UWSP Acreage	(%) Percent of Total UWSP Acreage
Water (General)	45.08	2.05
SAFCA Wetland Creation	43.62	1.98
Total	**2,199**	**100%**

Annual Grasses and Forbs

Annual grasses and forbs are found on 17.31 acres of the Study Area and occur where agricultural fields have remained fallow for an extended period. Annual grassland land cover consists primarily of open grasslands composed of annual plant species. Dramatic differences in physiognomy between seasons and years are characteristic of this habitat. Fall rains cause the germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring, when temperatures increase and stimulate more rapid growth. Large amounts of standing dead plant material can be found during summer in years of abundant rainfall and light to moderate grazing pressure. Heavy spring grazing favors the growth of summer-annual forbs. Many wildlife species use annual grasslands for foraging. This landcover also includes SAFCA-created wetlands that consist of a part of 27.6 acres of wetland creation. Created wetlands are still under development and likely to not meet wetland criteria.

Deciduous

Deciduous orchards are found on 4.38 acres of the Study Area. Deciduous orchards are open, single-species tree-dominated habitats. Spacing between trees is uniform, depending on the desired spread of mature trees. The understory may be composed of low-growing grasses, legumes, and other herbaceous plants, or may be managed to prevent understory growth along tree rows. Orchards are planted on deep fertile soils which once supported productive and diverse natural habitats. Some avian and mammal species have adapted to orchard habitats.

Field Crops

Field crops are found on 334.71 acres of the Study Area. Cover type, canopy, plant composition, and other metrics are variable - changing from year to year or even season to season. Vegetation in this habitat includes a variety of sizes, shapes and growing patterns, and vegetation cover can vary widely from 100 to zero percent. Some acreages are planted in rotation with other irrigated crops, and sometimes winter wheat or barley may be planted after harvest of a previous crop in the fall, dry farmed (during the wet winter and early spring months), and then harvested in the late spring. Row and field crops are established on fertile soils, which historically supported an abundance of wildlife. Many wildlife species have adapted to croplands.

Fremont Cottonwood

Fremont cottonwood (*Populus fremontii*) is a native species that occurs in or around wetlands and riparian areas and is found on 1.00 acre of the Study Area. Undisturbed areas contain a subcanopy tree layer and an understory shrub layer. Fremont cottonwood and associated riparian areas provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife species.

Grain and Hay

Grain and hay fields (alfalfa fields) are found on 792.79 acres of the Study Area. Like most agricultural habitat types, cover type, vegetation cover, plant composition, and other metrics are variable and may change from year to year or even season to season. This land cover is dense monoculture, with nearly 100 percent cover once plants have matured. Physiognomy of the habitat changes to a lower stature following annual harvest and subsequently reverts to bare ground following plowing or discing. Plowing may occur annually but is usually less often. This land cover can provide a high-quality seasonal resource for a variety of wildlife.

Partially Irrigated Crops

Irrigated crops are found on 272.50 acres of the Study Area. Most irrigated field crops are annual species, grown in rows which are usually planted in spring and harvested in summer or fall. Like most agricultural habitat types, cover type, vegetation cover, plant composition, and other metrics are variable - changing from year to year or even season to season. Vegetation in this habitat includes a variety of sizes, shapes and growing patterns and canopy cover can vary widely from 100 to zero percent.

Pasture

Pasture landcover is found on 17.91 acres of the Study Area. Like most agricultural types, cover type, vegetation cover, plant composition, and other metrics are variable and may change from year to year or even season to season. Pasture vegetation is commonly a mix of perennial grasses and legumes that normally provide 100 percent vegetation cover. Height of vegetation varies from a few inches to two or more feet on fertile soils, dependent on season and livestock stocking and grazing levels. Pastures are used by a variety of wildlife depending upon the geographic area and adjacent habitats. Ground-nesting bird species can nest in pastures if adequate residual vegetation is present at the onset of the nesting season. Flood irrigation of pastures provides feeding and roosting sites for many wetland-associated birds. This landcover also includes SAFCA-created wetlands that consist of a part of 27.6 acres of wetland creation. Created wetlands are still under development and likely to not meet wetland criteria.

Ruderal

Ruderal land cover is present on 285.5 acres of the Study Area. Ruderal areas have typically been exposed to extensive ongoing anthropogenic disturbance and are characterized largely by non-native, weedy species or early native colonizing species. This land cover type is not paved, retaining a soil substrate. Ruderal land cover can be colonized by burrowing small mammals and thus can be suitable for animals such BUOW and SWHA that forage for prey in ruderal habitat.

Truck Crops

Truck crops are present on 74.44 acres of the Study Area. Truck crops include low-growing row crops such as tomatoes and melons. This land cover can provide a high-quality seasonal resource for a variety of wildlife.

Urban/Developed (General)

Urban land cover is found on 258.18 acres of the Study Area. The physiognomy of urban vegetation varies with the land use. Within the Study Area, areas mapped as urban include residential lots and commercial development. Impervious surfaces – such as pavement – are common in the latter, while the former often includes mowed lawns, gardens, and ornamental trees. Wooded cover in the urban portions of the Study Area provides shelter and foraging habitat for a wide variety of native and non-native wildlife, especially birds.

Valley Oak

Valley oak is found on 34.66 acres of the Study Area. Valley oak habitat in the Study Area, is dominated by valley oak (*Quercus lobata*), interspersed with canopy tree species such as California Sycamore (*Platanus racemosa*), or can occur as a grassland dominated by valley oak. Undisturbed areas typically contain a subcanopy tree layer and an understory shrub layer. In the Study Area, valley oak understory is dominated by rural residential development, which diminishes the quality of the habitat for plants and wildlife. Valley oak land cover, particularly where it occurs near aquatic drainages, provides food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife species.

Vineyard

Vineyard land cover is not a recognized land cover type in the NBHCP but is found on 17.23 acres of the Study Area. Vineyards are monoculture crops planted in rows, usually supported on wood and wire trellises. Vines are normally intertwined within the support structures along the row but land between rows is maintained as open space. Soil under the vines is usually sprayed with herbicides to prevent the growth of herbaceous plants. Between rows of vines, grasses and other low-growing herbaceous plants may be planted or allowed to grow as a cover crop to control erosion. Vineyards are typically planted on deep fertile soils which once supported productive and diverse natural habitats. Some avian and mammal species have adapted to vineyard habitats, including raptors, which often perch on supporting structures.

Water (General)

Water (riverine habitat) is present on 45.08 acres of the Study Area in the form of irrigation canals and ditches, ponds and detention basins. Irrigation ditches and canals contain duckweed (*Lemna minor*), green algae, and a variety of emergent vegetation, and the banks of the irrigation canals and ditches were dominated by ruderal vegetation during surveys conducted by Bargas (2022).

4.7 WILDLIFE

The Study Area provides suitable land cover for a variety of wildlife species commonly inhabiting agricultural land in the Natomas Basin. The larger expanses of terrestrial land cover (e.g., grass, hay, alfalfa, etc.) in the Study Area provide suitable foraging habitat for raptors such as SWHA, western burrowing owl (*Athene cunicularia*; BUOW), loggerhead shrike (*Lanius ludovicianus*), white-tailed kite (*Elanus leucurus*), and northern harrier (*Circus hudsonius*).

Irrigation canals and associated land covers provide potentially suitable habitat for GGS, tricolored blackbird (*Agelaius tricolor*; TRBL), northwestern pond turtle (*Actinemys marmorata*; WPT), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; VELB).

4.8 SPECIAL-STATUS SPECIES

Based on species' ranges and habitat affinities, a total of 17 regionally occurring special-status species (Table 4, S*pecial-status Species with the Potential to Occur*) are either known to occur or have the potential to occur in the Project site (this analysis is described in Section 3.1). Special-status species observed on-site during the March 7, 2023, site visit include Cooper's hawk (*Accipiter cooperii*) and osprey (*Pandion haliaetus*); however, no nesting locations of special-status species were observed within the Study Area during the March 2023 site visit. A red-tailed hawk was observed perching on trees and radio towers in the Study Area associated with existing nest structures. No other special-status plant or wildlife species were observed within the Study Area. Special-status species with the potential to occur within the Study Area are discussed in detail in Section 5.

Table 4
SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR

Scientific Name Common Name	Regulatory Status[1]	Status in the Project Site[2]	Suitable Habitat in the Project Site
Plants			
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	--/--/1B.2	Habitat present	Suitable freshwater habitat is present in agricultural canals and ditches in the Study Area. There is one record of this species within a 5-mile radius of the Study Area located at the Interstate 80 interchange at the W El Camino Avenue off ramp (CDFW 2024).
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2, NBHCP	Habitat present	Suitable freshwater habitat is present in agricultural canals and ditches in the Study Area. There are two CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Invertebrates			
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--/--, NBHCP	Habitat assumed to be present	Elderberry shrubs that provide suitable breeding habitat for this species were not detected within the Study Area. However, not all of the Study Area was directly accessible and elderberry shrubs are likely present in valley oak woodland or as isolated shrubs in close proximity to riparian habitat that is contiguous with known records of this species. Observations of this species in the CNDDB are abundant in the region with the nearest CNDDB occurrence located 0.3-mile northwest of the Study Area in riparian forest along the Sacramento River (CDFW 2024).

Scientific Name Common Name	Regulatory Status[1]	Status in the Project Site[2]	Suitable Habitat in the Project Site
Reptiles			
Actinemys (=Emys) marmorata northwestern pond turtle	FPT/--/SSC, NBHCP	Habitat present (aquatic and upland refugia)	Suitable habitat is present for this species along canals and ditches in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Thamnophis gigas giant garter snake	FT/ST/--, NBHCP	Habitat present (aquatic and upland refugia)	Suitable aquatic habitat that is inundated during the active season for this species is present in agricultural ditches and canals that occur throughout the Study Area. Additionally, upland habitat is present in areas adjacent to ditches and known occurrences of this species. This species is documented within the northern portion of the Study Area in West Drainage Canal and is well documented in areas surrounding the Study Area in the CNDDB (CDFW 2024). Protocol surveys that included trapping did not detect this species in portions of the Study Area; however eDNA sampling did test positive in ditches surrounding the Study Area which indicates this species utilizes the habitat (Bargas 2020, Hansen 2019). Protocol surveys and eDNA sampling were not conducted within West Drainage Canal where the CNDDB documents this species.
Birds			
Accipiter cooperii Cooper's hawk	--/--/WL	Habitat present (nesting and foraging)	Suitable habitat is present for this species in the Study Area. This species could nest in trees throughout the Study Area and forage in forested areas along the Sacramento River, agricultural crops, fallowed fields or ruderal areas in the Study Area or in other adjacent habitats. There are two CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest CNNDB reported occurrence is located approximately 3.9 miles south of the Study Area and documents a nest from 2008. (CDFW 2024).
Agelaius tricolor tricolored blackbird	--/ST/SSC, NBHCP	Habitat present (nesting and foraging)	Nesting habitat for this species is present in the Study Area along ditches that supports trees, blackberry brambles and other emergent vegetation in ditches and canals. This species could also forage in the Study Area as they are known to forage in agricultural fields up to four miles from nesting sites. There are several CNDDB reported occurrences within a 5-mile radius of the Study Area. The nearest CNDDB reported occurrence is located approximately 1.9 miles northeast of the Study Area and documents an extirpated nesting colony from 1992 (CDFW 2024).

Scientific Name Common Name	Regulatory Status[1]	Status in the Project Site[2]	Suitable Habitat in the Project Site
Athene cunicularia Burrowing owl	--/--/SSC, NBHCP	Habitat present (nesting and foraging)	Suitable habitat is present for burrowing owl in the Study Area in ruderal or fallowed fields and along the banks of ditches and canals especially where small mammal burrows are present. But burrowing owl may also use other refuge sites such as abandoned irrigation pipes. CNDDB records for burrowing owl in the region are abundant with the nearest record located approximately 0.2 mile east of the Study Area. This record documents a wintering owl along a drainage ditch in 1991; however, this site is likely extirpated since the area has been developed (CDFW 2024).
Buteo swainsoni Swainson's hawk	--/ST/--, NBHCP	Present (nesting and foraging)	Suitable habitat is present for this species in the Study Area. This species could nest on trees throughout the Study Area and forage in agricultural crops, fallowed fields or ruderal areas in the Study Area or in adjacent habitats. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area and this species is well documented to nesting and foraging in the Study Area and in the region. There are two documented CNDDB reported occurrences of this species nesting on the Study Area; the records document nesting activity in cottonwoods and oak trees in 1992 and 1993 (CDFW 2024).
Circus hudsonius Northern harrier	--/--/SSC	Present (foraging); Habitat present (nesting)	Nesting and foraging habitat for northern harrier is present in the Study Area. This species has been detected foraging within the Study Area during field surveys.
Elanus leucurus White-tailed kite	--/--/FP	Habitat present (nesting and foraging)	Suitable habitat is present for this in the Study Area. This species could nest on trees throughout the Study Area and forage in agricultural crops, fallowed fields or ruderal areas in the Study Area or in adjacent habitats. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest CNNDB reported occurrence is located approximately 2.6 miles south of the Study Area, and documents a nest from 2017 in a large oak tree in a residential neighborhood (CDFW 2024).
Lanius ludovicianus Loggerhead shrike	--/--/SSC, NBHCP	Habitat present (nesting and foraging)	Open habitat with perching sites along fences and some shrubs and small trees provides suitable nesting and foraging habitat for this species. There are no CNDDB reported occurrences for this species in a 5-mile radius of the Study Area and this species has not been detected in the Study Area (CDFW 2024).

Scientific Name Common Name	Regulatory Status[1]	Status in the Project Site[2]	Suitable Habitat in the Project Site
Melospiza melodia song sparrow (Modesto Population)	--/--/SSC	Habitat present (nesting and foraging)	Suitable nesting habitat is present for this species within vegetation along ditches and canals. There is one CNDDB reported occurrence for this species within a 5-mile radius of the Study Area, which is not a specific location. The record documents breeding in a canal along the edge of a wheat field in 1877 (CDFW 2024).
Pandion haliaetus Osprey	--/--/WL	Present (nesting)	Suitable habitat is present for this in the Study Area. This species could nest on trees or structures throughout the Study Area. This species was observed in the Study Area on March 7, 2023, foraging over cropland. This species appeared to have captured a medium sized bird.
Plegadis chihi white faced ibis	--/--/WL, NBHCP	Habitat present (foraging)	Nesting habitat for this species is not present in the Study Area. However, this species could forage in the Study Area as they are known to forage in agricultural fields. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Progne subis purple martin	--/--/SSC	Habitat present (nesting and foraging)	Suitable habitat is present for this species in the Study Area in tree cavities where large trees are present or in cavities of other artificial structures such as utility poles. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest CNDDB record for this species is located 2.5 miles southeast of the Study Area and documents this species nesting in weep holes under the I-5 bridge in 2007 (CDFW 2024).
Xanthocephalus xanthocephalus yellow-headed blackbird	--/--/SSC	Habitat present (nesting and foraging)	Nesting habitat for this species is not present in the Study Area. However, this species could forage in the Study Area as they are known to forage in agricultural fields. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Mammals			
Antrozous pallidus pallid bat	--/--/SSC	Habitat present (roosting and foraging)	Suitable habitat is present for this species in buildings, bridges, and tree hollows. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

[1] Regulatory Status is FESA listing/CESA listing/Other state status. FE=Federal Endangered; FT = Federally Threatened; FPT=Federally Proposed Threatened; ST=State Threatened; FP=Fully Protected; SSC=Species of Special Concern; WL = Watch List.

[2] Status in the project site is based on results of studies discussed in Section 3.1.

5.0 RESULTS: EVALUATION OF POTENTIAL BIOLOGICAL RESOURCES IMPACTS

5.1 GUIDELINES FOR DETERMINING IMPACT SIGNIFICANCE

The following threshold criteria from the CEQA Appendix G Checklist were used to evaluate project-related potential effects on biological resources. Based on these criteria, the project would have a significant effect on biological resources if it would:

1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS.

3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 POTENTIAL FOR IMPACTS TO SPECIAL-STATUS SPECIES

5.2.1 Special-status Plants

According to the database query, 30 listed and/or special-status plant species have the potential to occur on or in the vicinity of the Study Area (CDFW 2024). Based on field observations, published information, and literature review, two special-status plants have the potential to occur within the Study Area: woolly rose mallow and Sanford's arrowhead. Many special-status plant species in the vicinity of the Study Area occur on alkaline soils, or in vernal pools or chenopod scrub, which are not present in the Study Area. The soils in the Study Area are primarily neutral to slightly acidic (NRCS 2024). Additionally, many species require seasonal wetland habitats such as vernal pools or wetland swales, which are also absent from the Study Area.

CNDDB reports no occurrences of any NBCHP Covered Plant Species within the Study Area (CDFW 2024), and no NBHCP covered plant species were observed within the 568.7 acres of lands surveyed by Bargas in 2019, 2020, or 2021 (Bargas 2019, 2020, and 2022). Agricultural habitat in the Study Area is temporarily created as a result of fallow agricultural fields that will likely not remain fallow and thus do

not represent a natural or permanent state, which generally does not provide habitat for special-status species. However, agricultural canals and ditches that support wetland vegetation year-round and are not subjected to the same stressors as agricultural fields could support species such as woolly rose mallow and/or Sanford's arrowhead. Sanford's arrowhead is known to occur in ditches and other disturbed wetland areas. One record of woolly rose-mallow is documented outside of the southeastern boundary of the Study Area in canals with wetland habitat (CDFW 2024).

5.2.1.1 Woolly Rose-Mallow

Listing Status

Woolly rose-mallow is ranked by the California Native Plant Society (CNPS) as a California Rare Plant Rank (CRPR) 1B.2 (plants rare, threatened, or endangered in California and elsewhere).

Life History and Habitat Requirements

Woolly rose-mallow is a perennial, deciduous shrub in the Malvaceae family that is native to California but can also be found elsewhere in North America. The species blooms from June to September and grows to approximately four to six feet in height. The species occurs at elevations up to 400 feet in full sun to partial shade in freshwater marshes, swamps, wetland riparian, and wetland habitats in the Cascade Range Foothills, and the Sacramento and San Joaquin Valleys and can frequently be found on riverbanks and low peat islands in sloughs as well as in riprap on the side of levees (CNPS 2023). Observed species often associated with woolly rose-mallow include valley oak, red buckthorn (*Frangula rubra*), California wild rose (*Rosa californica*), pennyroyal *(Mentha pulegium*), poison oak (*Toxicodendron diversilobum*), California mugwort (*Artemisia douglasiana*), California grape (*Vitis californica*), curly dock (*Rumex crispus*), rough cocklebur (*Xanthium strumarium*), willow (*Salix* spp.), and blackberry (*Rubus* spp.) (Calflora 2024; eJepson 2024).

The plant is easily distinguishable in the field because it is tall and has a large, showy flower. Individual plants produce many shoots that grow one to two meters tall, emerging from a large, woody rootstock each spring. The plants are in bloom from June through September, and individual flowers are only open for a single day. Flowers are 10 to 15 centimeters in diameter and have five white or pale pink petals with a deep crimson center (Calflora 2024; eJepson 2024).

Woolly rose-mallow - known variously as the hairy- fruited hibiscus or rose-mallow - is a self-compatible rhizomatous perennial pollinated by bees. The reproductive structures of these flowers are found emerging from the center of the flower on a single stalk-like structure. The stamens are fused into a tube with numerous anthers that offer an abundance of pollen. The stalk ends with a branched style that supports five rounded stigmas. These flowers produce so much pollen that it often falls off the anthers and can be found resting in small piles on the lower petals. A characteristic that distinguishes this species from other hibiscus is its pubescent leaves and stems. The leaves are covered by soft, dense hairs on the upper and lower surfaces and are velvety to the touch. The degree of pubescence varies from flower to flower, but the velvety nature of the leaves can often be easily seen from a distance. The fruit is a capsule that is densely-hairy and contains many seeds. The capsule opens to reveal the seeds and remains on the plant through much of the dormant season (Calflora 2024; eJepson 2024).

Regional and Local Distribution

There are 10 occurrences of woolly rose-mallow documented in the CNDDB within the nine-quad search area centered on the Study Area. All occurrences are believed to be extant populations. Woolly rose-mallow is threatened by habitat disturbance, development, agriculture, recreational activities, and channelization of the Sacramento River and its tributaries. Other threats include erosion and weed control measures and canal and ditch maintenance and/or elimination.

Status in the Upper Westside Specific Plan

This species has not been documented in the Study Area but is documented within approximately 432 feet of the Study Area boundary. This species was not detected during multiple rounds of botanical surveys of accessible areas conducted during 2019 and 2020 during the blooming period for this species (Bargas 2020). However, most of the Study Area remains unsurveyed for this species. There is one record of this species within a 5-mile radius of the Study Area located on the eastern boundary of the Study Area along the Interstate 80 interchange. This record documents two plants observed in a ditch lacking freshwater marsh habitat and was documented with upland non-wetland vegetation. CDFW ranks the record as poor, which was documented by Caltrans in 1988 (CDFW 2024).

Project Effects to Woolly Rose-mallow

Habitat Loss, Fragmentation, and Reduction in Patch Size

The canals and ditches within the Study Area provide suitable habitat for this species. Although these canals and ditches are used and maintained for agricultural use, hydrophytic vegetation within the canals and ditches is consistent with vegetation that this species occurs with. No other suitable habitat wetland habitat is present in the Study Area.

Construction-Related Activities

If some canals and ditches are avoided by the Project, there would be no potential for Project impacts to woolly rose-mallow associated with Project construction in those canals and ditches. For canals and ditches that will be developed or where Project activities will occur in the canals and ditches, impacts to this species could include loss of individuals or a population if it is present or indirect impacts to potential habitat through changes in hydrology or other changes to habitat.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of potential wetland habitat that could support woolly rose-mallow in the Natomas Basin, overall, the effects of the proposed action on woolly rose-mallow should be minimal since wetland habitat in the Study Area is limited to agricultural canals and ditches, and there are no documented accounts of this species in the Study Area or in the Natomas Basin with the exception of the 1988 Caltrans account of this species in otherwise unsuitable habitat (CDFW 2024). The UWSP has proposed measures that minimize and mitigate the impacts from the Project on this species, such as requiring botanical surveys to be conducted timed to coincide with the blooming period for this species and coordination with CDFW to determine appropriate mitigation in the event that wooly rose-mallow is present and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the woolly rose-mallow in the Basin if

it is present. The mitigation measures identified in Section 6 of this document would reduce impacts to this species to less than significant.

5.2.1.2 Sanford's Arrowhead

Listing Status

Sanford's arrowhead is ranked by the CNPS as a CRPR 1B.2.

Life History and Habitat Requirements

Sanford's arrowhead is a perennial, rhizomatous herb in the Alismataceae family that is native to California and is extirpated from southern California and nearly extirpated from the Central Valley (CNPS 2024). The species blooms from May to October. The species occurs at elevations up to 650 meters in freshwater marshes, swamps, and assorted freshwater wetlands, including ditches that support wetland habitats (CNPS 20234).

Sanford's arrowhead characteristic that distinguishes this species from other species of the genus is the fruit is oil-streaked on the side with an erect beak of 0.2 mm to 0.6 mm, and papillate filaments on the staminate flower (eJepson 2024).

Rangewide and Local Distribution

There are 26 occurrences of Sanford's arrowhead documented in the CNDDB within the nine-quad search area centered on the Study Area. There are two CNDDB reported occurrences within a 5-mile radius of the Study Area. The nearest record documents this species 3.1 miles east of the Study Area; this record documents two populations observed in Arcade Creek and a shallow ditch in 2011 (CDFW 2024).

Sanford's arrowhead is threatened by grazing, development, agriculture, recreational activities, non-native plants, road widening, and channel alteration and maintenance. Other threats include erosion and weed control measures and canal and ditch maintenance and/or elimination.

Status in the Upper Westside Specific Plan

This species has not been documented in the Study Area. This species was not detected during multiple rounds of botanical surveys of accessible areas within the Study Area conducted during 2019 and 2020 during the blooming period for this species (Bargas 2020). However, most of the Study Area remains unsurveyed for this species.

Project Effects to Sanford's Arrowhead

Habitat Loss, Fragmentation, and Reduction in Patch Size

The canals and ditches within the Study Area provide suitable habitat for this species. Although these canals and ditches are used and maintained for agricultural use, hydrophytic vegetation within the canals and ditches is consistent with vegetation that this species occurs with. No other suitable habitat wetland habitat is present in the Study Area.

Construction-Related Activities

If some canals and ditches are avoided by the Project, there would be no potential for Project impacts to Sanford's arrowhead associated with Project construction in those canals and ditches. For canals and ditches that will be developed or where Project activities will occur in the canals and ditches, impacts to this species could include loss of individuals or a population if it is present or indirect impacts to potential habitat through changes in hydrology or other changes to habitat.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of potential wetland habitat that could support Sanford's arrowhead in the Natomas Basin, overall, the effects of the proposed action on Sanford's arrowhead should be minimal since wetland habitat in the Study Area is limited to agricultural canals and ditches and there are no documented accounts of this species in the Study Area or in the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts such as requiring botanical surveys timed to coincide with the blooming period for this species and coordination with CDFW to determine appropriate mitigation in the event that Sanford's arrowhead is present and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the Sanford's arrowhead in the Basin if it is present. The mitigation measures identified in Section 6 would reduce impacts to this species to less than significant.

5.2.2 Special-status Wildlife

According to the database query, 45 listed and/or special-status wildlife species have the potential to occur on-site or in the vicinity of the Study Area (CDFW 2024 and USFWS 2024). Based on field observations, published information, and literature review, 15 special-status wildlife species have the potential to occur within the Study Area: VELB, WPT, GGS, Cooper's hawk, TRBL, BUOW, SWHA, northern harrier, white-tailed kite, loggerhead shrike, Modesto song sparrow (*Melospiza melodia*), osprey, purple martin (*Progne subis*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and pallid bat (*Antrozous pallidus*). These species are discussed in more detail below. In addition to these special-status wildlife species, nesting birds and raptors protected under federal, State, and local laws/policies also have the potential to occur within the Study Area.

5.2.3 Special-status Invertebrates

5.2.3.1 Valley Elderberry Longhorn Beetle

Listing Status

VELB is listed as Threatened by the USFWS.

Life History and Habitat Requirements

VELB has a four-stage life cycle (egg, larva, pupa, and adult) centered on the subspecies' host plant. Adult beetles are active - feeding and mating - from March until June. After mating, eggs are deposited on live elderberry bushes in crevices of the bark, stem/trunk junctions, and/or stem/petiole junctions. Post-hatching, larvae bore through the bark into the pith of the stem where they create a feeding gallery and eat for up to two years (Lang et al. 1989; Halstead and Oldham 1990; Woollett 2004). Elderberry stems hosting VELB larvae must be ≥1 inch in diameter at ground level to facilitate the completion of the

VELB life cycle. Prior to pupation, larvae chew through the bark of the stem (thereby creating the "exit hole") and then return to the feeding gallery, closing the exit hole. The larvae then enter the pupal stage. After transformation, the adult beetle breaks through the frass plug at the exit hole. The adult beetle lives for only a few weeks during spring (Eng et al. 1984; Collinge et al. 2001; Talley *et al.* 2006, 2007).

VELB is a native subspecies endemic to the Central Valley of California. The species is a riparian forest specialist in the valley and is typically found in riparian habitat, but only where the host plant, blue and/or red elderberry (*Sambucus* spp.), is present. Leaves and flowers of the elderberry provide food for the adult beetle while the interior pith of elderberry stems and roots provide food and shelter for the developing larvae (Barr 1991). In the Central Valley, the elderberry shrub is associated with riparian forests which occur along rivers and streams (Eng et al. 1984).

Population Dynamics, Dispersal, and Detectability

Linsley and Chemsak (1972) suggested that VELB populations might have always been relatively small due to the species' specialized life history and restricted distribution. Presence of this subspecies is difficult to detect, as inhabitance within an elderberry shrub is rarely visibly apparent. Frequently, the only exterior evidence of the shrub's use by the species is an exit hole created by the larva just before the pupal stage (Halstead and Oldham 1990; Talley et al. 2006). As occupancy is cryptic – so much so that populations cannot be surveyed or censused directly – local abundance of shrubs has served as a surrogate metric.

In a study of regional- and local-scale occurrences of VELB in Central California, Collinge et al. (2001) found that patterns of VELB colonization of isolated sites or drainages is constrained by limited dispersal. Increased local population size of beetles was associated with higher elderberry density and the presence of larger, more mature plants (Talley et al. 2006). Surveys conducted throughout the known VELB range in 1991 and 1997 indicated that only 25 percent of apparently suitable sites were inhabited (Barr 1991; Collinge et al. 2001), strongly suggesting that factors beyond host plant abundance influence site selection.

Rangewide and Local Distribution

Originally described by Fisher (1921), this subspecies is believed to have historically occurred as small populations in elderberry thickets along river margins within an approximately 190-mile x 65-mile area restricted to the lower Sacramento and upper San Joaquin Valleys, (Linsley and Chemsak 1972). Recent surveys have revealed the subspecies to persist only in scattered localities along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule rivers and their tributaries (Linsley and Chemsak 1972; Barr 1991). Barr's survey (1991), indicates that VELB's current, known geographic distribution reaches from Redding, CA at the northern end of the Central Valley to approximately 445 miles south to the Bakersfield area. In all reported studies, the majority of occupied sites are located near the geographic range centered along the Sacramento River (Barr 1991).

Status in the Upper Westside Specific Plan

There are two occurrences of VELB documented within the Natomas Basin, approximately 0.2 mile southeast of the Study Area. Blue elderberry, a host plant for this subspecies, occurs in riparian areas along the Sacramento and American Rivers bordering the basin, but this host plant does not occur in the clay soils that dominate most of the central and northern basin. However, the Study Area consists of

loamy soils that are suitable for elderberry shrubs. However, isolated blue elderberry shrubs are known to grow in alluvial soils along the western edge of the Natomas Basin. Elderberry shrubs that could support VELB were not observed within the 568.7 acres of lands surveyed by Bargas in 2019, 2020 or 2021 (Bargas 2019, 2020, 2022), and HELIX 2023; however, other suitable habitat was not directly accessible to HELIX in 2023 and valley oak woodland habitat that could support VELB host elderberry shrubs was not thoroughly searched for this species to definitively determine if elderberry shrubs are present within the Study Area.

Project Effects to Valley Elderberry Longhorn Beetle

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, VELB habitat is present in the Natomas Basin primarily in the form of valley oak woodland that could provide habitat for elderberry shrubs. The Study Area is a partially fragmented, somewhat isolated patch of agricultural land surrounded on the eastern, northeastern, and southeastern proposed boundaries by the dense urban environs of the City of Sacramento. The western boundary of the Study Area abuts Garden Highway, which parallels the Sacramento River. The western portion (approximately 0.75 mile) of the northern boundary abuts TNBC preserve lands, whereas the remaining eastern portion of the northern boundary (approximately 0.75 mile) abuts the City of Sacramento and intersects with I-5. For VELB, a species that requires riparian habitat or oak woodland corridors for dispersal, the Study Area is essentially located on the edge of suitable habitat along the Sacramento River.

Habitat Connectivity

The Study Area has very limited habitat for VELB, and the Study Area essentially occurs along the edge of riparian habitat located along the banks of the Sacramento River, where this species has been documented recently (CDFW 2024). Since valley oak woodland habitat is essentially connected to the riparian habitat along the Sacramento River, VELB could occupy the Study Area in suitable habitat if elderberry shrubs are also present. Construction of the project will preserve most valley oak habitat in its current condition as it is currently mapped as agricultural residential by the UWSP, and on the edge of the project footprint. Once constructed, the Study Area will still have a similar connectivity to suitable habitat outside the Study Area.

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb elderberry shrubs that provide habitat for VELB. If present during construction, VELB in the Study Area may be injured or killed by construction-related activities, including ground-disturbing activities, equipment use, and/or construction of structures and infrastructure. Construction-related activities could result in indirect effects that would include the removal of elderberry shrubs with stems less than one inch in diameter at ground level. When development activities occur, these shrubs will not be considered suitable beetle habitat (because their stems are not yet large enough) and will, therefore, not be protected. Left alone, they would presumably grow to become suitable beetle habitat. Construction activities would preclude these shrubs from becoming suitable habitat for VELB (City of Sacramento et al. 2003). The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring mitigation for shrub impacts or removal according to the USFWS's Beetle Guidelines.

Overall Effects on Population Viability

Although the UWSP may reduce the overall acreage of woodland habitat that could support elderberry shrubs that provide habitat for VELB in the Natomas Basin, overall, the effects of the proposed action on the beetle should be minimal. There are few elderberry shrubs in the Basin, limited areas where elderberry shrubs would be likely to occur, and the VELB has never been observed in the Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring mitigation for shrub impacts or removal according to the USFWS's Beetle Guidelines. Therefore, the proposed action is minimized and unlikely to affect the survival of the VELB in the Basin. Furthermore, because of the proposed action's minimal effects on VELB and the Basin represent only a small portion of VELB's current range, the proposed action is not likely to affect the survival or recovery of the species overall (City of Sacramento *et al*. 2003). The mitigation measures identified in Section 6 would reduce impacts to this species to less than significant.

5.2.4 Special-status Reptiles

5.2.4.1 Giant Garter Snake

Listing Status

GGS is listed as Threatened under CESA by CDFW and is federally listed as a Threatened species under the FESA by the USFWS.

Life History and Habitat Requirements

GGS is sexually dimorphic in size, as females are both longer and heavier than males. Females reach an average of 2.3 feet in length, with males reaching an average of 1.9 feet in length (Wylie et al. 2010). GGS mating primarily occurs in spring from March to May, with males searching for mates immediately upon emergence from brumation. GGS females are live-bearing and give birth to a range of 10 to 46 young between mid-June and early October (Hansen and Hansen 1990; Halstead et al. 2011), with a mean parturition date in mid-August in the Sacramento Valley (Halstead et al. 2011).

GGS is active from late March–early October (Wylie et al. 2009) and feeds primarily on aquatic prey such as small fish, frogs, and tadpoles (Rossman et al. 1996). Specific prey includes larvae and small adults of American bullfrogs (*Lithobates catesbeianus*) and all life stages of Sierran treefrogs (*Pseudacris sierra*). Fish prey includes smaller fish species, such as mosquitofish (*Gambusia affinis*) and small cyprinid (*Cyprinidae* spp.) and centrarchid (*Centrarchidae* spp.) fishes. Little is known about the diet of juvenile GGS.

GGS is endemic to freshwater marshes, sloughs, and marsh-like habitats with mud bottoms in California's Central Valley and is one of the most aquatic of the garter snakes occupying a niche like that of water snakes (i.e., rarely found away from water and forages for aquatic prey). Ninety percent of the species' tule marsh habitat has been lost or irrevocably altered; thus, GGS is listed as threatened at the state and federal level. Although the species is extirpated from most of the southern part of its former range, GGS persists in the Sacramento Valley in remnant marshes and sloughs and rice-growing agricultural habitats (Halstead *et al.* 2010). Rice fields function as emergent wetlands for a part of the GGS active season.

GGS habitat is typically treeless (Hansen 1980, 1986; Hansen and Brode 1980) and low in elevation with occupied habitat at 10 to 40 ft above mean sea level in the Sacramento area (Hansen 1986). GGS occurs in aquatic habitats where emergent vegetation, such as tules and cattails serve as cover, with decumbent tules serving as important basking sites that also provide quick escapes into the water below (Van Denburgh and Slevin 1918; Fitch 1940; Hansen 1986, 1988). Where both tules and cattails occur, GGS displays a preference for dense stands of perennial tules as basking sites. GGS is only occasionally found in slow-moving creeks (Hansen and Brode 1980; Hansen 1986; Halstead et al. 2015) and is absent from large rivers or bodies of water with little vegetation (Hansen 1986). Cover, in the form of vegetation, debris, or burrows, is a necessary component of GGS habitat (Hansen 1986; Wylie 1998). GGS can be found in canals and drainages associated with rice fields of the Central Valley (Hansen 1988).

Regardless of habitat type, GGS is typically found close to the water's edge, except in late autumn or early spring, when individuals can travel as much as 600 feet to reach the high-water line to avoid flooding during brumation[3]; however, brumation sites near active-season marsh habitat is preferred (Hansen 1986; Wylie 1998). During the inactive season from approximately November to mid-March, GGS brumates in muskrat, crayfish, or ground squirrel burrows (Hansen 1980), or riprap (Wylie et al. 2003) located on sunny aspects along south- or west-facing slopes.

Population Dynamics, Dispersal, and Detectability

Nearly all natural freshwater marsh habitat in the Sacramento Valley has been eliminated through habitat alteration and conversion to agriculture (Frayer *et al*. 1989; Garone 2007); however, rice agriculture and its supporting network of irrigation and drainage canals, as well as the fairly recent restoration of marsh habitats, provide suitable habitat (Halstead *et al.* 2010). GGS has not been able to disperse into all suitable habitats and is largely restricted to areas near locations where the species likely was historically abundant. It is possible that locations at which GGS were extirpated did not have a nearby source of dispersing individuals to recolonize the remaining (or created) habitat (Halstead *et al.* 2015).

Rangewide and Local Distribution

Historically GGS occurred from Butte County in the north to Kern County in the south (Fitch 1940; Hansen and Brode 1980). The draining of wetlands and subsequent urban and agricultural development contributed to the loss of more than 90 percent of wetlands in the Central Valley (Frayer et al. 1989). The few remaining natural wetlands are fragmented, and the natural cycle of seasonal valley flooding by High Sierra snowmelt has been limited, as water is presently diverted by a network of dams and levees. As a result, GGS populations have become fragmented, with only small, isolated populations remaining in the Sacramento and San Joaquin Valley. This species is documented within the northern portion of the Study Area in West Drainage Canal and is well documented in the surrounding areas (CDFW 2024).

Status in the Upper Westside Specific Plan

Herpetologist Eric Hansen completed a two-year protocol GGS trapping and eDNA study in 2019 and 2020. Surveys were conducted between Del Paso Road to the north, El Centro Road to the east, Interstate 80 to the south, and Garden Highway (Sacramento River) to the west. Environmental DNA (eDNA) is DNA that is released, sloughed off, or expelled from an organism as it interacts with the environment and is accumulated in the organism's environmental surroundings. Sources of eDNA

[3] Torpor – not actual hibernation.

include (e.g., secreted feces, urine, mucous, shed skin, scales, hair, and carcasses). eDNA can be collected from a variety of environmental samples, such as soil, water, snow, or air, rather than directly sampled from an individual organism. Sampling for eDNA most commonly occurs in aquatic environments and is typically conducted by filtering large amounts of water to collect organic material on a filter apparatus. In the terrestrial environment, soil samples are collected from areas specifically identified as potentially suitable for a target group of organisms. Analyses of collected organic material is completed in a laboratory where results are compared to known DNA sequences housed in large databases collectively referred to as genetic banks (Dejean et al. 2011).

GGS eDNA was detected over two years in three locations outside of the Study Area and one location in the central portion of the Study Area. Intensive sampling efforts (40,703 total trap days) were accompanied by a high catch of valley garter snake (*Thamnophis sirtalis fitchi*) but no captures of GGS (Bargas 2022). This species has also been documented in the northern portion of the Study Area in West Drainage Canal, for a total of two occurrences in the Study Area. The West Drainage Canal occurrence data states GGS were detected in the canal and Fishermen's Lake in the 1970s, 1980s, 1990s, and from 2004 to 2016, but does not identify ongoing surveys post-2016 (CDFW 2024). Canals, ditches, and associated upland refugia within the Study Area are considered suitable GGS habitat. Approximately 22 acres of suitable aquatic habitat, 72.4 acres of suitable undisturbed upland habitat, and 396 acres of disturbed suitable upland habitat for GGS are present in the Study Area.

Project Effects to Giant Garter Snake

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, aquatic habitat is present in the Natomas Basin and within the Study Area primarily in the form of irrigation canals and ditches. Upland habitat is present along the upland margins of canals and ditches. Agricultural lands are subjected to routine disturbances from agricultural practices and likely do not provide suitable upland refuge sites for this species. However, the canals and ditches are typically not subjected to the same level of disturbance as the agricultural croplands from harvesting activities.

The Study Area is a partially fragmented, somewhat isolated patch of agricultural land surrounded on the eastern, northeastern, and southeastern proposed boundaries by the dense urban environs of the City of Sacramento. The western boundary of the Study Area abuts Garden Highway, which parallels the Sacramento River. The western portion (approximately 0.75 mile) of the northern Study Area boundary partially abuts Cummings Preserves, the TNBC abuts the City of Sacramento, where it intersects with I-5. A small section of the northern portion of the Study Area intersects with West Drainage Canal at the intersection of El Centro Road. For GGS, a highly mobile aquatic species, the majority of the Study Area is essentially a dead-end as it is cutoff from potentially suitable GGS habitat to the south, east, and west; however, it is still accessible potential habitat if GGS enter the Study Area from the occupied areas north of the Study Area or through the West Drainage Canal.

Water Quality and Runoff

Aquatic communities may be greatly affected by surrounding land use. Urban areas can cause different and, in some cases, stronger effects than agricultural lands (Bury 1972b; Moore and Palmer 2005). Residential developments typically result in increased runoff of hydrocarbons and pesticides, fertilizers, and/or herbicides used for lawns and gardens, and increased stormwater volume (and associated increases in depths and velocities) because of high coverage of impervious surfaces. Significant impacts

to amphibian communities that are prey items for species, such as GGS, have been shown to occur because of exposure to herbicides, fertilizers, and/or pesticides (Sparling et al. 2010; Elliott et al. 2011). Aquatic habitat adjacent to the northwestern portion of the Study Area could be impacted by urban landscaping practices.

Habitat Connectivity

The majority of the Study Area is essentially a dead-end as it is cutoff from potentially suitable GGS habitat to the south, east, and west as described above. Currently, there is no evidence of GGS utilizing the interior aquatic features within the Study Area for breeding and little evidence that GGS regularly forages in the Study Area as no GGS have been live trapped in the Study Area despite three years of efforts. The West Drainage Canal is hydrologically connected to Fisherman's Lake where GGS is known to occur. GGS have been previously documented in the West Drainage Canal within the northern portion of the Study Area. It is unclear if the surveys supporting this documentation continued past 2016 (and no detections occurred) or if the surveys simply ceased in 2016.. Construction of the Study Area will remove the irrigation canal system currently in place in the Study Area, and will retain a few isolated recreational water features as part of the planned design. Once constructed, the majority of the Study Area will have no aquatic connectivity to aquatic habitat outside the Study Area. The area of impacts within West Drainage Canal are considered temporary, and the habitat will remain hydrologically connected to Fisherman's Lake after culvert replacement. The Project Proponent/Permittee proposes the identification and creation of Off-Site Reserves of sufficient quality and quantity to offset all potential impacts to suitable habitat for GGS to be determined in consultation with local, state, and federal regulatory agencies. A particularly important benefit of habitat preservation in the agricultural Natomas Basin is that it ensures suitable habitat will always be available, which acts as a buffer against the year-to-year fluctuations in habitat availability based on the agricultural practices around growing rice.

Construction-Related Activities

Construction activities associated with the development of the Study Area and future reserves could potentially affect GGS individuals and/or habitat. If present during construction, GGS in the Study Area or reserve, may be injured or killed by construction-related activities, including ground-disturbing activities, equipment use, and/or construction of structures and infrastructure. GGS could be killed or injured by vehicle strikes (Leidy 1992), crushed beneath heavy machinery, and/or entombed in or excavated from their winter retreats (Wylie and Casazza 2000). Individuals may be indirectly impacted during construction as a result of increased levels of fugitive dust, sedimentation, harmful substances, or waterborne contaminants.

Overall Effects on Population Viability

Due to the presumed infrequent use of the Study Area by foraging GGS and the Study Area's geographic location surrounded on three sides by barriers to more suitable habitat, the loss of habitat in the Study Area would not adversely affect GGS, and the overall effect of the Study Area on population viability would be minimal. The area of impacts within West Drainage Canal are considered temporary, and the habitat will remain hydrologically connected to Fisherman's Lake after culvert replacement. Impacts to individual GGS that may be present in this area during culvert replacement will be avoided/minimized through the measures outlined in MM BIO-3a in Section 6.3 of this report. Historically a freshwater marsh-dwelling species - GGS, is now largely reliant on the artificial environs of rice farming. The reliance

on artificial habitats, such as rice fields, is not a long-term solution for population viability of the species as agriculture fluctuates annually and agricultural lands are frequently sold for urban development. Although some potentially suitable habitat will be lost because of the construction of the Study Area proposed development, the outcome of that development will be the procurement of additional reserves of natural habitat for GGS. Habitat preservation ensures that suitable aquatic habitat and upland hibernacula will remain in perpetuity for the benefit of GGS. GGS will benefit from the addition of new lands connected to the existing TBNC preserve system that will be acquired to mitigate for the loss of habitat in the Study Area.

Habitat enhancement, connectivity, and preservation contribute to population viability by reducing the level of human disturbance and proximity to activities that could harm or kill GGS. Habitat enhancement and management also reduce or eliminate agricultural activities that can harm or kill GGS or their amphibian prey base. In addition, the preservation and enhancement of GGS habitat will result in larger blocks of connected aquatic habitat, providing a mechanism for some genetic exchange between GGS in different parts of its current range. Larger blocks of connected aquatic habitat also reduce the potential for GGS to attempt road crossings, which results in increased mortality (Bonnet et al. 1999; Rosen and Lowe 1994). Final habitat acreages, mitigation ratios, and other project-specific compensatory mitigation requirements shall be determined through consultation between USACE/USFWS/CDFW as part of the required project-specific regulatory permitting processes, currently anticipated to consist of Section 404 Authorization/FESA Section 7 Consultation/CDFW Streambed Alteration Agreement and 2081 Incidental Take Permit. Implementation of mitigation measures provided in Section 6 would reduce impacts to this species to less than significant.

5.2.4.2 Western (Northwestern) Pond Turtle

Listing Status

WPT is a CDFW Species of Special Concern and a proposed as threatened species under the FESA.

Life History and Habitat Requirements

WPT is California's only native aquatic turtle. The species is diurnal and typically active from February through November, depending on the temperature of the habitat. WPT overwinters in either aquatic or terrestrial habitat, with individuals in more northern areas typically overwintering on land. Overwintering sites are located in loose soil and leaf litter above the high-water mark. In aquatic habitats, WPT will overwinter in undercut banks, soft riparian substrates, or submerged snags (Reese 1996). WPT emerge from underground refugia when temperatures warm up enough for them to become active. WPT will emerge from creeks when heavy winter flows occur but will return in spring when the winter high-volume runoff subsides. Some WPT will estivate during hot dry summer droughts by burying themselves in the soft bottom mud of a pond or creek, relying on cloacal respiration. When creeks and ponds dry up in summer, some WPT will travel upstream along the creek until they find an isolated deep pool, whereas other individuals stay within moist mats of algae in shallow pools (Ernst et al. 1994; Germano and Rathbun 2008; Scott et al. 2008).

WPT is a long-lived species that does not reach reproductive age until approximately 8 to 10 years of age. Mating occurs in April and May with nesting occurring between late April and August. Females climb out of their aquatic habitat to select nest sites in soft, loose soils or sand located 100 to 500 meters from the water body. Clutch sizes range from 1 to 13 eggs that are deposited in the excavated

nest and covered over with soil. The eggs hatch in the fall and often hatchlings will remain in the nest living off the yolks and emerging in spring (Stebbins and McGinnis 2012).

WPT is an opportunistic omnivore and will consume a variety of small aquatic invertebrates (including insects, crustaceans, and mollusks) algae and other plant material, and even carrion and small vertebrates (Bury 1986).

WPT occurs in a broad range of aquatic water bodies including flowing rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other wetlands, and will also temporarily use semipermanent or ephemeral water bodies, including stock ponds, vernal pools, and seasonal wetlands (Ernst et al. 1994; Bury and Germano 2008; Stebbins and McGinnis 2012;). This species will also (at least occasionally) enter sea water (Stebbins 1954; Holland 1989). The species is uncommon in high-gradient streams.

Water bodies with submergent vegetation such as pondweed (*Potamogeton* spp., *Stuckenia* spp.) or ditch-grass (*Ruppia maritima*) are especially favorable habitat, probably because this vegetation traps surface water and thus maintains relatively high water temperatures. The species also requires unshaded upland habitat with clay, sand, or silt substrate, typically on a slope, relatively near the water body for nesting and egg-laying. WPT is often found basking on rocks or logs during the daytime, while spending the night hibernating on the water bottom. Populations north of Shasta County spend the winter months, typically November to April, estivating in the muddy bottoms of stream pools. WPT south of Shasta County, however, may be active during all months of the year. During times of drought in the drier parts of California, the species is known to estivate in the soft bottoms of streambeds (Jennings and Hayes 1994).

Population Dynamics, Dispersal, and Detectability

WPT was formerly abundant throughout much of California. As Bogert reported in 1930, the species was "common in larger streams along the coast and in many of the marshes adjacent to the coast," and many of these habitats still support relatively large populations (Jennings and Hayes 1994; Germano and Rathbun 2008; Thomson et al. 2016). Populations that remain in the Central Valley are smaller and more fragmented than they once were, due to the large-scale land conversion that occurred in this area beginning in the 1860s.

Pilliod et al. conducted a study of pond-dwelling WPT movements on the Carrizo Plain using radio-tracking techniques and found that most WPT spent over half of each year on land traveling from 800 to 3,600 feet but found that none of the WPT dispersed further than 1,100 feet from ponds (Pilliod et al. 2013). In some stream and river WPT populations, males and females leave the water for months each year and travel hundreds of meters into upland habitats (Reese and Welsh 1997; Bury and Germano 2008). Overwintering WPT are consistently found in shallow surface depressions within, and sometimes covered, by litter and duff (Reese and Welsh 1997).

Rangewide and Local Distribution

WPT occurs mostly in Pacific slope drainages, in Washington, Oregon, California, and northern Baja California from sea level to 6,840 feet. The species occurs or historically occurred, throughout cismontane California, with isolated occurrences also in northeastern California and, in the southern deserts, along the Mojave River as far downstream as Afton Canyon, San Bernardino County, and in Andreas Canyon, Riverside County (Jennings and Hayes 1994; Thomson et al. 2016).

Large, relatively intact populations still exist in northern California throughout large areas of the Coast Range and the Sierra Nevada foothills, although agriculture and habitat modification have destroyed large areas of riparian and wetland habitat in the Sacramento Valley that almost certainly supported large populations of this species in the past. Scattered populations remain throughout the Sacramento Valley, but the extensive marsh habitat that dominated much of the valley floor has been largely drained and converted to agriculture. Kelly et al. (2005) estimated that the extent of wetland habitat in the Central Valley has declined by approximately 80 percent since the 1860s when large-scale land conversion began, which undoubtedly eliminated many WPT populations.

Status in the Upper Westside Specific Plan

WPT is found in many of the Natomas Basin's aquatic habitats, particularly in the larger irrigation and drainage canals. There are previously recorded occurrences of this species within the database search area (Bargas 2022, CDFW 2024). There are no CNDDB records of WPT within the Study Area; however, this highly mobile species may occur within any of the aquatic features present within the Study Area. This species was frequently observed along the Natomas Main Drainage Canal, which is adjacent to the northeastern Study Area border, during NBHCP habitat mapping surveys (City of Sacramento *et al.* 2003). Habitat suitable for WPT within the Study Area is considered to be canals and associated upland refugia along the canals and ditches.

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, aquatic and upland habitat for WPT is present in the Natomas Basin primarily in the form of irrigation canals and ditches and associated uplands. The majority of the Study Area is a partially fragmented, somewhat isolated patch of agricultural land surrounded on the eastern, northeastern, and southeastern proposed boundaries by the dense urban environs of the City of Sacramento. The western boundary of the Study Area abuts Garden Highway which parallels the Sacramento River. The western portion (approximately 0.75 mile) of the northern boundary abuts TNBC preserve lands whereas the remaining eastern portion of the northern boundary (approximately 0.75 mile) abuts the City of Sacramento where it intersects with I-5. However, the presence of I-5 and the Garden Highway or I-80 are incomplete barriers for this species. The Garden Highway is a busy two-lane highway with periods of low traffic that will not completely inhibit dispersal of WPT using the Sacramento River and the banks of the levees. Additionally, the West Drainage Canal provides abundant habitat along the northern and eastern boundaries of the Study Area, as well as a small section of the Canal that is within the Study Area. The West Drainage Canal is a warmwater habitat feature with emergent vegetation and basking sites that likely provide ideal habitat conditions for this species. Canals and ditches are within upland dispersal ranges of WPT and WPT are likely to disperse throughout the Study Area via irrigation canals and ditches.

Water Quality and Runoff

Aquatic communities may be greatly affected by surrounding land use. Urban areas can cause different and, in some cases, stronger effects than agricultural lands (Bury 1972; Moore and Palmer 2005). Residential developments typically result in increased runoff of hydrocarbons and pesticides, fertilizers, and/or herbicides used for lawns and gardens, and increased stormwater volume (and associated increases in depths and velocities) because of high coverage of impervious surfaces. Significant impacts to amphibian communities that are prey items for species such as WPT, have been shown to occur because of exposure to herbicides, fertilizers, and/or pesticides (Sparling et al. 2010; Elliott et al. 2011).

Aquatic habitat adjacent to the northwestern portion of the Study Area could be impacted by urban landscaping practices.

Habitat Connectivity

The majority of the Study Area is essentially a dead-end for this species as it is cut off from potentially suitable WPT habitat to the south, east, and west as described above. Construction of the Study Area will remove the irrigation canal system currently in place in the interior Study Area and will create a few isolated recreational water features as part of the planned design. Once constructed, the majority of the Study Area will have no aquatic connectivity to aquatic habitat outside the Study Area. The Project Proponent/Permittee proposes the identification and creation of Off-Site Reserves of sufficient quality and quantity to offset all potential impacts to suitable habitat for WPT to be determined in consultation with local, state, and federal regulatory agencies. A particularly important benefit of habitat preservation in the agricultural Natomas Basin is that it ensures habitat will always be available ensuring a buffer is in place against the year-to-year fluctuations in habitat availability based on the agricultural practices around growing rice.

Construction-Related Activities

Construction activities associated with the development of the Study Area and future reserves could potentially affect WPT individuals and/or habitat. If present during construction, WPT in the Study Area or reserve, may be injured or killed by construction-related activities, including ground disturbing activities, equipment use, and/or construction of structures and infrastructure. WPT could be killed or injured by vehicle strikes (Leidy 1992) or crushed beneath heavy machinery (Wylie and Casazza 2000) if adults are in the upland area attempting to lay eggs in nests within the terrestrial habitat adjacent to aquatic habitat. Individuals may be indirectly impacted during construction as a result of increased levels of sedimentation or waterborne contaminants. The mitigation measures identified in Section 6 would reduce impacts to this species to less than significant.

Overall Effects on Population Viability

Due to the Study Area's geographic location surrounded on three sides by barriers, the loss of habitat in the Study Area would not adversely affect WPT, and the overall effect of the UWSP on population viability would be minimal. The area of impact within West Drainage Canal is considered temporary, and the habitat would remain hydrologically connected to Fisherman's Lake after culvert replacement. Impacts to individual WPT that may be present in this area during culvert replacement would be avoided/minimized through the measures outlined in MM BIO-3a and MM BIO-4a in Section 6.3 of this report. WPT in the Natomas Basin, is now largely reliant on the artificial environs of rice farming and the irrigation systems in place to subsidize rice farming. The reliance on artificial habitats such as rice fields is not a long-term solution for population viability of the species as agriculture fluctuates annually and agricultural lands are frequently sold for urban development. Although some potentially suitable habitat will be lost as a result of the construction of the UWSP proposed development, the outcome of that development will be the procurement of additional reserves for GGS that will also benefit WPT. Habitat preservation ensures that suitable aquatic habitat and upland nesting habitat will remain in perpetuity for the benefit of WPT. WPT will also benefit from the addition of new lands connected to the existing TBNC preserve system that will be acquired to mitigate for the loss of habitat in the Study Area.

Habitat enhancement, connectivity and preservation contribute to population viability by reducing the level of human disturbance and proximity to activities that could harm or kill WPT. Habitat enhancement and management also reduces or eliminates agricultural activities that can harm or kill WPT. In addition, the preservation and enhancement of GGS habitat will result in larger blocks of connected aquatic habitat, which will also benefit WPT. Larger blocks of connected aquatic habitat will also reduce the potential for WPT to attempt road crossings which result in increased mortality (Rosen and Lowe 1994; Bonnet et al. 1999).

Final habitat acreages, mitigation ratios, and other project-specific compensatory mitigation requirements shall be determined through consultation between USACE/USFWS/CDFW as part of the required project-specific regulatory permitting processes, currently anticipated to consist of Section 404 Authorization/FESA Section 7 Consultation/CDFW Streambed Alteration Agreement and 2081 Incidental Take Permit.

5.2.5 Special-status Birds

5.2.5.1 Cooper's Hawk

Listing Status

Cooper's hawk is listed as Watch List species by CDFW. Cooper's hawk is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

Cooper's hawk is a slender and medium-sized hawk, with a short wingspan and a long tail enabling this hawk to be highly maneuverable in woodland habitats. The long tail shows a very distinctive white rump patch prominently displayed during flight. Primary foraging and breeding habitat include dense woodlands such as live oak, riparian or deciduous habitats including patchy woodlands. This species will also forage and nest in landscaped or urban areas. While hunting, Cooper's hawk pursues small birds and small mammals which it will catch in the air or on the ground. Pursuit will occur through dense woodlands, through branches and sometimes Cooper's hawk will pursue prey on the ground through dense shrubs (Zeiner et al. 1990). Prey may also include amphibians, and reptiles.

Nesting occurs on deciduous trees from 10 to 80 feet above the ground. This species may also nest in conifers, and the nest consists of a stick platform nest placed in the crotch of the tree near streams (Zeiner et al. 1990). Breeding occurs from March to August. A nest will consist of a single brood of between two and six eggs. The female incubates the eggs while the male provides food. Fledging occurs approximately 34 days post-hatching.

Population Dynamics, Dispersal, and Detectability

Many populations in California are resident, but some northern populations migrate to California or to lower elevations from areas that receive heavy snow (Zeiner et al. 1990). This species is widespread across the contiguous U.S. and populations appear to be stable and increasing in some areas but are still recovering from a drastic decline between 1940 and 1970 that are likely a result of pesticides and habitat loss (NatureServe 2024). Cooper's hawk populations overall are stable to increasing, with limited data showing a decline in California (NatureServe 2024; Zeiner et al. 1990).

Rangewide and Local Distribution

Cooper's hawk is widespread in North America where it occurs in densely wooded forests. The species occurs in suitable habitat throughout California at elevations from below sea level to 9,000 feet. Of 77 territories in oak woodland stands, the mean distance between nest sites was approximately 1.6 miles (Zeiner et al. 1990).

Status in the Upper Westside Specific Plan

There are two CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest CNNDB reported occurrence is located approximately 3.9 miles south of the Study Area and documents a nest from 2008 in the City of Sacramento (CDFW 2024). Cooper's hawk was observed in the Study Area during surveys conducted by Bargas and is noted in the species list as detected in 2019 (Bargas 2020). Cooper's hawk was observed in the Study Area by HELIX biologists on March 7, 2023.

Project Effects to Cooper's Hawk

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, foraging and nesting habitat for Cooper's hawk is present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, foraging and nesting habitat will be reduced in the Natomas Basin. Fremont cottonwood and valley oak woodlands provide suitable nesting and foraging habitat for the species. Habitat fragmentation has been implicated as a major cause of population decline in Cooper's hawk, in addition to pesticide use (NatureServe 2024). Cooper's hawk populations overall are stable to increasing, with limited data showing a decline in California (NatureServe 2023; Zeiner et al. 1990). Cooper's hawk survival and reproduction are likely to be higher in larger, more contiguous habitat areas, such as riparian or woodland habitat along the Sacramento River.

Increased Predation

Many mammalian species, such as foxes and opossums, that prey on eggs and fledgling birds increase near human habitation. Crooks and Soule (1999) have recorded increased avian extirpation rates in habitat fragments as a result of these increased predator populations.

Avian nest predators such as crows also typically increase in proximity to residential development, in response to introduced nesting trees, increased food supplies, and increased hunting perches such as streetlights and other infrastructure (Steenhof et al. 1993; Marzluff et al. 2001). Predation of avian nests is also more intense along roads, urban edges, and other linear habitats (DeGeus 1990), presumably because of the increased use of linear rights-of-way by crows and mammalian predators (Knight et al. 1995). Avian mortality from vehicle collisions has also been significant in some areas (Shuford et al. 2008) and may increase with increased traffic generated by the proposed residential development.

Reduction of Prey Base

Changes in the Cooper's hawk prey base (birds, small mammals, and insects) may result from residential development affecting adjacent mammalian predators and communities. Crooks and Soule (1999) quantified the effects of domestic cats on small animals, estimating that the average domestic cat population in moderately sized fragments (~50 acres of upland habitat bordered by 100 residences) annually return approximately 840 rodents, 525 birds, and 595 lizards to residences. Assuming that cats

do not bring back all killed prey, actual effects on prey numbers are probably underestimated. Similarly, Blair (1996) reported one-third fewer avian species in lands adjacent to residential development as compared to habitat preserves in the same area. The Cooper's hawk prey base could be reduced by the increase in mammalian predators that prey on the same small bird and rodent species as Cooper's hawk and the prey base could be reduced by the conversion of agricultural and semi-natural lands to urban development.

Nest Disturbance

Human disturbance to nesting has been identified as a primary threat to raptor populations as several studies have demonstrated declines in raptor populations resulting from human-associated disturbance (Voous 1977; Swenson 1979; Craighead and Mindell 1981). It is possible that the anticipated human activity associated with the Study Area's 1,573 acres of urban structures could result in nest disturbance to Cooper's hawk nests in the Study Area which could result in decreased nest success.

Overall Effects on Population Viability

The UWSP is unlikely to have an effect on Cooper's hawk population viability, as the Natomas Basin accounts for a very small portion of the Central Valley's Cooper's hawk population and its habitat since the Study Area is mostly agricultural lands with only a small amount of valley oak woodland habitat suitable for nesting and foraging is present. Implementation of the UWSP would result in the loss of some Cooper's hawk habitat available in the Natomas Basin. The Natomas Basin accounts for only a small portion of the habitat in the Central Valley that is available to support the Cooper's hawk population. Thus, the loss of a small portion of nesting habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the Cooper's hawk population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the Cooper's hawk in the Basin if it is present. Therefore, implementation of the UWSP would not affect the viability of the Cooper's hawk population using the Natomas Basin. Mitigation measures identified in Section 6 would reduce impacts to this species to less than significant.

5.2.5.2 Tricolored Blackbird

Listing Status

TRBL is listed by CDFW as Threatened under CESA and is also a Species of Special Concern. The species is considered a Bird of Conservation Concern by USFWS. TRBL is afforded further protection under the MBTA of 1918.

Life History and Habitat Requirements

TRBL is a highly colonial and nomadic species that is largely endemic to the lowlands of California although it also occurs sparsely in Oregon and northwestern Baja California. TRBL is considered the most intensely colonial of all North American passerine species (Orians 1961; Beedy et al. 1991; Beedy 2008). Historically, breeding colonies of up to 200,000 nests were recorded (Neff 1937), and up to 20,000 nests have been recorded in cattail marshes of 10 acres or less (DeHaven et al. 1975). Individual nests are

often built within a foot or less of each other (Neff 1937; Orians 1961). Breeding is highly synchronized with most pairs in a colony initiating nesting within a few days of each other (Neff 1937; Payne 1969). This highly synchronized and colonial breeding system evolved to exploit a rapidly changing environment where the locations of secure nesting habitat and rich food supplies were ephemeral and likely to change each year (Orians 1961; Payne 1969). TRBL tends to move from one nesting location to another between years, presumably in response to changes in the abundance of preferred prey or to nesting habitat suitability (Graves et al. 2013; Meese 2017; Airola et al. 2016).

The breeding season lasts until early August, and birds are occasionally observed breeding from September to November. The nest is a deep cup of leaves and stems attached to plant stalks and constructed by the female. Two broods of usually four young are reared. Eggs are incubated by the female for 11 days, and nestlings are tended by either just the female or both parents for 13 days until they leave the nest.

TRBL prefers freshwater marshes with dense vegetation often dominated by cattails for breeding. During the non-breeding season, colonies abandon the marsh and are itinerant across agricultural lands, ranches, golf courses, and residential parks. TRBL is an opportunistic generalist, taking insects, seeds, arthropods, and agricultural resources such as rice and wheat. Seed and insects are generally taken from the ground or gleaned from dense vegetation.

Due to the drastic decline in wetland nesting habitat over the last century, TRBL nesting habitat has switched to newly available nesting substrates. Surveys conducted from 1931 to 1936, documented that almost 93 percent of 252 breeding colonies observed in the Sacramento Valley, were in freshwater marshes dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.) with the remaining (7 percent) in willows (*Salix* spp.), blackberries (*Rubus* spp.), thistles (*Cirsium and Centaurea* spp.), and nettles (*Urtica* spp.; Neff 1937). By the 1970s, only 53 percent of colonies occurring in the Sacramento and San Joaquin valleys were in cattails and bulrushes and 47 percent utilized the non-native Himalayan blackberry (*Rubus armeniacus*) and milk thistle (*Silybum marianum*; DeHaven et al. 1975).

Population Dynamics, Dispersal, and Detectability

As of 2017, 19,503 birds were reported from 34 locations in the Sacramento Valley (Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, and Yuba counties; Meese 2017). Numbers of birds were down in the Sacramento Valley and Sierra Foothills in 2017, with a combined decline of more than 32,000 birds. This represents a decrease of 33 percent from that observed in 2014 due entirely to a decrease of over 57 percent in Sacramento County; all other counties in the region showed small increases in abundance over 2014 (Meese 2017).

Most TRBLs move between the Central Valley, Sacramento Valley and Sacramento-San Joaquin Delta during the winter and move into the San Joaquin Valley, and Sacramento Valley during the breeding season. Post-breeding, the species resides in the Central Valley and surrounding foothills from March through July, then moves up into the Sacramento Valley until mid-November. During winter, TRBL moves down into the Sacramento-San Joaquin Delta and east to Merced County and coastal locations during winter (Tricolored Blackbird Working Group 2007).

Rangewide and Local Distribution

TRBL occurs from the Central Valley to San Francisco Bay and south to northern Santa Barbara County at elevations from sea level to approximately 4,000 feet (Beedy *et al*. 2020). Disjunct populations are also

present along the south coast from southern Ventura County down to Baja California, with disjunct populations northward to Washington. The species is largely endemic to California, with smaller populations in Baja California, Nevada, Oregon, and Washington (DeHaven 2000).

During the breeding season, TRBL occurs in the Central Valley, the low foothills of the Sierra Nevada and Coast Range from Shasta County south to Kern County, along the coast from Sonoma County south to the Mexican border, and on the Plateau (Grinnell and Miller 1944; Beedy *et al*. 1991). Band recoveries from this species indicate that some wintering individuals travel nomadically along the entire length of the Central Valley, into the San Francisco Bay and Sacramento-San Joaquin Delta area, up to the northern and eastern plateau region of California, and into southern Oregon (DeHaven *et al*., 1975).

Status in the Upper Westside Specific Plan

Historically, TRBL populations were in the millions, but with the extensive loss of wetlands and marshes throughout the Central Valley beginning in the 1930s, the population declined by approximately 50 percent. As of the 1970s, the TRBL population included only 41 nesting colonies and 133,000 birds (DeHaven 2000). Historically and currently, most California colonies have been located in the Sacramento and San Joaquin valleys and their surrounding foothills. There are several CNDDB reported occurrences within a 5-mile radius of the Study Area; with the nearest reported occurrence located approximately 1.9 miles northeast of the Study Area that documents an extirpated nesting colony from 1992 (CDFW 2024).

Upon conclusion of the statewide survey, Meese reported in 2017 that the Sacramento Valley hosted 19,503 birds from 34 locations (Meese 2017). The current population in the Central Valley as of 2017, is approximately 79,325. This includes 13 colonies identified in the surveys conducted by DeHaven and Hamilton in 2000. The DeHaven/Hamilton surveys indicated that the general range and major breeding areas of TRBL in the Central Valley have remained largely unchanged since the 1930s when Neff conducted surveys of the population (DeHaven 2000). There have been nine documented occurrences of TRBL (seven extant, two extirpated) in Sutter County. The two extirpated occurrences are located slightly northwest of the confluence of the Sacramento River and the Feather River, northwest of the Basin. TRBL was located 0.2 mile below the Sacramento/Sutter County line, west of Natomas Drain Levee Road.

TRBL was first documented nesting in the Natomas Basin in 2005, and nesting for this species was documented over the next six years. However, no nesting occurred in the Natomas Basin in 2012. TRBL nesting was then documented in 2020, for the first time in nine years (ICF 2020). No nesting was documented in 2021 (ICF 2022).

The Natomas Basin colony resides on a 330-acre parcel in the Natomas Basin that was acquired by The Natomas Basin Conservancy (TNBC); the Betts-Kismat-Silva reserve in the eastern edge of the Natomas Basin, approximately 6.4 miles north/northeast of the Study Area. The population of this nesting colony includes approximately 4,000 nesting birds, which have located their nests in five scattered clumps of blackberry bushes near irrigated pastureland (DeHaven 2000). The Study Area contains potential TRBL foraging and nesting habitat. This species was not observed within the 568.7 acres of lands surveyed by Bargas in either 2019 or 2020 (Bargas 2019, 2020) and it was not observed by HELIX in 2023.

Project Effects to Tricolored Blackbird

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, the Study Area provides foraging and nesting habitat for TRBL. Foraging habitat in the Study Area consists of agricultural lands, annual grasslands, fallowed crops, and ruderal areas. With the implementation of the UWSP, TRBL potential foraging habitat will be reduced in the Natomas Basin and potential nesting habitat along canals and ditches will be reduced.

Water Quality and Runoff

Aquatic communities may be greatly affected by surrounding land use. Urban areas can cause different and, in some cases, stronger effects than agricultural lands (Bury 1972; Moore and Palmer 2005). Residential developments typically result in increased runoff of hydrocarbons and pesticides, fertilizers, and/or herbicides used for lawns and gardens, and increased stormwater volume (and associated increases in depths and velocities) because of high coverage of impervious surfaces. Significant impacts to invertebrate communities that are prey items for species, such as TRBL, have been shown to occur because of exposure to herbicides, fertilizers, and/or pesticides (Sparling et al. 2010; Elliott et al. 2011). Aquatic habitat adjacent to the northwestern portion of the Study Area could be impacted by urban landscaping practices.

Increased Predation

Many mammalian predators such as foxes, opossums, skunks, and other small predators increase near human habitation, and this increase has been shown to lead to increased avian extirpation rates in habitat fragments (Crooks and Soule 1999). Nest predators such as crows also typically increase in proximity to residential development, in response to introduced nesting trees, increased food supplies, and increased hunting perches such as streetlights and other infrastructure (Steenhof et al. 1993; Marzluff *et al*. 2001). Although increased predation near residential development would likely be much less for vigilant, mobile flocks of foraging TRBLs, predation rates would be expected to increase for all avian species near residential development.

Nest Disturbance

Nesting colonies of TRBLs are highly sensitive to disturbance, which can cause nest abandonment or interfere with the incubation and feeding of young in a way that reduces reproductive success (City of Sacramento *et al*. 2003). Disturbance to TRBL nests would typically result from construction-related activities.

Construction-Related Activities

Potential effects due to construction-related activities would be limited to the displacement of birds foraging or roosting within agricultural or semi-natural terrestrial habitat during the initial phases of construction. A summary of all conservation measures to be implemented with the construction and development of the Study Area is provided in Section 6. Implementation of UWSP conservation measures will avoid and/or minimize potential effects to the species' population due to construction-related activities.

Overall Effect on Population Viability

Implementation of the UWSP would have no overall effect on the population viability of TRBL as only a small amount of available nesting habitat is available in the Study Area. Further, the Study Area and the Natomas Basin account for only a small portion of the habitat in the Central Valley that is available to support the TRBL population. Thus, the loss of a small portion of nesting habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the TRBL population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring nesting bird surveys during the nesting season for this species, and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the TRBL in the Basin if it is present. Mitigation measures identified in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.3 Western Burrowing Owl

Listing Status

BUOW is a CDFW Species of Special Concern and is federally protected by the USFWS under the amended MBTA of 1918, which added protection to the original MBTA to include eagles, hawks, and owls (USFWS 1972). BUOW is also listed as "A Bird of Conservation Concern" by USFWS (CDFW 2023).

Life History and Habitat Requirements

Male and female BUOW can breed at 10 months of age, with intervals of one year between subsequent breeding. Nesting occurs from March through August, with BUOW pairs typically forming a bond for more than one year and exhibiting high site fidelity, reusing the same burrow year after year (Haug *et al.* 1993). Breeding in California typically begins in mid-April, with females laying between four to twelve eggs in an expanded cavity lined with debris several feet deep in a burrow (CA BUOW Consortium 1993). Both parents care for the young but play different roles. The female remains inside the burrow during most of the egg-laying and incubation period (~40 to 45 days) and is fed by the male throughout brooding. BUOW is an opportunistic feeder, consuming insects, small mammals, small birds, and occasionally, amphibians and reptiles (Haug *et al*. 1993).

The young are altricial at hatching and unable to move among nest burrows until approximately 10 days of age. Owlets emerge from burrows at approximately two weeks, where they wait for adults to bring food. Short flights are achieved at approximately four weeks and owlets can fly well by six weeks but remain close to the nest. Fledging occurs between 44 and 53 days of age (Poulin *et al.* 2020).

BUOW is generally found in dry, open areas of short grassland prairie habitat west of the Mississippi River in the continental U.S., southern portions of Canada, and further south into portions of Mexico and South America (Haug *et al.* 1993). In California, BUOW frequents open habitats that are characterized by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Haug *et al.* 1993; Conway 2018), such as those occurring in grasslands, steppes, deserts, prairies, agricultural areas, ruderal grassy fields, vacant lots, and pastures. It is one of two diurnal owl species in California and is further distinguished by its use of small mammal burrows for protection from predators, and for roosting and breeding.

BUOW habitat is defined as including short or sparse vegetation (present for at least a portion of the year), and characterized by the presence of burrows, burrow surrogates, or fossorial mammal dens, well-drained soils, and abundant, available prey. Grassy fields, vacant lots, and pastures are all suitable habitat if they have low or open vegetation structures, small mammal burrows, and foraging habitat nearby (Gervais *et al*. 2008). The species is strongly associated with ground squirrel (*Otospermophilus beecheyi*), prairie dog (*Cynomys* spp.), and badger (*Taxidea taxus*) habitat.

Population, Dynamics, and Dispersal

BBS data from 1966 to 2007 show significant increases in BUOW populations in California, Arizona, and New Mexico, and declines in Florida, Montana, Colorado, and South Dakota. However, the state-wide Institute for Bird Populations census in California demonstrated a decline of eight to 10 percent in BUOW breeding pairs since the 1993 census. Overall, the states of California and North Dakota have shown the sharpest declines in numbers in the past 20 years; California went from an increase of 5.3 percent per annum in 1997 to a decline of 1.79 percent per annum in 2017.

In a comprehensive review of BBS and Christmas Bird Count (CBC) data collected from 1966 to 2017, Sheffield found that almost all western states continue to show declining BUOW numbers (Sheffield 2021). In addition, a review of the peer-reviewed literature from 1997 to 2017 revealed that slight to steep population declines have been reported in the U.S. and Canada, and that in many locations where BUOW was formerly common, the species has disappeared at an alarming rate.

There are two distinct populations of BUOW differentiated by migratory behavior. Those that have been observed in the colder regions of the northern U.S. and Canada migrate to warmer climes for nesting and breeding activities but return to their northern territories following the end of the reproductive season. Populations in more temperate regions generally maintain year-round residence in the same geographic areas and do not migrate or may make only minor or local winter movements (Haug et al. 1993). California is believed to support the largest populations of resident and wintering BUOW in the western U.S., primarily in the Imperial Valley, where over 5,000 pair of BUOW are documented (Sheffield 1997).

Rangewide and Local Distribution

BUOW is found in suitable open habitat throughout western North America from southern Canada to northern Mexico, as well as in Florida, the Caribbean, and Central and South Americas at elevations up to 5,250 feet (1,600 meters). Grinnell and Miller (1944) described historic BUOW range in California, indicating the species was present throughout most of the state and its islands, except the coastal counties north of Marin and mountainous areas. Historically, the species was abundant in suitable habitats occurring from Marin County to the Imperial Valley (Grinnell and Miller 1944). The historic range is also believed to have included Napa and Sonoma counties (Grinnell and Wythe 1927). Although BUOW has been assumed to be extirpated from these areas (Shuford and Garadali 2008), CNDDB documents a few verifiable historic records in Napa County (Townsend and Lenihan 2007) and four historical BUOW occurrences in Sonoma County. Therefore, assumptions that BUOW has been extirpated in these counties may be premature. In southwest Solano County, one locally abundant population has been documented in Benicia, with other known populations occurring near Travis Air Force Base. Wintering populations occur seasonally on Grizzly Island and on neighboring hilly ranchlands along the I-80 and I-680 corridors. Many of these occurrences represent documented wintering populations, although some BUOW in the Vacaville area are known to be resident year-round. Wintering

BUOW may be underrepresented from documented records, as most surveys for BUOW are undertaken during breeding periods. Six percent of the state's BUOW population is documented in nearby Yolo County, which is adjacent to Sacramento County.

Status in the Upper Westside Specific Plan

BUOW has been documented in several locations in the Natomas Basin, including the higher terrace along the basin's eastern border, in the tree planter boxes in the Power Balance Pavilion parking lot, and along the higher berms of the larger irrigation and drainage canals in the central basin (City of Sacramento *et al*. 2003). This species was not observed within the 568.7 acres of lands within the Study Area surveyed by Bargas in 2019, 2020, or 2021 (Bargas 2019, 2020, 2022), or by HELIX in 2023.

Project Effects to Western Burrowing Owl

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, foraging and nesting habitat are present in the Natomas Basin and the Study Area. With the implementation of the UWSP, potential foraging and nesting habitat for BUOW will be lost in the Natomas Basin and the Study Area with the construction of the urban developments.

Habitat fragmentation has been implicated as a major cause of population decline in grassland birds in general. Helzer and Jelinski (1999) found that overall avian species richness and the presence of several common grassland species decrease with smaller habitat patch sizes (especially when <50 ha) likely due to edge effects. Upland bird populations have been found to be unstable in fragmented habitats (Hinsley et al. 1995; Crooks et al. 2001). BUOW forages in larger habitat patches than the 45 smaller birds studied by Crooks et al. (2001) and are likely to be similarly affected by fragmentation.

With the application of the UWSP screening criteria, future reserves developed to mitigate for the loss of SWHA habitat from the development of the Study Area will concurrently benefit BUOW and assure that BUOW retain sufficient nesting and foraging habitat in perpetuity to successfully raise young.

Reduction of Prey Base

Changes in the BUOW prey base (small mammals and insects) may result from residential development affecting adjacent mammalian predator communities. Crooks and Soule (1999) quantified the effects of domestic cats on small animals estimating that the average domestic cat population in moderately sized fragments (~50 acres of upland habitat bordered by 100 residences) annually return approximately 840 rodents, 525 birds, and 595 lizards to residences. Assuming that cats do not bring back all killed prey, actual effects on prey numbers are probably underestimated. Similarly, Blair (1996) reported one-third fewer avian species in lands adjacent to residential development as compared to habitat preserves in the same area.

Increased Predation

Many wild predators of BUOW increase near human habitation including coyotes, foxes, opossums, skunks, and other small predators that can easily predate eggs or young birds (Sheffield 1997; Wellicome 1997; Crooks and Soule 1999). Domestic cats are a common predator of avian species (Novak 1989) and would increase in abundance following the construction of the UWSP proposed development. Crooks and Soule (1999) observed increased avian extirpation rates as a result of predator increases

related to habitat fragmentation. Ground- and burrow-nesting avian species such as BUOW are particularly vulnerable to predation by domestic dogs and cats.

Nest Disturbance

Although BUOW are tolerant of human activity outside of the breeding season, the species has been shown to abandon nests if disturbed during egg incubation. In addition to nest abandonment, significant disturbances near BUOW burrows may interfere with parental care and feeding of young in a way that reduces nest success.

Construction-Related Activities

Earth-moving activities may trap or injure BUOW in their burrows and disturbance near active nests may cause abandonment. Nests could also be abandoned due to the loss of surrounding foraging habitat during construction. General mitigation measures such as pre-construction surveys and avoidance of occupied burrows during the nesting season are discussed in Section 6.1 below and specific-species measures for BUOW identified in Section 6.2.6 should be followed to avoid impacts to this species.

Overall Effect on Population Viability

The UWSP is unlikely to have an effect on BUOW population viability, as the Natomas Basin accounts for a very small portion of the Central Valley's BUOW population and its habitat (City of Sacramento *et al.* 2003). The species has not been observed within the Study Area, and there are no CNDDB records of the species in the Study Area. Thus, the loss of a small portion of nesting habitat in the Natomas Basin as a result of implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the BUOW population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts such as requiring surveys during the nesting and wintering season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, implementation of the UWSP would not affect the viability of the BUOW population using the Natomas Basin. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.4 Swainson's Hawk

Listing Status

SWHA is listed as Threatened by the CDFW under the California Endangered Species Act (CESA), and is federally protected by the United States Fish and Wildlife Service (USFWS) under the amended MBTA of 1918, which added protection to the original MBTA to include eagles, hawks, and owls (USFWS MBTA 1972). SWHA is also listed as a "Bird of Conservation Concern (BCC)" by USFWS (CDFW 2023).

Life History and Habitat Requirements

SWHA breeds throughout the central U.S., north to Canada, and south to northern Mexico, with separate populations occurring in California. This species has one of the longest migrations of any raptor, traveling from its breeding range in North America to Mexico and Central and South America, with some individuals migrating as far south as Argentina. Immature and non-breeding individuals begin to gather and migrate south in late August and September and return in March and April (Schmutz et al.

2006). SWHA is found in multiple populations in California, with the larger part of the species' distribution in the northeastern part of the state, and disjunct populations in the Sacramento and San Joaquin Valleys, as well as occasionally south to Antelope Valley and Joshua Tree.

SWHA largely prefers low, open, and generally flat terrain, although a few territories have been detected in low rolling hills or agricultural habitat with scattered trees or riparian strips for nesting. No territories have been detected in wooded or mountainous terrain (Bloom 1980). Throughout the range of the species, SWHA nests almost exclusively in trees, unlike many other raptors that commonly nest on cliffs or artificially-created structures, such as poles or towers (England et al. 1997). In central California, SWHA nests are most likely to be found within riparian forest or remnant riparian forest trees, but they may also be detected within isolated trees or small groves where nest trees are adjacent to, or within easy flying distance of, foraging habitat that provides abundant prey. Trees most commonly used for nesting include oak (*Quercus* spp.), cottonwood (*Populus* spp.), willow (*Salix* spp.), sycamore (*Platanus* spp.), Eucalyptus (*Eucalyptus* spp.), and walnut (*Juglans* spp.) (CDFG 1994). SWHA has also been recorded nesting in urban landscapes in the Central Valley of California, but always within five (5) miles of suitable foraging habitat.

SWHA prefers open grassland, which facilitates effective prey location. Smaller home ranges generally include areas that have preferred crops of low height, such as alfalfa, fallow fields, and dry pasture, while larger home ranges are found in areas with less suitable crops, such as mature grain, row crops, orchards, and vineyards (Bechard 1983; Estep 1989; Woodbridge 1991; Babcock 1995). Home range size may shift in response to agricultural practices becoming larger over the course of the breeding season as crops mature, and increasing ground cover make prey more cryptic (Bechard 1983; Estep 1989; Woodbridge 1991; Babcock 1995). Individuals cease foraging when crops become too tall and return after mowing or burning.

SWHA is largely insectivorous during the non-breeding season, foraging primarily on invertebrates, such as grasshoppers (*Conocephalinae*), crickets (*Gryllidae*), and dragonflies (*Odonata*), but while feeding developing chicks during the breeding season, adults hunt larger, more substantial prey, such as California meadow voles (*Microtus californicus*), valley pocket gophers (*Thomomys bottae*), deer mice (*Peromyscus maniculatus*), young California ground squirrels (*Otospermophilus beecheyi*), mourning doves (*Zenaida macroura*), western meadowlarks (*Sturnella neglecta*), and other passerines (songbirds) (Palmer 1988; Estep 1989). Later in the breeding season many SWHA forage in groups, following tractors during agricultural harvest activities.

SWHA breeding season begins upon arrival back in the breeding grounds in early March and continues until late August through mid-September (Vennum 2017). A large, relatively flat stick nest is constructed in a tree, often in riparian corridors. A clutch of two eggs is laid and incubated by both parents for approximately 28 days. Young are fed by both parents until they fly at four to five weeks.

Population Dynamics, Dispersal, and Detectability

Prior to state listing, Bloom (1980) found that SWHA had declined to as few as 375 breeding pairs throughout their summer range in California. In a study conducted from 2003 through 2009, Gifford et al. (2012) showed an increase in SWHA population size for portions of the Central Valley. According to Kane et al. (2020), the Butte Valley SWHA population (Butte County, California) has increased fourfold in the past 40 years.

Furnas *et al.* (2022) evaluated SWHA population trends by analyzing data from 1,038 locations surveyed throughout California in either 2005, 2006, 2016, or 2018. They concluded that the SWHA summering population in California grew rapidly between 2005 and 2018 at a rate of 13.9 percent per year and estimated a total statewide population of 18,810 breeding pairs in 2018. The study found that alfalfa (*Medicago sativa*) cultivation, agricultural crop diversity, and the occurrence of non-agricultural trees for nesting were positively associated with SWHA density. Although the species is doing well in Northern and Central California, SWHA remains largely extirpated from Southern California, where it was historically common. Recent studies suggest that reproductive success and, in turn, population-level recruitment may be associated equally - if not more closely - with the availability of nesting sites than with the current distribution of land cover (Fleishman et al. 2016).

Nest placement is highly cryptic and frequently obscured from view by tree foliage. Discovering a nest requires a keen knowledge of the natural history of the species, as well as patience and often, just plain luck. Most nests are only detected when a hawk enters or leaves the tree. It is important when surveying for this species to conduct an early survey (e.g., December) when trees are bare to identify the location of stick nests prior to initiating protocol surveys.

Rangewide and Local Distribution

Once common throughout much of California, SWHA populations have declined precipitously within the state, and are now extirpated from many historical breeding areas (Bloom 1980; Woodbridge 1998). Many causative factors have been associated with this decline, including eggshell thinning, pesticide poisoning, mortality during migration, and breeding and wintering habitat loss and degradation. It is likely that causes of the population decline are multi-factorial (SWHA TAC 2000). The Central Valley region of California may support the highest density of nesting SWHA, as over 70 percent of recorded nest sites occur within the Great Valley ecoregion, which encompasses the Sacramento Valley and Sacramento-San Joaquin Delta (Bloom 1980; Gifford et al. 2012). In the Natomas Basin, SWHA nests primarily in the riparian areas along the Sacramento and American Rivers and along the Natomas Cross Canal. Home range sizes vary widely, as prey resources are influenced by land uses near the nest site.

Using radio-tracking technology Fleishman et al. tracked 23 adults SWHA in Natomas Basin from 2011 to 2013. Their results showed that the majority of adult SWHA radio-tracked throughout the breeding season traveled distances up to 5 to 6.8 miles from the nest; however, they also found that home-range sizes varied substantially among individuals, years, and life stages (e.g., arrival, courtship, hatching, nestling, fledging, and pre-migratory) (Fleishman et al. 2016). Home ranges generally were smallest when adult SWHAs were caring for young. Seasonal home-range sizes radio-tracked from 2011 to 2013 ranged from 5 to 886 miles. Home ranges of pre-migratory SWHA averaged 60 miles in 2011, 124 miles in 2012, and 55 miles in 2013.

There are several CNDDB reported occurrences for this species within a five-mile radius of the Study Area and this species is well documented as nesting and foraging in the Study Area and in the region. There are two documented CNDDB reported occurrences of this species nesting on the Study Area; the record documents nesting activity in cottonwoods and oak trees in 1992 and 1993 (CDFW 2024).

Status in the Upper Westside Specific Plan

The Central Valley counties of Yolo, Solano, Sacramento, and San Joaquin are believed to support the largest and densest populations of SWHA in California (Gifford *et al.* 2012). In Butte Valley (Siskiyou

County, California), on the western edge of the Great Basin, the annual apparent survival of adults varied between 0.85 to 0.9 over 30 years (Briggs *et al*. 2011), and food availability locally may be associated with temporal variation in brood size and nestling survival (Schmutz et al. 2006). From 2001 to 2013, 43 to 65 nesting territories were active each year, and the number of pairs nesting in the Natomas Basin was stable, if not gradually increasing (ICF 2014). The mean number of young fledged per active nesting territory per year during this period was 1.00 (Fleishman *et al*. 2016).

Kane et al. (2020) conducted surveys from 1979 through 2018 in and around the Butte Valley observing 279 known-age adult SWHA 1,315 times. The average age of breeding SWHA in the Butte Valley across all surveyed years was 8.3 years. The oldest individual in the population whose age was known was 26 years old and the average age at death was 9.2. No difference in longevity was observed based on sex.

As of 2011, the Natomas Basin showed a fairly stable nesting population with the number of active nesting territories ranging from 43 to 62 between 2001 and 2011 (ICF 2012). Reproductive effort is reported to have remained relatively stable during this period ranging from 1.38 to 1.67 young per successful nest. Sixty-two nesting territories were confirmed active in 2011, representing the largest number of active territories since monitoring began in 2001.

Surveys from 2019 and 2020 documented at least three pairs of SWHA nesting on or within 0.5 mile of the Study Area. Nesting by one of the three pairs was within the Study Area and resulted in the successful fledging of one chick (Bargas 2019, 2020).

Project Effects to Swainson's Hawk

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, SWHA foraging habitat and nesting habitat are present in the Natomas Basin and the Study Area. Foraging habitat in the Study Area is limited to 1,573 acres which is approximately the patch size required to potentially support two nesting pairs of SWHA. The Study Area is a partially fragmented, somewhat isolated patch of agricultural land as it is surrounded on the eastern, northeastern, and southeastern boundaries by the dense urban environs of the City of Sacramento. The western boundary of the Study Area abuts Garden Highway, which parallels the Sacramento River. The western portion (approximately 0.75 mile) of the northern boundary abuts TNBC preserve lands whereas the remaining eastern portion of the northern boundary (approximately 0.75 mile) abuts the City of Sacramento, where it intersects with I-5. The proximity of foraging habitat and nest sites can be a factor in breeding success as long foraging flights carry higher energetic costs and reduce the amount of time adults are present to defend nests from predators. The majority of adult SHWA travel distances of up to five to six miles foraging from the nest throughout the breeding season (Fleishman *et al*. 2016). During the SWHA breeding season, small mammals generally comprise the majority of the biomass consumed by SWHA adults and delivered to nestlings, whereas during the non-breeding season, SWHA feeds opportunistically with insects (especially grasshoppers) as a primary food source (Fleishman et al. 2016). The UWSP Development Area would become urban land cover, contiguous with the City of Sacramento. As SWHA is documented to nest and forage in the Study Area, there is a potential for impacts to successful breeding due to a loss of foraging and nesting habitat, increased distance from nest sites to foraging grounds, and the loss of the prey base in the Study Area resulting from the conversion of agricultural lands to urban development.

Reduction of Prey Base

Changes in the SWHA prey base (small mammals and insects) may result from residential development affecting adjacent mammalian predators and communities. Crooks and Soule (1999) quantified the effects of domestic cats on small animals, estimating that the average domestic cat population in moderately sized fragments (~50 acres of upland habitat bordered by 100 residences) annually return approximately 840 rodents, 525 birds, and 595 lizards to residences. Assuming that cats do not bring back all killed prey, actual effects on prey numbers are probably underestimated. Similarly, Blair (1996) reported one-third fewer avian species in lands adjacent to residential development, as compared to habitat preserves in the same area. The SWHA prey base could be reduced by the increase in mammalian predators that prey on the same rodent species SWHA preys upon, and the prey base could be reduced by the conversion of agricultural and semi-natural lands to urban development.

Increased Predation

The majority of SHWA nesting records are documented along the riparian habitat on both sides of the Sacramento River (CDFW 2024). Corvids (crows and magpies) and great horned owls are the most common predators of SWHA eggs and nestlings (England *et al*. 1997). Corvid populations typically increase near human settlement because of the supplemental food source of human refuse and additional perches provided by urban trees, streetlights, and other infrastructure (Steenhof *et al*. 1993; Marzluff et al. 2001). This increase in predator abundance can result in increased nest predation near residential development. The conversion of 1,573 acres of agricultural lands to urban development could result in increased predator abundance in the Natomas Basin and an increase in SWHA nest predation as a result.

Nest Disturbance

SWHA responses to nest disturbance vary with each nesting pair and the timing, regularity, and nature of the disturbance. Research shows varying responses with some disturbed nest sites successfully fledging young (Estep 1989; England *et al*. 1995), while other disturbed nest sites are abandoned, particularly if the disturbance occurred during nest construction and egg incubation (Bent 1937; Stahlecker 1975). Significant disturbances near SWHA nests can result in nest abandonment or interference with parental care and feeding of young resulting in decreased nest success.

The majority of SHWA nesting records are documented within riparian habitat present on both sides of the Sacramento River (CDFW 2024; eBird 2024). These riverine areas are also occupied by rural residential development that lie on the west side of Garden Highway and are termed riverfront properties in most cases. SWHA documented as regularly nesting along the Sacramento River appear to be habituated to the level of disturbance that is associated with the rural residences. It is possible that the anticipated human activity associated with UWSP's 1,573 acres of urban structures could result in nest disturbance to SWHA nests within 0.5 mile of the Study Area which could result in decreased nest success.

Construction-Related Activities

Construction of the proposed development of the UWSP as well as habitat restoration and enhancement activities at future reserve mitigation sites has the potential to displace and/or disturb SWHA if construction activities occur during the SWHA nesting season. Noise, dust, and sound vibrations resulting from the operation of heavy construction equipment and human activity within 0.5 mile of

SWHA nest sites could cause nest abandonment or interfere with parental care, which could reduce nest success. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

Overall Effects on Population Viability

Development of the UWSP proposed development could cause both adverse and beneficial effects on the SWHA population nesting and foraging in the Natomas Basin. Development of the Study Area would result in the loss of SWHA foraging habitat and trees suitable for SWHA nesting habitat in the Study Area. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting and wintering season for this species and coordination with CDFW in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Implementation of mitigation measures provided in Section 6 would reduce impacts to this species to less than significant.

5.2.5.5 Northern Harrier

Listing Status

Northern harrier is listed as Species of Special Concern by CDFW. Northern harrier is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

Northern harrier is a slender hawk approximately 17 inches in size, with a wingspan of 43 inches and a weight of approximately 15 ounces. The long tail shows a very distinctive white rump patch prominently displayed during flight. Females are larger than males and have a brown back, brown wings, light-brown underside, and a streaked breast and belly. Immature birds of both sexes appear alike and resemble adult females, except that the underside is rufous-colored. Males are gray.

Primary foraging and breeding habitat include open, treeless habitats, most commonly fresh- or saltwater marshes, edges of streams or lakes, grasslands, densely planted agricultural areas, and desert sinks. In North America, populations of Northern harrier with the highest densities are associated with large tracts of undisturbed, dense vegetation. While hunting, Northern harrier often glides less than a meter over low-profile vegetation, scanning for prey both visually and aurally. When a potential prey item is detected, this species can reverse course abruptly in mid-flight to drop onto potential prey. Prey primarily consist of small mammals and birds, but can include amphibians, reptiles, and arthropods (Davis and Niemela 2008).

Adult males generally arrive to breed in suitable habitat 5 to 10 days before females. Northern harriers nest on the ground in densely vegetated areas with less than 30 percent woody cover. Aerial courtship and territorial displays begin when adult females arrive in late February to mid-May, and the breeding season extends through August. Most pairs are monogamous, but polygyny occurs with approximately one-third of females breeding in harems of two to five. Northern harrier raises a single brood per year (Simmons and Smit 1987).

Nesting occurs on slightly elevated ground within patches of dense, often tall, vegetation, such as cattails (*Typha* spp.; Baicich and Harrison 1997; Smith *et al*. 2011). The ground nest is constructed by the female of small sticks and reeds and lined with grass. The nest structure is generally fairly insubstantial

but can be significantly larger in more mesic areas. Nest-building is initiated from March to early June and takes as little as a few days or as much as two weeks. Females incubate eggs for 31 to 32 days (Baicich and Harrison 1997; Davis and Niemela 2008; Smith *et al*. 2011). The semi-altricial young remain in the nest for six weeks while being fed by both sexes. Fledging occurs approximately 35 days post-hatching, typically from late July to early August, and juveniles remain in the vicinity of the nest for up to four weeks (Schmutz and Schmutz 1975).

Population Dynamics, Dispersal, and Detectability

Many populations in California are resident, but some northern populations migrate south from August to December and return north from February through May (Beske 1982). Northern harrier populations have been shown to fluctuate in response to changes in prey species abundance, particularly vole (*Microtus* spp.) populations (Collopy and Bildstein 1987). Due to its diet, northern harrier is prone to higher levels of pesticide contamination and lead poisoning than other species. Despite this, the most significant threat to northern harrier is habitat loss. As a species that requires large tracts of land for breeding, the continuing destruction of wetland and grassland habitat is a serious concern that could lead to drastic population declines.

Rangewide and Local Distribution

Northern harrier is widespread in North America, but local distribution is dependent on habitat availability. The species occurs in suitable habitat throughout California at elevations from below sea level to 9,000 feet, but breeding has been extirpated in much of Southern California, due to habitat loss. The species is a widespread winter resident and migrant in suitable habitat. California populations have decreased in recent decades, but the species can be locally abundant where suitable habitat remains free of disturbance, especially from intensive agriculture. Northern harrier is most abundant in the Central Valley at present, despite considerable loss of habitat in that region. It is less abundant in coastal northwestern California than elsewhere and occurs only very locally in the southwestern deserts.

Status in the Upper Westside Specific Plan

A total of 18 CNDDB occurrences of northern harrier are documented within the nine-quad search area, with the closest occurrence 10.56 miles from the Study Area. There are no CNDDB occurrences of northern harrier documented in the Study Area or within five miles of the Study Area (CDFW 2024). However, the species was observed utilizing habitat within the Study Area in 2019 and 2021, particularly in the eastern and northern portions of the SWHA survey area (Bargas 2019, 2021).

Project Effects to Northern Harrier

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, foraging and nesting habitat for northern harrier is present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, northern harrier habitat will be lost in the Natomas Basin. Habitat loss has been implicated as a major cause of population decline of northern harrier as it is primarily a species of grasslands and marshes. Conversion of these habitats to agriculture is a major factor in the decline of the species in the last century (Hands *et al*. 1989).

Reduction of Prey Base

Implementation of the UWSP could result in the decrease in prey base as result of developing land that previously supported prey animals and introducing nonnative predator competition as described in Section 5.2.2.7 for Cooper's Hawk under Reduction in Prey Base.

Nest Disturbance and Increased Predation

Northern harrier nests on or near to the ground, and thus is extremely vulnerable to human disturbance and predation. Dogs, cats, and wildlife, such as foxes, coyotes, badgers, ravens, owls, and racoons, can easily predate eggs or young birds. Domestic cats are a common predator of avian species (Luukkonen 1987; Novak 1989) and would increase in abundance following the proposed development. Many mammalian predators, such as foxes, opossums, skunks, and other small predators also increase near human habitation. Crooks and Soule (1999) have recorded increased avian extirpation rates in habitat fragments as a result of these predator increases.

Nest predators such as crows also typically increase in proximity to residential development, in response to introduced nesting trees, increased food supplies, and increased hunting perches such as streetlights and other infrastructure (Steenhof et al. 1993; Marzluff *et al*. 2001).

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb or displace northern harriers and may cause nest abandonment or nest destruction if nests are not detected prior to the start of construction. General mitigation measures provided in Section 6 include a requirement to conduct pre-construction surveys for a variety of avian species which would include all raptors such as northern harrier prior to the start of construction activities. If an active northern harrier nest is found, the disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to Northern harrier would be minimized.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of foraging and nesting habitat in the Natomas Basin, no effect on the viability of the northern harrier population would occur because the Natomas Basin represents only a small portion of the habitat used by the species in the Central Valley and throughout California (Hands *et al*. 1989). Based on CNDDB records northern harrier has not been documented nesting in the Natomas Basin. Thus, the loss of a small portion of nesting habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the northern harrier population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the northern harrier in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.6 White-Tailed Kite

Listing Status

White-tailed kite is listed as Fully Protected by CDFW under CESA and is federally protected under the amended MBTA of 1918. White-tailed kite is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

White-tailed kite is a relatively small member of the Accipitridae family approximately 16 inches in body length, with a 39-inch wingspan, and an average weight of 12 ounces (Dunk 1995; Sibley 2003). The species is distinguishable due to the white coloring on the underside, grey back, black scapulars, and marginal coverts. White-tailed kite is recognizable by the distinctive hovering and kiting style of hunting.

White-tailed kite is found primarily in open, low-elevation habitats with scattered trees (below 2,000 feet elevation), including grassland, agricultural fields, wetlands, oak-woodland, riparian, marshes, and savannahs (Clark and Banks 1992; Dunk 1995). This species specializes in hunting small mammals, primarily voles, but will also occasionally take birds, insects, reptiles, and amphibians. Hunting is conducted on the wing with stops to hover or "kite" while searching the ground for prey. When a prey item is sighted birds drop near the ground, often hover briefly, then snatch prey with their feet.

Breeding occurs from late January through October, with the peak season from May to August. White-tailed kite is a monogamous breeder but will nest semi-colonially in favorable habitat conditions (Dixon et al. 1957; Sibley 2003). Nests are constructed between January and August in a wide range of nesting substrates, including a variety of trees, such as willows (*Salix* spp.) and eucalyptus, and shrubs, such as saltbush and coyote bush (*Baccharis pilularis*) (Dunk 1995; Baicich and Harrison 1997). Nests are hastily built loose structures constructed over the course of one to four weeks. One brood (sometimes a second if the first is lost) of four to five eggs is laid in a twig nest lined with grass. Nests are usually found in the upper part of trees varying in height from 10 to 160 feet (Dunk 1995). Young hatch after 28 to 30 days of incubation by the female, with the male bringing food. Young fledge 35 to 40 days after hatching, and may be observed in large groups, as multiple broods gather within the local area while developing flight and hunting skills (Baicich and Harrison 1997).

Population Dynamics, Dispersal, and Detectability

There is little understanding of the migration patterns of this species; some populations may be year-round residents, while others may be nomadic or fully migratory. In coastal California, the species is a year-round resident (Small 1994). During fall, white-tailed kites gather in large roosts of as many as 100 individuals between September and November.

Rangewide and Local Distribution

White-tailed kite occurs throughout California, primarily west of the Sierra Nevada and southwestern deserts (Small 1994). The species is a common to uncommon, yearlong resident in coastal and valley lowlands; rarely found away from agricultural areas.

Status in the Upper Westside Specific Plan

CNDDB documents 78 occurrences of white-tailed kite within the nine-quad search area. Eighteen occurrences are documented within five miles of the Study Area to the north and east; however, there are no occurrences of the species documented in CNDDB for the Natomas Basin. The nearest CNNDB reported occurrence is located approximately 2.6 miles south of the Study Area (and documents a nest from 2017 in a large oak tree in a residential neighborhood (CDFW 2024). White-tailed kite was observed foraging within the Study Area during surveys conducted by Bargas. One potential nest site was observed during the SWHA protocol survey during the 2019 and 2021 SWHA surveys. White-tailed kite was observed multiple times near the 2019 potential nest site, but no nesting activity was reported. White-tailed kite was observed to the east of the Study Area during the 2021 surveys with no nesting activity observed (Bargas 2022).

Project Effects to White-tailed Kite

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, foraging and nesting habitat for white-tailed kite are present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, foraging and nesting habitat will be reduced in the Study Area. Some of the agricultural fields and annual grasses and forbs land cover in the Study Area provide potential foraging habitat, and Fremont cottonwood and valley oak tree groves provide suitable nesting habitat for the species. Habitat fragmentation has been implicated as a major cause of population decline in grassland birds in general. Helzer and Jelinski (1999) found that overall avian species richness and the presence of several common grassland species decrease with smaller habitat patch sizes (especially when <50 ha) likely due to edge effects. Upland bird populations have been found to be unstable in fragmented habitats (Hinsley et al. (1995) and Crooks et al. (2001). White-tailed kite survival and reproduction are likely to be higher in larger, more contiguous habitat areas.

Reduction of Prey Base

Implementation of the UWSP could result in the decrease in prey base as a result of developing land that previously supported prey animals and introducing nonnative predator competition, as described in Section 5.2.2.7 for Cooper's Hawk under Reduction in Prey Base.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators, in addition to other causes of bird mortality, as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

Human disturbance to nesting has been identified as a primary threat to raptor populations as several studies have demonstrated declines in raptor populations resulting from human-associated disturbance (Voous 1977; Swenson 1979; Craighead and Mindell 1981).

Despite the common observation of the species (ICF 2021), there are no records in CNDDB documenting white-tailed kite nesting in the Natomas Basin nor in the Study Area. It is possible that the anticipated

human activity associated with UWSP's 1,573 acres of urban structures could result in nest disturbance to white-tailed kite nests near the Study Area which could result in decreased nest success.

Overall Effects on Population Viability

The UWSP is unlikely to affect white-tailed kite population viability, as the Natomas Basin accounts for a very small portion of the Central Valley's white-tailed kite population and its habitat (City of Sacramento et al. 2003). Implementation of the UWSP would result in the loss of a small portion of white-tailed kite habitat available in the Natomas Basin. Thus, the loss of a small portion of nesting habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the white-tailed kite population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the white-tailed kite in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.7 Loggerhead Shrike

Listing Status

Loggerhead shrike is a USFWS BCC and is listed as a Species of Special Concern by CDFW. This species is further protected by the MBTA. In 1987, the USFWS designated the shrike as a Migratory Nongame Bird of Management Concern in the U.S.

Life History and Habitat Requirements

Loggerhead shrike is one of three shrikes found in North America, and despite its taxonomic classification as a passerine (i.e., songbird), it behaves like a raptor or bird-of-prey. Sometimes called the "butcher bird" (*Lanius is Latin for butcher*), shrikes kill their prey with sharply hooked, raptor-like beaks, and then impale it on sharp thorns or barbs (Collins 2008). Loggerhead shrike diets vary seasonally and include arthropods (e.g., grasshoppers, crickets, beetles, and caterpillars), reptiles, amphibians, small rodents, and birds (Craig 1978).

Many loggerhead shrike pairs stay together through winter. Nesting season begins in January or February in the southern part of the range and late April or May in the north. Loggerhead shrike often lays two to three broods of four to nine eggs. A bulky cup nest is constructed primarily or completely by the female in dense vegetation, preferably with thorns or spikes, possibly for protection from predators. The female incubates the eggs for 14 to 16 days, with the young able to leave the nest 17 to 21 days after hatching. The young are cared for by both parents, with the female brooding for several days after hatching (Yosef and Grubb 1994; Shuford and Gardali 2008). The young become independent in July or August.

Shrikes, in general, utilize a variety of shrub, open woodlands, and grassland habitats that vary from shrub-steppe in the western United States to pasturelands in northeast Canada. Despite the diversity in habitats, a common characteristic of all occupied habitats includes open grassy foraging areas with scattered hunting perches (e.g., trees, shrubs, fences, and power lines), and small trees or shrubs for use as nest sites. In addition, shrikes require features such as barbed wire fencing or thorny, or multi-

stemmed shrubs to use as impaling sites for prey storage and manipulation (Craig 1978; Morrison 1980; Yosef 1996). Consequently, shrike foraging habitat requirements differ little between the breeding and nonbreeding seasons. Many shrikes now occupy "artificial" habitat that has been created or extensively altered by human activities.

Population Dynamics, Dispersal, and Detectability

Loggerhead shrike populations have undergone a drastic decline, shrinking 76 percent since 1966 (Bohall-Wood 1987; Brooks and Temple 1990; USFWS 2000). It is one of the most persistently declining species surveyed by the North American Breeding Bird Survey (BBS); survey wide, the species declined at an average rate of 3.7 percent per year during the period 1966-1998 (USFWS 2000). The continuing loss of foraging habitat and hunting perches to modern agricultural practices seems the most likely explanation (Novak 1989, Pittaway 1991; USFWS 2000); however, it appears that this species is particularly vulnerable to diseases, such as West Nile Virus (WNV) (Smallwood and Nakamoto 2009; Schutten 2021) as well as pesticide poisoning that has been correlated with eggshell thinning (Morrison 1980).

Loggerhead shrike has been described as a partial migrant, with populations in the northern half of the breeding range being largely migratory while southern populations are resident. Miller (1931) suggested that permanent resident populations of loggerhead shrike occupy areas where snow cover does not persist for more than 10 days each winter.

Rangewide and Local Distribution

Loggerhead shrike was once widely distributed and common over most of North America, occupying a wide variety of plant associations. The species was apparently always most abundant in the southern and western portions of its range, with high breeding densities observed from Florida to Texas and throughout the arid western U.S. (Grinnell and Miller 1944; Humple 2008). Deforestation and an increase in small-scale agriculture in the 1800s facilitated a northeastward expansion in range followed by a similar north-central expansion in the 1900s with agricultural development of the northern Great Plains and aspen parklands (Cade and Woods 1997). Since the 1940s, with forest regeneration, ongoing loss of pasturelands, and large increases in intensive row-crop agriculture, contraction of range and a decrease in numbers have been noted in parts of the loggerhead shrike range.

Loggerhead shrike occurs throughout much of California where suitable habitat exists and historically was described as abundant (Grinnell and Miller 1944). It is absent from northwestern California (except as a rare winter visitor along the coast from Del Norte County south to southern Mendocino County), much of the south Coast Ranges, the Sierra Nevada and southern Cascades, and high elevations of the Transverse Ranges (Sauer et al. 2017). Most are resident, though populations in the northernmost parts of the range move south for winter.

Status in the Upper Westside Specific Plan

Loggerhead shrike declined 63 percent along all routes surveyed by Smallwood and Nakamoto in the Sacramento Valley between the four winters of 1990–1995 and the three winters of 2005–2008 (Smallwood and Nakamoto 2009). West Nile virus arrived in the Sacramento Valley of California in 2004 and began killing many corvids. This species appears to be extremely sensitive to WNV infection, which may have contributed to declines in the Study Area. Loggerhead shrike is a year-round resident of the Natomas Basin and found throughout the NBHCP area (City of Sacramento *et al*. 2003). Monitoring

conducted by TNBC has documented a decline in detections of loggerhead shrike since 2012, with a record low number of observations recorded in 2019 (ICF 2020). The mean number of loggerhead shrike detections per survey on reserve lands decreased again in 2020. Shrike detections have been decreasing substantially on reserve lands since 2012, with a more severe decline evident on non-reserve lands. The reasons for the decline are unknown. This species was not observed within the 568.7 acres of lands surveyed by Bargas in either 2019 or 2020 (Bargas 2019, 2020).

Project Effects to Loggerhead Shrike

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, loggerhead shrike foraging and nesting habitat are present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, loggerhead shrike foraging and nesting habitat will be lost in the Natomas Basin. Some of the agricultural fields and annual grasses and forbs land cover in the Study Area provide potential foraging habitat, and Fremont cottonwood and valley oak tree groves provide suitable nesting habitat for the species. Habitat fragmentation has been implicated as a major cause of population decline in grassland birds in general and is likely to specifically affect loggerhead shrike. Helzer and Jelinski (1999) found that overall avian species richness and the presence of several common grassland species decrease with smaller habitat patch sizes (especially when <50 ha) likely due to edge effects. Upland bird populations have been found to be unstable in fragmented habitats (Hinsley *et al*. 1995; Crooks *et al*. 2001). Shrike survival and reproduction are likely to be higher in larger, more contiguous habitat areas.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality, as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

Loggerhead shrikes will abandon nests if disturbed by humans during egg-laying or early in incubation. Shrikes are generally tolerant of human activity near nests later in the breeding season, and nest abandonment is not generally a significant factor in nest failure (Collister 1994). The implementation of the 542.4-acre Agricultural Buffer should reduce the potential for nest disturbance due to the conversion of agricultural lands to urban development and the concomitant increase in human activities.

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb or displace loggerhead shrikes and may cause nest abandonment. General mitigation measures include pre-construction surveys for loggerhead shrike prior to the start of construction activities. If loggerhead shrike is found, the disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to loggerhead shrike would be minimized.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of foraging and nesting habitat in the Natomas Basin, no effect on the viability of the loggerhead shrike population would occur because the Natomas Basin represents only a small portion of the habitat used by loggerhead shrike in the Central Valley (City of Sacramento et al. 2003). Thus, the loss of available habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the loggerhead shrike population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the loggerhead shrike in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.8 Song Sparrow (Modesto Population)

Listing Status

Song sparrow (Modesto population) is listed as Species of Special Concern by CDFW. Song sparrow (Modesto population) is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

Modesto song sparrow is a resident and endemic species in California that breeds from March through August (Shuford and Gardali 2008). This species feeds mostly on vegetable matter, such as seeds, but will also feed on invertebrates. Modesto song sparrow nests low to the ground in dense vegetation associated with wetland or riparian habitats along waterways. Males are typically found singing on a perch of moderate height. Modesto song sparrow often lays three to four eggs with up to two broods and rarely three. Both parents tend to the nest, with the young leaving the nest at 10 days and independent of the parents at 25 days (Zeiner *et al.* 1990).

Population Dynamics, Dispersal, and Detectability

This endemic subspecies of song sparrow of California is a year-round resident (Shuford and Gardali 2008). There are a total of 24 subspecies of song sparrow, with nine of those subspecies occurring in California. This subspecies is locally abundant where found but has been extirpated from much of its range along with the decline in riparian and wetland habitat throughout the Central Valley. Largest populations of the Modesto song sparrow are in the Butte Sink and the Sacramento–San Joaquin Delta (Shuford and Gardali 2008). The primary threats to the Modesto song sparrow include the loss of habitat, the degradation of habitat, and nest predation. Habitat conversion is thought to increase the abundance and benefit potential nest predators (Shuford and Gardali 2008).

Rangewide and Local Distribution

Modesto song sparrow is an endemic sparrow subspecies of California to an otherwise widespread species in North America. This species is common where it still occurs but has been locally extirpated where its habitat has been developed or degraded.

Status in the Upper Westside Specific Plan

There is one CNDDB reported occurrence for this species within a five-mile radius of the Study Area, which is not specific with its location. The record documents breeding in a canal along the edge of a wheat field in 1877 (CDFW 2024). Song sparrow was observed in the Study Area during surveys conducted by Bargas and is noted in the species list as detected in 2019 (Bargas 2020).

Project Effects to Modesto Song Sparrow

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, foraging and nesting habitat are present for Modesto song sparrow in the Natomas Basin and within the Study Area. The Study Area provides potential foraging habitat in agricultural lands, and Fremont cottonwood, valley oak tree woodland, and low vegetation along canals and ditches provide suitable nesting habitat for the species. The primary cause of the population decline of Modesto song sparrow is habitat fragmentation, loss, and degradation. Modesto song sparrow survival and reproduction are likely to be higher in larger, more contiguous habitat areas, such as riparian and oak woodlands along the Sacramento River. Implementation of the UWSP will result in a decrease of marginal habitat in the Natomas Basin, which would be considered to be of little effect to the species as a whole.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

Modesto song sparrows will abandon nests if disturbed by humans during egg-laying or early in incubation. Modesto song sparrows are generally tolerant of human activity near nests later in the breeding season, and nest abandonment is not generally a significant factor in nest failure (Collister 1994). Modesto song sparrows in the Sacramento area typically nest in woodlands or in vegetation along ditches and canals. The implementation of the 542.4-acre Agricultural Buffer should reduce the potential for nest disturbance due to the conversion of agricultural lands to urban development and the concomitant increase in human activities.

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb or displace Modesto song sparrows and may cause nest abandonment. General mitigation measures include pre-construction surveys for nesting birds prior to the start of construction activities. If Modesto song sparrow is found, the disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to Modesto song sparrow would be minimized.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of foraging and nesting habitat in the Natomas Basin, no effect on the viability of the Modesto song sparrow population would occur because the Natomas Basin represents only a small portion of the habitat used by Modesto song sparrow in the Central Valley (Shuford and Gardali 2008). Thus, the loss of marginally suitable habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the Modesto song sparrow population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the Modesto song sparrow in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.9 Osprey

Listing Status

Osprey is listed as a Watch List species by CDFW. Osprey is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

Osprey breeds in Northern California from the Cascade Ranges southward to Lake Tahoe, and along the coast south to Marin County. The species preys primarily on fish but will also prey on small mammals, birds, reptiles, and invertebrates. Foraging areas include open, clear waters of rivers, lakes, reservoirs, bays, estuaries, and surf zones. Habitat and nesting requirements include large trees, snags, and dead-topped trees in open forest habitats for cover and nesting (Zeiner *et al.* 1990).

Population Dynamics, Dispersal, and Detectability

Osprey is widespread throughout the world, except in South America, with many populations increasing. Northern populations in North America are migratory and arrive in breeding locations between March and May. Osprey populations were previously impacted by the use of pesticides during the 1960s and 1970s, but populations have since been increasing. Ongoing threats to this species include the ongoing use of organochlorine-based biocides in Central America. Organochlorine-based pesticides result in egg shelling thinning. Other threats to osprey include shooting, electrocution, or fishing nets. Due to its diet, osprey is susceptible to local population declines that are a result of declining or lost fish populations or disrupted nesting habitat (NatureServe 2024).

Rangewide and Local Distribution

Osprey is widespread in North America, where it breeds from northwestern Alaska and south to Baja California and as far south as Belize and to the east in Florida. Northern populations will winter in the Central Valley of California, the Gulf of Mexico, Bermuda, Central America, and South America (NatureServe 2024).

Status in the Upper Westside Specific Plan

There are no CNDDB occurrences of osprey documented within the nine-quad search area. However, the species was observed utilizing habitat within the UWSP in 2019 and 2020, where it was observed during SWHA surveys (Bargas 2020), and it was observed by HELIX in 2023.

Project Effects to Osprey

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, nesting habitat for osprey is present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, nesting habitat will be reduced in the Study Area. Foraging habitat is not present in the Study Area. Fremont cottonwood, valley oak tree woodland, and structures such as radio towers or cellular towers provide suitable nesting habitat for the species. Osprey survival and reproduction are likely to be higher in larger, more contiguous habitat areas, especially along the Sacramento River and associated riparian or oak woodland habitats.

Reduction of Prey Base

Osprey is a piscivorous bird of prey, and foraging habitat is considered to be absent from the Study Area. This species is expected to forage along the Sacramento River or other nearby bodies of water with an adequate supply of fish. Development of the Study Area will have no impacts on the prey base of osprey.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

Human disturbance to nesting has been identified as a primary threat to raptor populations as several studies have demonstrated declines in raptor populations resulting from human-associated disturbance (Voous 1977; Swenson 1979; Craighead and Mindell 1981). Despite the observation of the species by HELIX in 2023, there are no records in CNDDB documenting osprey nesting in the Natomas Basin nor in the Study Area. It is possible that the anticipated human activity associated with UWSP's 1,573 acres of urban structures could result in nest disturbance to osprey nests near the Study Area which could result in decreased nest success.

Overall Effects on Population Viability

The UWSP is unlikely to affect osprey population viability, as the Natomas Basin accounts for a very small portion of the Central Valley's osprey population and its habitat, and there are no documented occurrences of this species nesting within 10 miles of the Study Area (CDFW 2024). Implementation of the UWSP would result in the loss of a small portion of osprey nesting habitat available in the Natomas Basin, and development of the UWSP would have no effect on foraging habitat. Therefore, the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not affect the viability of the osprey population using the Natomas Basin. The UWSP has proposed measures that

minimize and mitigate the impacts, such as conservation of habitat for GGS, SWHA, and WPT and requiring surveys during the nesting season for this species, and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the osprey in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.10 White-faced ibis

Listing status

White-faced ibis was listed by CDFW as a Species of Special Concern until 2008. The species was downgraded to the CDFW Watch List in 2008.

Life History and Habitat Requirements

White-faced ibis is considered a shorebird that forages by wading in shallow water and probing in wetland mud for aquatic and soil-dwelling insects, crustaceans, and earthworms. The species will ingest amphibians and small fishes (Sibley 2003).

White-faced ibis is a colonial breeder and builds a shallow nest in low trees, shrubs, or thick emergent vegetation (e.g., tule and cattail). White-faced ibis typically breeds at two to three years of age (Capen 1977) fostering one brood per season with an average of three to four eggs. Both parents incubate the eggs, which hatch in 17 to 26 days. As young approach fledging, adults forage farther from nesting colonies, and adults and newly fledged young fly to more distant irrigated fields and mudflats along rivers and around lakes and reservoirs (Taylor *et al*. 1989).

White-faced ibis depends on shallow, emergent wetlands with high-quality fresh water. Safran et al. (2000) found that white-faced ibis foraged close to vegetation where prey abundances are greater. Wet meadows, irrigated pastures, flooded pond edges, and wet cropland (e.g., rice fields) can be suitable foraging habitat. Results of Shuford et al. (1996) suggested that white-faced ibis responds opportunistically to changing food resources, particularly by shifting from managed wetlands to agricultural lands after heavy winter rains. Overwintering white-faced ibis inhabits many of the same coastal wetland habitats used in summer and will also use flooded or partially flooded rice fields in Louisiana and California (Remsen *et al*. 1991; Ryder and Manry 2020).

Population Dynamics, Dispersal, and Detectability

White-faced ibis nesting populations and numbers of colonies in North America decreased precipitously during the 1960s and 1970s due to pesticide contamination and loss of habitat to drought and drainage (Ryder 1967). The winter population reached a low point in the 1970s, then began rising in the 1980s, with a sharp increase in the early 1990s as habitat improved. Both breeding and wintering populations have increased greatly in California since the 1980s (Shuford *et al*. 1996, Earnst *et al*. 1998), and estimates from the mid-1990s show winter populations in California at 28,000, and numbers appear to be continuing to increase, particularly in the Sacramento Valley rice country. The Colusa National Wildlife Refuge population increased from 50 to 500 pairs from 1985 to 1989 (Shuford *et al*. 1996).

Breeding range and populations have expanded in the last two decades, owing in part to improved nesting habitat management in federal and state refuges, increased planting of alfalfa used by feeding

birds, the banning of DDT and other pesticides in the 1970s, and improved breeding success at major nesting centers.

White-faced ibis is present year-round in southern California, coastal Texas and Louisiana but is migratory elsewhere, although migration between North and South America does not occur. Within North America, birds breeding in northern areas of the range move south to wintering areas. A highly mobile species, the northernmost populations undertake regular north-south migrations. All populations show some post-breeding wandering, with movements often coinciding with changing water levels and water quality. (Ryder and Manry 2020).

Rangewide and Local Distribution

White-faced ibis is a New World species occurring only in the Americas which breeds in two discontinuous areas, western North America and the southern half of South America (Ryder 1967). The species is present in the western U.S. from California to Montana and the Dakotas and even includes Canada south to Durango and Jalisco states in Mexico. The largest breeding colonies are found in Utah, Nevada, Oregon, and coastal Texas, and Louisiana (Ryder and Manry 2020). In North America, white-faced ibis nest as far south as Tampico Lagoons and Tabasco Lagoons in Mexico. In South America, the species nests primarily in Peru, Bolivia, Paraguay, and extreme southern Brazil, Chile, and central Argentina. In the U.S., most white-faced Ibis winter in Mexico or along the Gulf Coast in Texas and Louisiana (Ryder 1967).

Status in the Upper Westside Specific Plan

White-faced ibis is a year-round resident of the Sacramento Valley**,** breeding in permanent and semi-permanent wetlands during the summer and foraging in seasonal wetlands and flooded rice fields throughout the fall and winter.

White-faced ibis has not nested in the Natomas Basin since 2013, and no nests were detected in the most recent surveys conducted in 2020 (ICF 2020). Over the monitoring period, the species has been found to typically occur in very low numbers outside the breeding season and move into the Natomas Basin in large numbers from May through September.

There are no previously recorded occurrences of this species in the Study Area. White-faced Ibis nesting colonies have been periodically observed on several Natomas Basin Habitat Conservation Plan (NBHCP) protected lands north of the Plan Area, including the Central Basin Reserve in 2010 and Willey Wetlands Preserve in 2012 and 2013, but nesting has not been observed within the Natomas Basin since 2013 (ICF 2020).

Project Effects to white-faced ibis

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, the Study Area provides foraging habitat in the Natomas Basin for white-faced ibis. Foraging habitat in the Study Area consists of agricultural lands, annual grasslands, fallowed crops, and ruderal areas. With the implementation of the UWSP, white-faced ibis potential foraging habitat will be reduced in the Natomas Basin.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

There are no records in CNDDB documenting white-faced ibis nesting in the Natomas Basin nor in the Study Area, although approximately 24,900 acres of suitable winter habitat (i.e., rice, alfalfa, and other agricultural fields) exist in the Natomas Basin as foraging habitat for ibis. The land use attributed to urban development in the Basin, and would result in the overall net loss of potential foraging and roosting habitat acreage for white-faced ibis.

Construction-Related Activities

Potential effects due to construction-related activities would be limited to the displacement of birds foraging or roosting within agricultural or semi-natural terrestrial habitat during the initial phases of construction. If white-faced ibis is found, the disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to white-faced ibis would be minimized.

Overall Effects on Population Viability

The UWSP is unlikely to affect white-faced ibis population viability, as the species is a rare visitor to the Natomas Basin, and there are no documented occurrences of this species nesting within Sutter or Sacramento counties (CDFW 2024). Therefore, implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not affect the viability of the white-faced ibis population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as conservation of habitat for GGS, SWHA, and WPT and requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the white-faced ibis in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.5.11 Purple Martin

Listing Status

Purple martin is a CDFW Species of Special Concern and is federally protected by the USFWS under the amended MBTA of 1918.

Life History and Habitat Requirements

Purple martin is a summer resident and migrant in California from March through September (Shuford and Gardali 2008), where it is considered a rare to uncommon species (Zeiner *et al*. 1990). This species migrates to and from South America and feeds on the wing, hawking insects high above the ground and

occasionally feeding on terrestrial insects (Zeiner *et al*. 1990). Purple martin nests in cavities in open areas with low canopy cover at the height of the nest, near large bodies of water that support high densities of large insects. Martins use a variety of cavities, including bridges, large tree snags, and collapsed lava tubes. The species is very sensitive to competition from European starlings and is extirpated from most low-elevation areas by starlings (Shuford and Gardali 2008).

Purple martin frequents old-growth forests, multi-layered forests, open woodlands with snags during the breeding season. Nesting season begins in April through August, Purple martin often lays three to eight eggs with up to two broods. Both parents tend to the nest, with the young leaving the nest at 24 to 31 days. Nests are located in old woodpecker cavities or human-made structures such as nesting boxes, bridges, or culverts (Zeiner *et al*. 1990).

Population Dynamics, Dispersal, and Detectability

Purple martin populations are widely distributed and locally rare, and historically were considered to be common from sea level to 5,900 feet (Shuford and Gardali 2008). Purple martin populations were considered stable from the 1940s through the 1970s as this species was more thoroughly documented (Shuford and Gardali 2008). This species is most abundant in northwestern California, but breeding populations are scattered throughout California. In lowland habitats, competition with European starlings and the loss of riparian habitat are considered the major threats to this species (Shuford and Gardali 2008). No major threats to this species are known in other habitats, and purple martin appears to be tolerant of human presence in urban areas, such as nesting under bridges in weep holes. Purple martin use of weep holes in bridges avoids direct competition with European starlings, which do not use bridge structures for nesting. Declines of this species have been reported but have not been thoroughly documented (Shuford and Gardali 2008).

Rangewide and Local Distribution

Purple martin populations statewide are estimated to consist of approximately 900 to 1,350 pairs that are widely distributed and locally rare, but more numerous in northwestern California (Shuford and Gardali 2008). Nesting populations appear to rely on redwood forest habitat, and the largest population occurs in northwestern California. Smaller populations in the Cascade Range, the Sierra Nevada, and the Tehachapi also support small populations of purple martin. Purple martins in the Central Valley nest in riparian areas and buildings from the Delta north through the Sacramento Valley. However, purple martin was largely extirpated in the Central Valley after the introduction of European starlings, with the exception of nesting colonies in Sacramento that use hollow spaces in bridges (Shuford and Gardali 2008).

Status in the Upper Westside Specific Plan

Purple martin has not been documented in the Natomas Basin but has been documented at several locations in the City of Sacramento using weep holes under bridges. There nearest reported CNNDB record is located 2.5 miles south of the Study Area, where this species was identified using weep holes under the I-5 bridge in 2007 (CDFW 2024). However, purple martin has not been documented to occur in the Study Area (Bargas 2020). Purple martin could forage over the entire 2,102-acre Study Area but was not observed within the 568.7 acres of lands surveyed by Bargas in 2019, 2020, or 2021 (Bargas 2019, 2020, 2022).

Project Effects to Purple Martin

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, purple martin foraging and nesting habitat are present in the Natomas Basin and within the Study Area. With the implementation of the UWSP, a small amount of suitable foraging and nesting habitat for purple martin habitat will be lost in the Natomas Basin. The Study Area provides potential foraging habitat over agricultural lands, and Fremont cottonwood and valley oak woodlands provide suitable nesting habitat for the species. The primary cause of purple martin population declines is competition with European starlings for habitat with cavities and tree snags in addition to habitat fragmentation, loss, and degradation. Purple martin survival and reproduction are likely to be higher in larger, more contiguous habitat areas, such as riparian and oak woodlands along the Sacramento River, where insect prey is abundant. Purple martin is known to occupy weep holes or other places under bridges that are not suitable nest sites for European starling. European starlings have nearly extirpated purple martin from native habitats in California, with a remnant population using weep holes under bridges almost exclusively.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Songbird nest predators such as crows also typically increase in proximity to residential development, in response to introduced nesting trees, increased food supplies, and increased hunting perches such as streetlights and other infrastructure (Steenhof *et al*. 1993; Marzluff *et al*. 2001). Predation of bird nests is also more intense along roads, urban edges, and other linear habitats (DeGeus 1990), presumably because of the increased use of linear rights-of-way by crows and mammalian predators (Knight *et al*. 1995).

Nest Disturbance

Purple martin will abandon nests if disturbed by humans during egg-laying or early in incubation. Purple martin is generally tolerant of human activity near nests later in the breeding season, and nest abandonment is not generally a significant factor in nest failure (Collister 1994). Purple martin in the Sacramento area is primarily limited to nesting in artificial structures such as bridges since they have been nearly extirpated from natural habitats by European starlings. Artificial nest structures are not located in the Study Area. The implementation of the 542.4-acre Agricultural Buffer should reduce the potential for nest disturbance due to the conversion of agricultural lands to urban development and the concomitant increase in human activities.

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb or displace purple martin and may cause nest abandonment. General mitigation measures include pre-construction surveys for nesting birds prior to the start of construction activities. If purple martin is found, the disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future

reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to purple martin would be minimized.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of foraging and nesting habitat in the Natomas Basin, no effect on the viability of the purple martin population would occur because the Natomas Basin represents only a small portion of suitable habitat used by purple martin in the Central Valley (City of Sacramento et al. 2003) and primary threats to purple martin include competition from nonnative species such as European starling. Thus, the loss of the suitable habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the purple martin population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the purple martin in the Basin if it is present. With the implementation of mitigation measures provided in Section 6, impacts to this species would be reduced to less than significant.

5.2.5.12 Yellow-headed Blackbird

Listing Status

Yellow-headed blackbird is listed as Species of Special Concern by CDFW. Yellow-headed blackbird is not a Covered Species under the NBHCP.

Life History and Habitat Requirements

Yellow-headed blackbird is a summer resident and migrant in California that breeds from April through July (Shuford and Gardali 2008). This species feeds mostly on seeds and grain but will also feed on invertebrates during the breeding season. Yellow-headed blackbird nests in dense emergent vegetation associated with wetland in lakes or ponds. This species is a colonial nester that typically nests during peak abundance of insects. Yellow-headed blackbird is a polygynous nester, each male may have up to five mates nesting on his territory. A single brood is most common, consisting of two to five eggs. Both parents tend to the nest, with the young leaving the nest 12 days after hatching, and flight capable at 20 days (Zeiner *et al*. 1990).

Population Dynamics, Dispersal, and Detectability

Yellow-headed blackbird populations are widely distributed across California, with populations in the Central Valley, east of the Sierra Nevada and Cascade ranges, in the deserts in southern California, and is considered locally common in these areas (Zeiner *et al.* 1990). This species is abundant in Canada and the rest of the United States and is most abundant in the Great Plains or in areas with expansive and productive marsh habitat. Historically they were considered to be common from sea level to 6,600 feet, with the largest population in northeastern California. The greatest declines of this species are considered to be in southern California where its marsh habitat has been drained, manipulated, and/or developed. Yellow-headed blackbird breeding range has changed little since the 1940s though local extirpations continue to occur largely as a result of wetland habitat degradation. The species has been known to expand into areas where wetlands have been created as a result of human habitation; in the

Sacramento Valley, it is known to breed at refuges with expansive marsh habitat (Shuford and Gardali 2008).

Rangewide and Local Distribution

Yellow-headed blackbird populations are widely distributed across California with populations in the Central Valley, east of the Sierra Nevada and Cascade ranges, and in the deserts in southern California, and is considered locally common in these areas (Zeiner *et al*. 1990). This species is abundant in Canada and the rest of the United States and is most abundant in the Great Plains or in areas with expansive and productive marsh habitat. In the Sacramento Valley, this species is known to breed at refuges with expansive marsh habitat, such as the Yolo Bypass Wildlife Area, Davis Wetlands, and Sacramento Wildlife Area, among others (Shuford and Gardali 2008).

Status in the Upper Westside Specific Plan

There is one CNDDB occurrence of yellow-headed blackbird documented in CNDDB within the nine-quad search area centered on the Study Area. There are no CNDDB reported occurrences within a five-mile radius of the Study Area (CDFW 2024). Yellow-headed blackbird was observed in the Study Area during surveys conducted by Bargas and is noted in the species list for 2020 (Bargas 2020).

Project Effects to Yellow-headed Blackbird

Habitat Loss, Fragmentation, and Reduction in Patch Size

Currently, the Study Area provides foraging and nesting habitat in the Natomas Basin for yellow-headed blackbird. Foraging habitat in the Study Area consists of agricultural lands, annual grasslands, fallowed crops, and ruderal areas. With the implementation of the UWSP, yellow-headed blackbird potential foraging habitat will be reduced in the Natomas Basin, and the potential nesting habitat along canals and ditches will be reduced.

Water Quality and Runoff

Aquatic communities may be greatly affected by surrounding land use. Urban areas can cause different and, in some cases, stronger effects than agricultural lands (Bury 1972; Moore and Palmer 2005). Residential developments typically result in increased runoff of hydrocarbons and pesticides, fertilizers, and/or herbicides used for lawns and gardens, and increased stormwater volume (and associated increases in depths and velocities) because of high coverage of impervious surfaces. Significant impacts to invertebrate communities that are prey items for species such as yellow-headed blackbird, have been shown to occur because of exposure to herbicides, fertilizers, and/or pesticides (Sparling et al. 2010; Elliott et al. 2011). Aquatic habitat adjacent to the northwestern portion of the Study Area could be impacted by urban landscaping practices.

Increased Predation

Implementation of the UWSP could result in the increase of mammalian predators and other nest predators in addition to other causes of bird mortality as discussed previously in Section 5.2.2.7 for Cooper's Hawk under Increased Predation.

Nest Disturbance

Nesting colonies of yellow-headed blackbirds are typically found nesting with other blackbird colonies. Yellow-headed blackbirds are typically tolerant of low-intensity human activity, but similar to other blackbirds are intolerant of large disturbances to breeding colonies and are typically afforded large buffer distances from active nest colonies (Pacific Gas and Electric 2015). Disturbance to yellow-headed blackbird nests would typically result from construction-related activities.

Construction-Related Activities

Potential effects due to construction-related activities would be limited to the displacement of birds foraging or roosting within agricultural or semi-natural terrestrial habitat during the initial phases of construction. If yellow-headed blackbird is found, disturbance would be avoided during the nesting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to yellow-headed blackbird would be minimized.

Overall Effect on Population Viability

Implementation of the UWSP would have no overall effect on the population viability of yellow-headed blackbird as only a small amount of available aquatic foraging-nesting habitat is available in the Study Area. Further, the Study Area and the Natomas Basin account for only a small portion of the habitat in the Central Valley that is available to support the yellow-headed blackbird population. Thus, the loss of the suitable habitat in the Natomas Basin as a result of the implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the yellow-headed blackbird population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as requiring surveys during the nesting season for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is nesting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the yellow-headed blackbird in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.6 Special-status Mammals

5.2.6.1 Pallid Bat

Listing Status

Pallid bat is a CDFW Species of Special Concern.

Life History and Habitat Requirements

Pallid bat is common in open and dry habitats with rocky areas for roosting and forages along grasslands, shrublands, woodlands, and forests. This species has a good urine concentrating ability, and thus, is less reliant on sources of water than other bat species. Pallid bat is known to roost primarily in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosting maternity colonies may consist of up to 100 individuals, with males typically roosting separately. Young are typically born from April through June and weaned by seven weeks after birth, and volant by July or August. Reproduction

typically occurs individually, with each liter consisting of one to three young. Pallid bat is very sensitive to disturbance of roost sites (Zeiner *et al.* 1990).

Population Dynamics, Dispersal, and Detectability

Seasonal movements of this species are poorly known, as well as locations of hibernacula and winter roosting sites. Information is also limited as to how much pallid bat tolerates disturbance of roosting sites. However, this species is known to be sensitive to disturbance of roosting sites. Several roosting sites documented in museum records in coastal California have been extirpated, and this species is likely intolerant of suburban and urban development, even when patches of suitable habitat remain. However, pallid bat appears to be more tolerant of rural development. Threats to the species include vandalism, mine closures, recreation, timber harvest or other vegetation management activities, urbanization, and demolition of occupied structures (Bolster, ed. 1998). This species is difficult to detect in day roosts but is easier to detect during acoustic monitoring and visual observations, during emergence surveys, and with the use of mist netting (Western Bat Working Group 2023).

Rangewide and Local Distribution

This species ranges widely across California up to elevations of 3,000 meters in low desert, oak woodland, coastal redwood forests. There are at least three subspecies of pallid bat occurring in California, with *A. pallidus* present in the Central Valley. Pallid bat is also found in Cuba, Mexico, British Columbia, and as far east as Texas in the U.S. (Bolster, ed. 1998).

Status in the Upper Westside Specific Plan

Pallid bat has not been documented in the Natomas Basin, and there is one previously recorded occurrence of this species within the nine-quad database search area (CDFW 2024). There are no CNDDB records of pallid bat within five miles of the Study Area; however, this highly mobile species may forage over the Study Area or roost in suitable habitat within the Study Area. The documented occurrence of this species is a non-specific record from the collection of an individual that was preserved in the Museum of Vertebrate Zoology at Berkeley (CDFW 2024).

Project Effects to Pallid Bat

Habitat Loss, Fragmentation, and Reduction in Patch Size

The Study Area provides potential foraging habitat over agricultural lands, and Fremont cottonwood and valley oak tree groves provide suitable roosting habitat for the species. Abandoned buildings in the Study Area may also provide suitable roosting habitat, but most structures in the Study Area appear to be in use and are unlikely to provide roosting habitat for this species. The primary cause of population decline of pallid bat is the destruction or disturbance of their roosting sites. Pallid bat survival and reproduction are likely to be higher in larger, more contiguous habitat areas, such as riparian and oak woodlands along the Sacramento River and edge habitats with insect prey over agricultural fields and grasslands abutted to woodland habitats. Pallid bats are known to occupy caves, crevices, mines, and occasionally in hollow trees and buildings. Most of these habitats are not present in the Study Area, but tree hollows and crevices in trees or structures are present. Implementation of the UWSP will result in a marginal decrease of available habitat in the Natomas Basin which would be considered of little effect to the species.

Roost Disturbance

Pallid bats will abandon roosts if disturbed by humans. Pallid bats are generally intolerant of human activity near roost sites and generally avoid roosting in areas with frequent activity. Potential pallid bat roosts in the Study Area are limited to valley oak woodland, small groves of trees, and abandoned buildings. The implementation of the 542.4-acre Agricultural Buffer should reduce the potential for roost disturbance due to the conversion of agricultural lands to urban development and the concomitant increase in human activities.

Construction-Related Activities

Construction activities associated with the proposed development in the Study Area or construction of the proposed reserve sites could disturb or displace pallid bats and may cause roost abandonment. If pallid bat is found, the disturbance would be avoided during the maternity roosting season to the maximum extent possible. Similarly, the implementation of restoration activities in future reserves could impact this species if it is present. With the implementation of conservation measures, construction-related effects to pallid bat would be minimized.

Overall Effects on Population Viability

Although the UWSP would reduce the overall acreage of foraging and roosting habitat in the Natomas Basin, no effect on the viability of the pallid bat population would occur because the Natomas Basin represents only a small portion of the habitat used by pallid bat in the Central Valley and in California. Thus, the loss of a small portion of roosting habitat in the Natomas Basin as a result of implementation of the UWSP and the conservation of habitat for GGS, SWHA, and WPT would not alter the viability of the pallid bat population using the Natomas Basin. The UWSP has proposed measures that minimize and mitigate the impacts, such as conservation of habitat for GGS, SWHA, and WPT and requiring surveys for bat roosts for this species and coordination with CDFW to determine appropriate mitigation in the event that this species is roosting in the Study Area and will be impacted by the proposed action. Therefore, the proposed action is minimized and unlikely to affect the survival of the pallid bat in the Basin if it is present. The implementation of mitigation measures provided in Section 6 would further reduce impacts to this species to less than significant.

5.2.7 Migratory Birds and Raptors

5.2.7.1 Nesting Impacts

The Project site and adjacent areas provide nesting habitat for a variety of native birds common to the region, and several species of birds were observed on and adjacent to the site (see Appendix D). The structures, radio towers, utility poles, shrubs, annual vegetation, bare ground, and trees on the Study Area provide potential nesting habitat for species that use these areas for nesting. Large trees adjacent to the Study Area also provide nesting habitat for migratory birds, including raptors. Active nests were not observed during surveys, although existing nest structures that belong to raptors and yellow-billed magpie (*Pica nuttalli*) were abundant in the Study Area. Raptor nests were observed in large trees and radio towers throughout the Study Area. Yellow-billed magpie nests were observed in valley oak woodland in the western portion of the Study Area. Ruderal areas dominated by annual grasses provide habitat for ground nesting birds, such as western meadowlark, red-wing blackbird, and a variety of sparrows.

Project activities during construction would directly disturb trees or shrubs and could result in noise and other indirect disturbances that have the potential to cause nest destruction, nest failure, and project activities will affect herbaceous vegetation, which could contain nests. In the absence of proposed mitigation, destruction of nests, eggs, or nestlings by vegetation clearing or ground-disturbing activities or indirect impacts to birds nesting off-site that resulted in forced fledging or nest abandonment could occur if construction commenced during the avian breeding season (February through August). This could occur with both common and special-status bird species. Such impacts would be considered a violation of California Fish and Game Codes and would be a significant impact. The UWSP has proposed measures that minimize and mitigate the impacts such as conservation of habitat for GGS, SWHA, and WPT and requiring surveys during the nesting season for these species and coordination with CDFW to determine appropriate mitigation in the event that these species are nesting in the Study Area and will be impacted by the proposed action.

Therefore, the proposed action is minimized and unlikely to affect the survival of the migratory birds in the Basin if is present. With the implementation of mitigation measures provided in Section 6, impacts to migratory birds and raptors would be reduced to less than significant.

5.3 SENSITIVE NATURAL COMMUNITIES

There are 31.75 acres of canals and ditches that support wetland vegetation that occur as an interconnected network throughout the Study Area that are potential waters of the U.S. and State could be considered a sensitive natural community. The proposed Project, as designed, could result in fill of these features. Potential impacts to the canals are discussed in Section 5.4, and mitigation is proposed to reduce impacts to these features to less than significant. There are no other sensitive natural communities in the Study Area. The site consists almost entirely of agricultural land that supports a mixture of non-native and native species and lacks native or naturalized vegetation communities. The Sacramento River and riparian habitat adjacent to the site are sensitive natural communities; however, the Project has been designed to avoid impacts to these features.

5.4 JURISDICTIONAL WATERS AND WETLANDS

A total of 45.08 acres of aquatic resources have been delineated in the Study Area. It should be noted, approximately 0.14 acre of aquatic resources were added to the Study Area after the delineation took place in 2023, due to a minor change of the Study Area boundary. This acreage is comprised of portions of West Drainage Canal that overlap the revised Study Area boundary. The original 44.94 acres of aquatic resources included in the 2023 delineation by HELIX are comprised of a total of 11.22 acres of aquatic resources that were verified by the USACE in 2020 (SPK-2020-00237), and a total of 33.72 acres of aquatic resources that were delineated by HELIX in 2023. A Preliminary Jurisdictional Determination has been issued for the 33.72 acres of wetlands on February 23, 2024 (SPK-2020-00237). The additional 0.14 acre of added aquatic resources are likely potential jurisdictional waters, and have been added to the appropriate Project applications. SAFCA-owned lands that consist of 43.62 acres of wetland creation are still under development and likely do not meet wetland criteria or currently qualify as potential waters of the U.S. This acreage is part of a conservation area and will be preserved in perpetuity. The canals and ditches and associated valley oak woodland community may also fall under the jurisdiction of Section 1600 of the California Fish and Game Code.

5.5 WILDLIFE NURSERIES AND MOVEMENT CORRIDORS

A wildlife corridor is a link of wildlife habitat, generally native vegetation, which joins two or more larger areas of similar wildlife habitat. Corridors are critical for the maintenance of ecological processes, including facilitating the movement of animals and the continuation of viable populations. Historically, the Study Area was part of the floodplain that belonged to the Sacramento River, with riparian forests along the river prior to the Sacramento River levees and agricultural practices. The majority of this area has been converted to urban and agricultural uses, fragmenting and separating riparian habitat. Riparian habitat is limited to the levee west of the Study Area, where the understory has been mostly developed. In addition, Garden Highway, I-5, and I-80 serve as barriers between the adjacent areas, with I-80 and the Garden Highway functioning as partial barriers since I-80 occurs as a bridge and Garden Highway is a small highway with periods of infrequent traffic where terrestrial wildlife may cross the road.

The Study Area is not included in any corridors mapped by the California Essential Habitat Connectivity project and does not provide any unique movement or dispersal habitat relative to surrounding lands for several miles in all directions. The Project site and surrounding lands, which consist predominately of row crop agriculture and urban development provide limited dispersal habitat. Currently, the Sacramento River west of the Study Area and associated riparian communities provide a dispersal habitat for wildlife movement in the region. No significant impacts to wildlife corridors would occur as a result of the proposed Project. In addition, open space and agricultural lands will be preserved, which may provide some benefit to dispersing wildlife. Impacts to wildlife corridors resulting from the proposed Project would be less than significant.

5.6 LOCAL POLICIES

5.6.1 Swainson's Hawk Mitigation Fee Program

The County Code and the General Plan provide protection for SWHA habitat. The County Code requires project proponents to provide Title or Easement to approved SWHA mitigation lands, with one acre preserved for each one-acre impacted. Removing or otherwise affecting Swainson's hawk habitat without compliance with the Swainson's Hawk Mitigation Fee Program would be a violation of local ordinances and would have a potentially significant impact. With the implementation of mitigation measures provided in Section 6, impacts to this species would be reduced to less than significant.

5.6.2 Tree Protection

The County Code and the General Plan provide protection for native oaks and other protected trees. Regulated activities include grading, trenching, or filling within the dripline, or removal, destruction, or the killing of a protected tree. Removing or otherwise affecting protected trees without a tree permit would be a violation of local ordinances and would have a potentially significant impact. With the implementation of mitigation measures provided in Section 6, impacts to protected trees would be reduced to less than significant.

5.6.3 Potential for Spread of Invasive Weeds

Ongoing agricultural activities in the Study Area likely reduce the spread of invasive species compared to leaving the land fallow because active agriculture regularly removes established vegetation and replaces it with a crop monoculture. Abandoned fields typically become overgrown with invasive species,

including host plants for agricultural pests. Converting active agricultural land to a developed community has the potential to result in increased establishment of weedy species by reducing the frequency of disturbance and would be a potentially significant impact. With the implementation of mitigation measures provided in Section 6, impacts resulting from the spread of invasive species would be reduced to less than significant.

5.7 HABITAT CONSERVATION PLANS/NATURAL COMMUNITY CONSERVATION PLANS

USFWS has approved the NBHCP and issued Incidental Take Permits to the City and Sutter County for take of federally listed species to result from urban development in the Natomas Basin. Sacramento County is not a permittee under the NBHCP, and the NBHCP does not cover urban development for unincorporated portions of Sacramento County, although the NBHCP does provide for land acquisition in these unincorporated areas on a willing-seller basis for conservation purposes. The NBHCP currently authorizes take associated with 17,500 acres of urban development in southern Sutter County and within the City and Metro Air Park (MAP) in Sacramento County.

The UWSP is located within an unincorporated area of Sacramento County within the boundaries of the NBHCP Plan Area, but not within the City of Sacramento or Sutter County Permit Areas, as defined by the NBHCP, where take of NBHCP Covered Species was previously authorized. As a result, potential effects related to the development of the UWSP were not evaluated in the NBHCP.

This BRA includes an analysis of the UWSP's effects on the special-status species covered under the NBHCP. The analysis includes two species that were heavily discussed in the NBHCP—GGS and Swainson's hawk. The NBHCP's goals and objectives place a high priority on the preservation and long-term management of high-quality habitat for GGS and Swainson's hawk in the Natomas Basin, which by default benefits the other 20 Covered Species. The NBHCP established a program to allow development in the Basin while maintaining the long-term viability of the Covered Species by allowing 17,500 acres of authorized development to occur within the City of Sacramento, Sutter County, and MAP and establishing 8,750 acres of reserves to offset the effects resulting from authorized development.

5.7.1 Potential Effects to NBHCP Conservation Strategy Key Components

The Study Area was evaluated to identify the potential effects of the proposed development on key components of the NBHCP[4] (taken from Chapter IV, Section C.1 of the NBHCP), which were developed to mitigate for 17,500 acres of urban development projected in 2003. The NBHCP key components are as follows:

a. Basis for 0.5 to 1 mitigation ratio (Section IV.C.1.a),

b. Preparation of site-specific management plans (SSMPs) (Section IV.C.1.b),

c. Buffers within the reserve lands (Section IV.C.1.c),

d. Connectivity (Section IV.C.1.d),

[4] The key component related to vernal pools is excluded from this EA as there is no vernal pool habitat within the UWSP.

e. Foraging habitat (Section IV.C.1.e), and

f. 2,500-acre/400-acre minimum habitat block size requirements (Section IV.C.1.f).

The goal of the NBHCP is the conservation of Covered Species through the acquisition (conservation easement or fee title), protection, and enhancement of existing habitats in the Natomas Basin, minimizing impacts of Covered Activities, including development activities, water facility maintenance, and reserve management activities, and focusing upon the preservation of the overall habitat values in the Natomas Basin. The NBHCP was developed to allow some urban development to occur, while ensuring that habitat values are maintained and increased, to the maximum extent practicable, within the Natomas Basin. The NBHCP sets forth guidelines and practices including the size and acreage of reserves to be established, acquisition criteria for upland and wetland areas to be acquired and managed by TNBC, and reserve management practices to be employed to ensure successful habitat enhancement to support the Covered Species.

The Study Area supports suitable habitat for most of the NBHCP Covered Species; however, the Study Area is adjacent to and largely surrounded by existing urbanized areas and is partially bisected by a peninsula of existing urban development.

The potential effects related to the development of the UWSP on key NBHCP components are discussed in the following sections.

5.7.2 Mitigation Ratio

The NBHCP proposed a minimum 0.5-to-1 mitigation ratio to be applied to authorized development covered under the NBHCP. In describing the basis for the 0.5:1 mitigation ratio, the NBHCP states that the 0.5:1 ratio mitigates the impacts of the incidental take authorized under the NBHCP because much of the land to be developed does not provide habitat or provides only marginal habitat, and the TNBC-managed reserves will provide habitat of higher quality than the eliminated habitat. The UWSP would not alter the habitat value of land authorized for development under the NBHCP and, as further discussed in Section 5.7.3 and Section 5.7.4 below, would not adversely affect the habitat value of existing TNBC reserves established under the NBHCP. Therefore, the UWSP would not affect the efficacy of the 0.5:1 mitigation ratio identified by the NBHCP. Although the UWSP would result in the net conversion of 1,529.7-acre acres of agricultural land and open space to urban development in addition to the 17,500 acres of permitted development under the NBHCP, the UWSP would fully mitigate that loss by preserving habitat of higher quality than the habitat that would be adversely affected by the development of the UWSP. This would provide higher quality habitat for protected species and other more common species that would be preserved in perpetuity and not subject to urban disturbances. The conversion of agricultural land to urban development proposed by the UWSP would therefore result in a minimal change to the conditions in which the NBHCP conservation strategy anticipated and is currently being implemented.

The UWSP would not alter the habitat value of land authorized for development under the NBHCP and would not adversely affect the habitat value of TNBC reserves established under the NBHCP; therefore, the UWSP would not affect the effectiveness of the 0.5-to-1 mitigation ratio for the 17,500 acres of urban development authorized by the NBHCP.

5.7.3 Site-Specific Management Plan

Development of the UWSP is not anticipated to adversely affect any Site Specific Management Plans ("SSMPs") for existing or future TNBC reserves in the vicinity of any of the properties associated with the UWSP. TNBC prepares and implements an SSMP for each reserve that addresses the specific resources and habitat values of each reserve site, and how these will be managed in support of the goals and objectives of the NBHCP. SSMPs for each existing TNBC reserve are currently designed to maximize benefits to NBHCP Covered Species using the resources within that individual reserve or reserve block and incorporate adaptive management strategies. Thus, changes in land use outside of an existing TNBC reserve are unlikely to necessitate changes to an SSMP. Although the UWSP would reduce available Swainson's hawk foraging habitat within the UWSP, which is in the vicinity of two existing TNBC reserves, this external factor would not alter the site-specific management of either nearby reserve. The two reserves include the 50-acre "Alleghany" property, which is part of the NBHCP reserve system managed by TNBC, and the approximately 56-acre Cummings Reserve, which is also part of the NBHCP reserve system, lies just north of the UWSP Agricultural Buffer Area, and west of the northernmost portion of the UWSP development area. The Allegheny Reserve will be embedded within the proposed Agricultural Buffer planned for the UWSP and thus would not be anticipated to be affected by development (**Appendix A, Figure 7, Natomas Basin Conservancy Mitigation Lands as of 2023**).

The proposed Agricultural Buffer is a ±505-acre area located between Garden Highway and the Study Area. This area contains Ag Residential and Ag Cropland land use designations and is utilized for small-scale farming and habitat mitigation. This area also contains ±33.6 acres of Open Space intended to provide a buffer between the agricultural and mitigation lands and proposed development. Included in this Open Space is a ±24.2-acre Open Space area providing a 250-foot setback from the south levee of Fisherman's Lake and the ±12.1-acre 30-foot to 50-foot West Edge Corridor. The Agricultural Buffer is not included in the County's growth lines; as such, existing farming operations and habitat are expected to continue, and the Agricultural Buffer will provide a physical separation between the development area and residential uses along Garden Highway.

Agricultural lands and their associated buffers can provide habitat for a variety of protected and common species. These lands often contain valuable nesting and foraging habitat for SWHA and other avian species, and if canals or other waterways are present, can also provide habitat for aquatic species such as GGS and western pond turtle. Agricultural land adjacent to existing preserved land can extend habitat values of the preserve into the adjacent agricultural land and provide connectivity to other areas, unlike urban or other more populated or impacted areas.

Changes in land use outside of an existing TNBC reserve as a result of the development of the UWSP are unlikely to necessitate changes to existing SSMPs.

5.7.4 Buffers within Reserve Lands

Per the NBHCP, buffers ranging from 30- to 70-foot-wide strips of native or ruderal vegetation along the edge of the reserve are often incorporated into TNBC reserves to minimize the effects of incompatible adjoining land uses. The NBHCP includes a requirement that reserves be initially sited at least 800 feet from existing or planned urban lands at the time of acquisition (City of Sacramento *et al*. 2003, page IV-16). The UWSP includes a 536.2-acre Agricultural Buffer Area. Certain project-related improvements are proposed within the Buffer Area, including roadway extensions with tie-ins to the Garden Highway, the

construction of which will necessitate the reworking of existing levees and patrol roads, and the grading of levee side slopes.

The Agricultural Buffer Area includes the Alleghany property and is adjacent to the Cummings Reserve to the north. The Alleghany property is located directly north of the proposed San Juan Road tie-in to Garden Highway. While the southern portion of the property, which borders San Juan Road, may experience temporary impacts during the improvement activities, it's important to note that these improvements will be carried out on an existing section of San Juan Road. An SSMP has been prepared for the preserve and should be reviewed to provide further clarification regarding the preserve boundary in relation to the existing road. To support minimal impacts to the preserve during the improvement activities, measures similar to those currently in place are expected to be implemented. For instance, access roads have already been created off San Juan Road adjacent to the southwestern corner of the preserve for a SAFCA levee improvement project.

Development of the north end of the UWSP is buffered from the Cummings Reserve by a proposed 250-foot Open Space corridor to the south of Fisherman's Lake Slough. Thus, planned urban development within the UWSP is not adjacent to existing TNBC reserves, and would, therefore, not alter the effectiveness of buffers within these reserve lands. As a result, implementation of the UWSP will not affect buffers within existing TNBC reserves.

5.7.5 Habitat Connectivity

The UWSP is not expected to significantly affect the connectivity of reserve habitat relative to avian species covered under the NBHCP due to their highly mobile and migratory nature. Most of the avian species that frequent the Natomas Basin and the TNBC reserves are migratory in nature, and no effects on habitat connectivity of TNBC reserves for avian species are anticipated due to the development of the Study Area. The Allegheny Reserve, recently acquired as part of SAFCA lands along the western border, will be embedded within the planned 542.4-acre Agricultural Buffer and thus would remain connected through the SAFCA lands to the north.

The NBHCP emphasizes maintaining connectivity of aquatic habitat between TNBC reserves to facilitate GGS movement within the Natomas Basin. This species is focal for two reasons: (1) GGS is the most prevalent Covered Species within the Basin that requires land/water connectivity to travel within the Basin, and (2) if adequate connectivity is provided for GGS, then it is anticipated that other Covered Species will also be afforded adequate opportunities to migrate within the Natomas Basin.

Aquatic habitat in the Natomas Basin consists primarily of drainage and flood control channels. RD 100, a public agency, operates the primary drainage canals within the Natomas Basin and is responsible for conveying and pumping nonurban stormwater runoff from the Natomas Basin. Runoff from agricultural lands within the Natomas Basin flows into numerous local drainage ditches that ultimately flow into the primary RD 1000 canals. RD 1000's primary system of interior drains includes the following:

- The East Drainage Canal conveys drainage water from the northern and eastern Natomas Basin to its confluence with the Main Drainage Canal northwest of the I-80/I-5 interchange. At its closest point, the East Drainage Canal is approximately 70 feet from the Study Area.

- The West Drainage Canal conveys drainage water from the western Natomas Basin northwest of Sacramento International Airport to its confluence with the Main Drainage Canal. Fisherman's

Lake, a natural slough, is a portion of the West Drainage Canal. The West Drainage Canal intersects with a small portion of the Study Area due to off-site improvements at the intersection of El Centro Road.

- The Main Drainage Canal conveys the combined flows of the East and West Drainage Canals from their confluence northwest of the I-80/I-5 interchange through portions of Willow Creek and Metro Center south of I-80. The Main Drainage Canal is within the Study Area at the confluence of the West and Main Drainage Canals.

- The Cross Canal conveys drainage water from central portions of Sutter County westward to the Sacramento River. The Cross Canal connects with the Sacramento River approximately 11.25 miles north of the Study Area.

- The Natomas East Main Drainage Canal conveys drainage water from Dry Creek, Arcade Creek, and a large portion of the Natomas area north of the confluence with Dry Creek. The Natomas East Main Drainage Canal is also referred to as Steelhead Creek. The Natomas East Main Drainage Canal is 1.3 miles from the Study Area.

In addition, NCMWC, a private water company, provides irrigation water through water diversions at five locations along the Sacramento River and the Natomas Cross Canal and distributes this water throughout the Basin through a series of canals and pump stations. These drainage and irrigation canals form a network throughout the Natomas Basin and provide a series of interconnected corridors for aquatic species to disperse and forage.

Pinch points for wildlife movement exist at culvert locations throughout the network of canals and ditches. While some species will utilize culverts, many do not and instead attempt to travel overland trying to cross major roads to return to aquatic habitat on the opposite side. In general, the use of culverts decreases with their length and with the presence of fencing or debris pits; conversely, the use of culverts increases with the presence of adjacent habitat or cover, roadside fencing that "funnels" animals towards culverts, and increased visibility through the culvert (Yanes 1995; Rodriguez *et al*. 1996; Clevenger *et al*. 2001; Forman *et al*. 2003; Ng *et al*. 2004).

Implementation of the UWSP will result in the loss of approximately 18.77 acres of existing canals and irrigation ditches (**Appendix A, Figure 8, Impacts to Upper Westside Specific Plan Aquatic Resources Map**). A few aquatic features are incorporated into the UWSP proposed development for recreation (e.g., biking and pedestrian walkways) but will not be connected to the Natomas Basin irrigation or drainage system. Currently, the Study Area is a partially fragmented, somewhat isolated patch of agricultural land surrounded on its eastern, northeastern, and southeastern boundaries by the dense urban environs of the City of Sacramento. The western boundary of the Study Area abuts Garden Highway, which parallels the Sacramento River. The western portion of the northern boundary (approximately 0.75 mile) abuts TNBC preserve lands, whereas the remaining eastern portion of the northern boundary (approximately 0.75 mile) abuts the City of Sacramento. For GGS, a highly mobile but largely aquatic species, the majority of the Study Area is essentially a dead-end as it is cutoff from potentially suitable GGS habitat to the south, east, and west. The impacts within West Drainage Canal are considered temporary, and the habitat would remain hydrologically connected to Fisherman's Lake after culvert replacement. Given that the majority of the UWSP development area does not currently provide connectivity of reserves or habitats, it would not reduce such connectivity following development, even though the removal of canals and ditches within the Study Area will eliminate the

Study Area from use by GGS, WPT, and other aquatic species. Further, off-site mitigation for the UWSP would be sited, to the extent feasible, to enhance connectivity between existing reserves or more conducive GGS habitats within the Natomas Basin.

5.7.6 SWHA Foraging Habitat

As stated in the NBHCP, suitable cover types for foraging habitats include, in order of suitability: (1) native grassland; (2) agriculture soon after discing; (3) alfalfa and other hay crops;(4) fallow fields; (5) lightly grazed pasture; (6) combinations of hay, grain, and row crops; (7) rice fields prior to flooding and after draining; and (8) heavily grazed pasture. Unsuitable cover types for foraging habitat include vineyards, mature orchards, cotton, thistle in fallow fields, and any crop where prey are unavailable due to high vegetation height and density, as well as flooded rice fields.

Based on the analysis in this BRA, the UWSP would reduce the overall upland land cover in the Basin, providing foraging habitat for Swainson's hawk by approximately 1,573.92 acres. Pursuant to the Sacramento County Swainson's hawk mitigation ordinance, however, the project will be required to provide mitigation for impacts to Swainson's hawk foraging habitat at a 1:1 ratio (Sacramento County Code, Chapter 16.130). The majority of the UWSP's development area is currently zoned for agriculture. However, the success of the NBHCP does not require a certain amount of agricultural land remaining in the basin.

The success of the NBHCP does not require a certain amount of agricultural land remaining in the basin. For example, portions of the UWSP area, along with other "uncommitted" agricultural acreage, were acknowledged by the NBHCP to provide foraging habitat for Swainson's hawk, but such "existing baseline foraging habitat is not considered mitigation under the NBHCP" (NBHCP, IV-13). Similarly, CDFW found that the impacts of development authorized by the NBHCP were fully mitigated by the implementation of the NBHCP avoidance and minimization measures, as well as the "establishment, enhancement, and active management of as much as 8,750 acres of high-quality reserve habitat in perpetuity designed and managed specifically for the benefit of the Covered Species" (NBHCP California Endangered Species Act Findings, p. 11.). CDFW's analysis did not mention, nor rely on, any additional "uncommitted" acreage remaining in agriculture.

The NBHCP identified a corridor along the Sacramento River known as the Swainson's Hawk Zone. This zone is defined as the lands that were not developed at the time the NBHCP was approved (excluding the 252 acres of land designated "Urban" on the City of Sacramento General Plan and the North Natomas Community Plan located within the City of Sacramento) and which are located within the Natomas Basin and within one mile east of the Sacramento River and extending from the Natomas Cross Canal on the north and Interstate 80 on the south. The City of Sacramento and Sutter County have limited development within that zone as part of their permits under the NBHCP.

SWHA is a focal species that shares habitat requirements with numerous NBHCP Covered Species in addition to other special-status species not covered by the NBHCP. The effects of the UWSP on foraging habitat would not alter the viability of any of the populations of NBHCP Covered Species.

5.7.7 Giant Garter Snake Habitat

The GGS inhabits agricultural wetlands and other waterways, such as irrigation and drainage canals, rice lands, marshes, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands in the Central

Valley. This species prefers freshwater marshes and low-gradient streams, and has adapted to drainage canals and irrigation ditches for habitat.

As stated in the NBHCP, the Natomas Basin contains a fairly widespread distribution of GGS, with nearly all observations from rice field areas. Within these areas, GGS are strongly associated with the rice fields themselves and the associated canal/drain components of the water conveyance system. The NBHCP presented an estimate for the amount of GGS habitat in the Natomas Basin at the time the NBHCP analysis was prepared by correlating it with the number of rice fields and associated canals/drainages in the Natomas Basin. At that time, these were estimated at 22,692 acres of rice fields and about 247 miles of canals and drains.

However, as stated in Section 5.2.3.1, due to the presumed infrequent use of the Study Area by foraging GGS and the Study Area's geographic location surrounded on three sides by barriers to more suitable habitat, the loss of habitat in the Study Area would not adversely affect GGS, and the overall effect of the Study Area on population viability would be minimal. The impacts within West Drainage Canal are considered temporary, and the habitat would remain hydrologically connected to Fisherman's Lake after culvert replacement. Although some potentially suitable habitat may be lost or temporarily impacted because of the construction of the Study Area proposed development, the outcome of that development will be the procurement of additional reserves of natural habitat for GGS. Habitat preservation ensures that suitable aquatic habitat and upland hibernacula will remain in perpetuity for the benefit of GGS. GGS will benefit from the addition of new lands complementing the existing TBNC preserve system that will be acquired to mitigate for the loss of habitat in the Study Area.

5.7.8 Minimum Block Size

The NBHCP stipulates that, by the end of its 50-year life span, the TNBC reserve system will have reached 8,750 acres with one habitat block at least 2,500 acres in size and the balance of reserve lands in habitat blocks of at least 400 acres in size. The NBHCP provides following the basis for the size requirements:

1. Large blocks minimize the "perimeter effect";

2. Large blocks promote biodiversity by allowing multiple species and niches to occupy the site;

3. The benefit to the genetic diversity of dispersing interconnected reserves throughout the Natomas Basin; and

4. The 400-acre reserve size is considered the minimum size to allow the persistence of Covered Species.

Implementation of the UWSP would not prevent TNBC from establishing 8,750 acres of reserves in the Natomas Basin as identified in the NBHCP as the Study Area constitutes only 3.86 percent of the acreage in the Natomas Basin.

The NBHCP is now about 20 years into that 50-year timeframe, and it has already successfully completed its largest land acquisition milestone by completing the 2,500-acre block requirement (Table 5). The requisite 2,500-acre block is made up of the following preserves, as shown on the NBHCP "2023 Base Map." **Figure 7** provides a visual representation of the preserves in relation to UWSP.

Table 5
NBHCP 2,500-ACRE BLOCK ACREAGE

Tract	Acq. Date	Acres
4. Bennett North	05.17.99	227
5. Bennett South	05.17.99	132
7. Lucich South	05.18.99	352
14. Atkinson	06.12.03	181
15. Ruby Ranch	06.23.03	91
16. Huffman West	09.30.03	158
17. Huffman East	09.30.03	136
21. Bolen North	04.29.05	114
22. Bolen South	04.29.05	102
23. Vestal	09.12.05	95
24. Bolen West	09.01.06	155
25. Nestor	09.01.06	233
31. Lauppe South	06.30.20	172
32. Verona (CE)	07.02.20	116
34. Willey	10.19.20	108
36. Lauppe North	01.05.22	185
Total Acres in Block:		2557

Source: The Natomas Basin Conservancy, 2023 Base Map (https://natomasbasin.org/maps/; accessed 4-21-23).

With regard to habitat blocks of at least 400 acres, as shown on **Figure 7** the nearest NBHCP habitat blocks to the UWSP site include the Rosa East, Rosa Central, Souza, and Natomas Farms reserves totaling approximately 301 acres, and the Cummings and Rudin reserves, totaling approximately 109 acres. (See The Natomas Basin Conservancy, 2023 Base Map (https://natomasbasin.org/maps/; accessed April 21, 2023). The UWSP site does not include the property lying between these two nearby clusters of reserve land and would not preclude the future acquisition of connectivity between those two areas by TNBC.

Thus, when looking at all the above factors, the UWSP will not reduce the effectiveness of the NBHCP's operating conservation strategy.

6.0 PROPOSED MITIGATION MEASURES

The proposed mitigation measures for the Plan Area for reducing and avoiding UWSP impacts to special-status species and habitats are presented below. These avoidance and minimization measures would protect special-status species during construction activities within the Plan Area as well as during the development of the on- and off-site Reserves. Species with and without specific conservation measures will benefit from the habitat enhancement and preservation element through the project's regulatory permitting process, which includes establishing conservation reserves for the benefit of all the Covered Species.

In light of the unique circumstances associated with the location of the UWSP and surrounding HCPs, a biological conservation strategy will be prepared to characterize baseline ecological conditions within the UWSP, define resource conservation goals and objectives for the UWSP, and describe proposed conservation measures identified to avoid, minimize and/or reduce resource impacts during project implementation, as well as to identify proposed feasible/practicable mitigation options for project-

related impacts to biological and agricultural resources. Additionally, an effects analysis of the Upper Westside Specific Plan will be prepared and include an evaluation of the potential effects of implementation of the proposed UWSP on species covered by the Natomas Basin Habitat Conservation Plan, as well as potential effects to the NBHCP, including the ability of the NBHCP to achieve adopted goals and objectives. These documents will also outline anticipated regulatory authorizations required for the development of the UWSP and preliminary strategies to obtain required regulatory authorizations.

Known or potential biological constraints in the Study Area include the following:

- Potential habitat for special-status plants, including wooly rose-mallow and Sanford's arrowhead
- Potential habitat for special-status wildlife, including valley elderberry longhorn beetle, giant garter snake, western pond turtle, tricolored blackbird, Swainson's hawk, burrowing owl, loggerhead shrike, white-faced ibis, pallid bat, and migratory birds;
- Protected trees and canopy;
- Invasive Species; and
- Jurisdictional waters of the U.S and State.

6.1 Special-Status Plant Species

As discussed previously, potentially suitable habitat is present for special-status plant species, including woolly-rose mallow and Sanford's arrowhead that are known to occur in the vicinity of the Study Area.

A qualified botanist should conduct one botanical survey in July within the Study Area, which will overlap with the typical identification period of both potentially occurring special-status plant species. It should be noted that weather conditions during any given survey year may require surveys to be conducted earlier or later in the typical blooming period in order to conduct the survey during the appropriate weather conditions. This timing may result in the need to conduct more than one round of plant surveys to adequately survey all potentially occurring special-status plant species. The results of these surveys should be documented in a letter report to Sacramento County. If no special-status plants are observed during the botanical survey, no additional measures for special-status plants are recommended.

If any of the non-listed special-status plants are identified within areas of potential construction disturbance, the plants and/or the seedbank should be transplanted to suitable habitat within the Study Area outside of the project footprint or off-site if suitable habitat is not available within the Study Area. A qualified biologist should prepare an avoidance and mitigation plan detailing protection and avoidance measures, transplanting procedures, success criteria, and long-term monitoring protocols. In addition, pre-construction worker awareness training should be conducted, alerting workers to the presence of and protections for special-status plants in the vicinity of the work area.

In the absence of the proposed mitigation measures, potential adverse effects to special-status plants could include take of individuals during construction.

MM BIO-1a To avoid impacts to special-status plants, the following mitigation measures are recommended:

- Prior to the start of construction, a qualified biologist shall conduct focused survey(s) for wooly rose-mallow and Sanford's arrowhead within suitable habitat on the Study Area during the appropriate blooming season (June-September for wooly-rose mallow, May - October for Sanford's arrowhead). Multiple surveys may be required to determine the status of these species in the Study Area. If survey results are negative, no further mitigation would be necessary.

- If special-status plants are documented on the site, a report shall be submitted to CNDDB to document the status of the species on the site. If the project is designed to avoid impacts to habitat for special-status plants and/or individuals and habitat, no further mitigation for special-status plants would be necessary.

- If special-status plants are documented within the site, and project impacts to individuals and habitat are anticipated, the project shall be designed to avoid impacts to special-status plants if feasible. If it is not feasible to avoid impacts to this species, consultation with USFWS and/or CDFW shall be conducted to develop a mitigation strategy. The proponent shall notify USWFS and/or CDFW, providing a complete description of the location, size, and condition of the occurrence, and the extent of proposed direct and indirect impacts to it. The project proponent shall comply with any additional mitigation requirements imposed by USFWS and/or CDFW. Additional requirements could include but are not limited to, obtaining take authorization if necessary, the development of a plan to relocate special-status plants (seed, propagules, etc.) to a suitable location outside of the impact area, and monitoring the relocated population to demonstrate transplant success.

6.2 Valley Elderberry Longhorn Beetle

Based on numerous CNDDB records in riparian habitat along the Sacramento River (CDFW 2023) adjacent to the Study Area, elderberry shrubs that may provide habitat for VELB may occur in valley oak woodland in the Study Area. If elderberry shrubs are present in the Study Area, then VELB may occur in the Study Area and be impacted by the proposed project. If elderberry shrubs are determined to be present, then coordination with USFWS will be required to obtain concurrence on the potential for this species to be present in the Study Area and/or be impacted by the proposed project as well as to develop mitigation measures to avoid any potential take of the species. To avoid potential impacts to this species, the following measures are provided as recommendations, but potential impacts to this species and/or potentially suitable habitat for this species will require formal consultation with USFWS as required under Section 7 of the Endangered Species Act due to anticipated permitting associated with the project.

Conservation practices for the VELB set forth in the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*, dated May 2017 (Framework) (USFWS 2017) should be followed. The Framework assumes that any effects to riparian habitat with elderberry shrubs present or effects to any elderberry shrub with exit holes in non-riparian areas within the range of the species are likely to result in adverse effects to VELB and must be mitigated according to the Framework. The measures provided below are consistent with Framework.

MM BIO 2a A pre-construction survey will be conducted prior to construction-related ground disturbance by a qualified biologist. If such survey determines VELB habitat is present (elderberry shrub within project footprint and if exit holes are present in stems greater than one-inch in diameter), the Implementing/lead agency shall require the developer to follow the following appropriate measures to avoid take and minimize of individuals:

- If elderberry shrubs are found on or adjacent to the site, a 100-foot wide avoidance buffer (measured from the dripline of the plant) will be established around all elderberry shrubs with stems greater than one-inch diameter at ground level and will be clearly identified in the field by staking, flagging, or fencing. No construction activities involving mechanized equipment will occur within the buffer areas. Human access may be permitted in the buffer, provided that it does not cause disturbance to the shrubs.

- Compensatory mitigation for adverse effects may include the transplanting of elderberry shrubs during the dormant season (November 1 to February 15), if feasible, to an area protected in perpetuity as well as required additional elderberry and associated native plantings as approved by the USFWS.

- If off-site compensation includes the dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan and must occur with full endowments for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations.

MM BIO 2b If elderberry plants cannot be avoided, or if project activities will result in the death of stems or the entire shrub, they shall be transplanted during the dormant season (November 1 to February 15) to an area protected in perpetuity and approved by the USFWS.

- The elderberry shrub will be cut back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1 inch or greater in diameter at ground level will be replanted. Any leaves remaining on the plant will be removed.

- A hole will be excavated of adequate size to receive the transplant.

- The elderberry shrub will be excavated using a Vermeer® spade, backhoe, front-end loader, or other suitable equipment, taking as much of the root ball as possible, and will be replanted immediately. The plant will only be moved by the root ball. The root ball will be secured with wire and wrapped with damp burlap. The burlap will be dampened as necessary to keep the root ball wet. Care will be taken to ensure that the soil is not dislodged from around the roots of the transplant. Soil at the transplant site will be moistened prior to transplant if the soil at the site does not contain adequate moisture.

- Replacement seedling plants will be provided at a ratio of 2 to 1 to 5 to 1 depending on the extent of VELB utilization of the plants moved or lost. An 1,800-square-foot area will be provided for each transplanted elderberry shrub or every five elderberry seedling plants.

MM BIO 2c Annual monitoring of VELB habitat will be provided in the planted mitigation sites for a 10-year period.

- Replacement elderberry shrubs will meet a 60% survival rate by the end of the 10-year period and the 60% survival rate shall be required for the term of the applicable permit.
- Final habitat acreages, mitigation ratios, and other project-specific compensatory mitigation requirements should be determined through consultation between USACE/USFWS/CDFW as part of the required project-specific regulatory permitting processes, currently anticipated to consist of Section 404 Authorization/FESA Section 7 Consultation/CDFW Streambed Alteration Agreement and 2081 Incidental Take Permit.

6.3 Giant Garter Snake

MM BIO-3a To avoid impacts to potential giant garter snake and their habitat, defined as 200 feet surrounding delineated aquatic resources in the project area, the following mitigation measures are recommended:

- A USFWS/CDFW–approved biologist will identify suitable giant garter snake habitat. If suitable habitat is identified, the project proponent will avoid and minimize impacts to the maximum extent practicable. Avoidance measures should include relocating impacts away from the habitat. Avoidance and minimization measures will be incorporated into the project design and other portions of the application package prior to submission for coverage under the Plan. If the project does not fully avoid impacts to suitable habitat, pre-construction surveys will be required.

- Prior to any ground disturbance related to construction activities, a USFWS/CDFW–approved biologist will conduct a pre-construction survey in construction areas identified as having suitable garter snake habitat and 200 feet of adjacent uplands, measured from the outer edge of each bank. The surveys will delineate suitable habitat and document any sightings of giant garter snake.

- If impacts on giant garter snake habitat as a result of construction activities are not avoided, the following measures will be implemented. These measures are based on USFWS's Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat (USFWS 1999).

    - Limit construction activity that disturbs habitat to the period between May 1 and September 30. This is the active period for giant garter snake, and direct mortality is minimized because snakes are more likely to independently move away from disturbed areas. If activities are necessary in giant garter snake habitat between October 1 and April 30, the USFWS Sacramento Field Office will be contacted to determine if additional measures beyond those described below are necessary to minimize and avoid take.

  - In areas where construction is to take place, dewater all irrigation ditches, canals, or other aquatic habitat between April 15 and September 30, to remove habitat of garter snakes. Dewatered areas must remain dry, with no puddled water remaining, for at least 15 consecutive days prior to the excavation or filling of that habitat. If a site cannot be completely dewatered, netting and salvage of prey items may be necessary.

- If suitable habitat for giant garter snake cannot be avoided between October 1 and April 30, the USFWS Sacramento Field Office will be contacted to determine if additional measures beyond those described below are necessary, and the following actions will be performed. A USFWS-approved biologist will conduct a construction survey no more than 24 hours before construction in suitable habitat and will be on-site during construction activities in potential aquatic and upland habitat to monitor construction and watch for the presence of giant garter snake. The biologist will provide USFWS with a field report form documenting the monitoring efforts within 24 hours of the commencement of construction activities. The monitor will be available thereafter. If a snake is encountered during construction activities, the monitor will have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed. Giant garter snakes encountered during construction activities should be allowed to move away from the construction area on their own. Only personnel with a USFWS recovery permit pursuant to Section 10(a)(1)(A) of the ESA will have the authority to capture and/or relocate giant garter snakes that are encountered in the construction area. The project area will be reinspected whenever a lapse in construction activity of two weeks or more has occurred.

- To preserve nearby aquatic habitat for giant garter snake outside construction areas from potential effects of construction, silt fencing will be erected to clearly define the aquatic habitat to be avoided; restrict working areas, spoils, and equipment storage and other project activities to areas outside of aquatic or wetland habitat; and maintain water quality and limit construction runoff into wetland areas through the use of fiber bales, filter fences, vegetation buffer strips, or other appropriate methods.

  - Fill or construction debris may be used by giant garter snakes as over-wintering sites. Therefore, upon completion of construction activities, any temporary fill or construction debris must be removed from the site.

- Construction personnel will be trained to avoid harming giant garter snakes. A qualified biologist approved by USFWS will inform all construction personnel about the life history of giant garter snakes; the importance of irrigation canals, marshes/wetlands, and seasonally flooded areas such as rice fields to giant garter snakes; and project mitigation related to avoiding and minimizing impacts on giant garter snake.

MM BIO-3b If suitable habitat for giant garter snake cannot be avoided, compensatory mitigation for adverse effects to habitat may include preserving, creating, and/or enhancing upland and/or aquatic habitats in perpetuity at a location and ratio approved by the USFWS.

- If off-site compensation includes the dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures will be included in the mitigation plan and must occur with funding for management in perpetuity. The plan will include information on responsible parties for long-term management, holders of conservation easements, long-term management requirements, and other details, as appropriate, for the preservation of long-term viable populations.

6.4 Western (Northwestern) Pond Turtle

The Project Area provides aquatic habitat suitable to support this species, with marginal upland habitat also present.

MM BIO-4a To avoid impacts to potential western pond turtle and their habitat The following mitigation measures are recommended:

- A qualified biologist should conduct a pre-construction survey within 14 days prior to the start of ground disturbance within 500 feet of riparian habitat or intermittent drainage. If no western pond turtles are observed, no additional measures are recommended. If construction does not commence within 14 days of the pre-construction survey, or halts for more than 14 days, a new survey is recommended.

- If western pond turtles are found, additional avoidance measures are recommended, including having a qualified biologist conduct a pre-construction survey within 24 hours prior to the commencement of construction activities, performing a Worker Awareness Training to all construction workers, and being present on the site during grading activities within 500 feet of the intermittent drainage and their surrounding riparian habitat for the purpose of relocating any western pond turtles found within the construction footprint to suitable habitat away from the construction zone, but within the property.

6.5 Tricolored Blackbird And Other Special-Status Birds (Loggerhead Shrike) And Nesting Migratory Birds And Raptors

Special-status birds and migratory birds and raptors protected under federal, State, and/or local laws and policies have the potential to nest and forage within the Study Area. Tricolored blackbird may nest and forage within the Study Area. Other migratory bird species have the potential to nest and forage within the Study Area. The Study Area and adjacent land contain suitable habitat to support a variety of nesting birds within trees, shrubs, structures, and on bare ground.

Active nests and nesting birds are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513, and the MBTA. Ground-disturbing and other development activities, including grading,

vegetation clearing, tree removal/trim, and construction could impact nesting birds if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting birds, all ground-disturbing activities should be completed between September 1 and January 31, if feasible.

MM BIO-5a If construction cannot occur outside of the nesting season, the following measures are recommended to avoid impacts to special-status and nesting migratory birds:

- If construction activities occur during the nesting season, a qualified biologist should conduct a nesting bird survey to determine the presence of any active nests within the Study Area. Additionally, the surrounding 500 feet of the Study Area should be surveyed for active raptor nests, where accessible. The nesting bird survey should be conducted within 14 days prior to the commencement of ground-disturbing or other development activities. If the nesting bird survey shows that there is no evidence of active nests, no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season.

- If active nests are found, then the qualified biologist should establish a species-specific buffer to prohibit development activities near the nest and minimize nest disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer should be established around the tree and all trees within the buffer should not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active.

- A qualified biologist should conduct environmental awareness training that is given to all on-site personnel prior to the initiation of work.

If construction occurs outside of the nesting bird season (September 1 to January 31), a nesting bird survey and environmental training for nesting birds would not be required.

6.6 Burrowing Owl

MM BIO-6a To avoid impacts to potential burrowing owl and their habitat The following mitigation measures are recommended:

- A qualified biologist shall conduct focused burrowing owl surveys in the Project area and surrounding 500 feet, where accessible, in accordance with the CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report), published March 7, 2012. Surveys shall be repeated if project activities are suspended or delayed more than 14 days.

    - According to the Staff Report, four survey visits shall be conducted during the breeding season (February 1 to August 31): (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after June 15.

- Non-breeding season surveys shall be conducted during four site visits, spread evenly apart.

- Take avoidance surveys may also be conducted. An initial take avoidance survey shall be conducted no less than 14 days prior to initiating ground disturbance activities using the methods outlined in the Staff Report. Implementation of avoidance and minimization measures would be triggered by positive owl presence on the site where project activities will occur. The development of avoidance and minimization approaches would be informed by monitoring the burrowing owls. Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys, including but not limited to a final survey conducted within 24 hours prior to ground disturbance.

If no burrowing owls are detected, no further measures are required. If active burrowing owl burrows are detected, the avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report on Burrowing Owl Mitigation shall be followed prior to initiating Project related activities that may impact burrowing owls.

6.7 Special-Status Birds and Nesting Migratory Birds and Raptors

MM BIO-7a To avoid impacts to potential special-status birds and nesting migratory birds and raptors, the following mitigation measures are recommended:

Active nests and nesting birds are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513, and the MBTA. Ground-disturbing and other development activities, including grading, vegetation clearing, tree removal/trim, and construction could impact nesting birds if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting birds, all ground-disturbing activity should be completed between September 1 and January 31, if feasible. If construction cannot occur outside of the nesting season, the following measures are recommended:

- If construction activities occur during the nesting season, a qualified biologist should conduct a nesting bird survey to determine the presence of any active nests within the Study Area. Additionally, the surrounding 500 feet of the Study Area should be surveyed for active raptor nests, where accessible. The nesting bird survey should be conducted within 14 days prior to the commencement of ground-disturbing or other development activities. If the nesting bird survey shows that there is no evidence of active nests no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required prior to starting or resuming work within the nesting season.

    - If active nests are found, then the qualified biologist should establish a species-specific buffer to prohibit development activities near the nest to and minimize nest disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors. Nest monitoring may also be warranted during certain phases of construction to ensure nesting birds are not adversely impacted. If active nests are found within any trees slated for removal, then an appropriate buffer should be established around the tree and all trees within the

buffer should not be removed until a qualified biologist determines that the nest has successfully fledged and/or is no longer active.

- A qualified biologist should conduct environmental awareness training that is given to all onsite personnel prior to the initiation of work.

- If construction occurs outside of the nesting bird season (September 1 to January 31), a nesting bird survey and environmental training for nesting birds would not be required.

6.8 Swainson's Hawk

MM BIO-8a To avoid impacts to potential Swainson's hawk, the following mitigation measures are recommended:

- If construction activities will begin during the Swainson's hawk nesting season (March 20 to September 15), a qualified biologist should conduct at least the minimum number of surveys called for within at least two survey periods prior to the initiation of construction in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) or the current

  CDFW-approved protocol. Current survey periods specified by the Guidelines are March 20 to April 5, April 5 to April 20, April 21 to June 10, and June 10 to July 30. All potential nest trees within 0.5 mile of the proposed Project footprint should be visually examined for potential Swainson's hawk nests, as accessible.

- If no active Swainson's hawk nests are identified on or within 0.5-mile of the proposed Project, a letter report documenting the survey methodology and findings should be submitted to the Project proponent, and no additional mitigation measures are recommended.

- If active Swainson's hawk nests (a nest becomes active once the first egg is laid and remains active until the fledged young are no longer dependent on the nest [USFWS 2018]) are found within 0.5 mile of the Project footprint, a survey report should be submitted to CDFW, and an avoidance and minimization plan should be developed for approval by CDFW prior to the start of construction. The avoidance plan should identify measures to minimize impacts to the active Swainson's hawk nest depending on the location of the nest relative to the project footprint. These measures may include:

  - Conduct a worker awareness training program prior to the start of construction;

  - Establish a buffer zone and work schedule to avoid impacting the nest during critical periods. If possible, no work will occur within 200 yards of the nest while it is in active use. If work will occur within 200 yards of the nest, then construction will be monitored by a qualified biologist to ensure that no work occurs within 50 yards of the nest during incubation or within 10 days after hatching (Swainson's Hawk Technical Advisory Committee 2000);

- Have a biological monitor conduct regular monitoring of the nest during construction activities; and

- Should the project biologist determine that the construction activities are disturbing the nest; the biologist should halt construction activities until the CDFW is consulted.

- The Study Area contains cropland habitats, which provide suitable foraging habitat for Swainson's hawks. CDFW has provided guidelines for mitigating impacts to Swainson's hawk foraging habitat as summarized below (CDFW 1994):

  a) Projects within one mile of an active nest tree shall provide:

  - One acre of foraging habitat for each acre of development at a ratio of 1:1. Mitigated lands shall consist of 10 percent of the land requirements met by fee title acquisition or a conservation easement allowing for the active management of the habitat, and the remaining 90 percent of the land protected by a conservation easement on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk (grasslands, rangeland, etc.) and no requirements for active management of the habitat; or

  - One-half acre of foraging habitat for each acre of development authorized at a ratio of 0.5:1. All the land requirements shall be met by fee title acquisition or a conservation easement, which allows for the active management of the habitat for prey production on the land. Prey abundance and availability are determined by land and farming patterns, including crop types, agricultural practices, and harvesting regimes. Actively managed land for prey production may result in the land becoming less valuable for crop production due to management limitations but increases the value for Swainson's hawk through functional lift.

  b) Projects within five miles of an active nest tree but greater than one mile from the nest tree shall provide 0.75 acre of foraging habitat for each acre of urban development at a ratio of 0.75:1. All foraging habitat may be protected through fee title acquisition or conservation easement on agricultural lands or other suitable habitats.

  c) Projects within 10 miles of an active nest tree, but greater than five miles from an active nest, tree shall provide 0.5 acre of Habitat Management land for each acre of urban development at a ratio of 0.5:1. All foraging habitat may be protected through fee title acquisition or a conservation easement on agricultural lands or other suitable habitat.

Sacramento County Office of Planning and Environmental Review (PER) assumes that parcels zoned as AG-40 (Agriculture) or larger, are considered to have 100 percent habitat value, and the value decreases as the minimum parcel size drops. Properties zoned AR-5 and smaller, parcels zoned as RD-1 thru 40, and commercial and industrial zonings retain no foraging habitat value. Parcels within the Study Area are zoned SC (Shopping Center), LC (Light commercial), and RD-40 (Multiple Family Residential) (Sacramento County 2016). With the implementation of the measures provided in Section 6.8, the

Project would not affect the viability of the SWHA population in the Natomas Basin and would contribute to the overall success of the SWHA population in the Natomas Basin and beyond.

6.9 White-Faced Ibis

The Study Area contains foraging habitat, which consists of agricultural lands, annual grasslands, fallowed crops, and ruderal areas.

MM BIO-9a To avoid impacts to white-faced ibis, the following mitigation measures are recommended:

- A qualified biologist should conduct a pre-construction survey of potential breeding and nesting habitat for presence of breeding and nesting white-faced ibis.
- No more than three days prior to construction (if occurring during the nesting season), a white-faced ibis nesting survey will be conducted.
- If surveys determine the presence of active white-faced ibis nest sites, disturbance within 0.25 mile of nests will be avoided within the nesting season of May 15 through August 31 or until a qualified biologist, with concurrence of USFWs and CDFW, has determined that young have fledged or that the nest is no longer occupied.

6.10 Pallid Bat

Pallid bat has the potential to occur within the Study Area. The Study Area provides potential foraging habitat over agricultural lands, and Fremont cottonwood and valley oak tree groves provide suitable roosting habitat for the species.

MM BIO-10a To avoid impacts to potential pallid bat, the following mitigation measures are recommended:

- A qualified biologist should conduct a pre-construction survey for special-status bat species within 14 days prior to development or ground disturbing activities, including grading, vegetation clearing, tree removal, or construction. If no bats are observed, no additional measures are recommended. If development does not commence within 14 days of the pre-construction survey, or halts for more than seven days, an additional survey is required prior to resuming or starting work.
- If special-status bats are present and roosting in the Study Area or the surrounding 100 feet of the Study Area, the qualified biologist should establish an appropriate no disturbance buffer around the roost site prior to the commencement of ground-disturbing activities or development. No trees should be removed until the biologist has determined that a roost site is no longer active, and no bats are present. If avoidance is not feasible, then the CDFW should be consulted for additional avoidance measures and additional mitigation measures, such as the installation of bat boxes or alternate roost structures.

- A qualified biologist should conduct environmental awareness training for all construction personnel prior to the initiation of work.

6.11 PROTECTED TREES AND CANOPY

MM BIO-11a The project site contains trees potentially protected by the Sacramento County Tree Preservation Ordinance. Trees on the site should be protected from removal as well as from ground disturbance within the protection zone without a tree permit from the County. Prior to any removal, or ground disturbance within a radius of one foot greater than the maximum dripline of a protected tree, a tree survey should be conducted by an ISA-Certified Arborist to document the species, size, and condition of all trees in the Study Area. A tree permit will be required prior to the removal or impact of any protected native oak tree. The person requesting the permit, or the property owner, may also be required to pay the cost of obtaining and planting the replacement trees.

Mitigation for loss of both protected oak trees and other tree canopy may be implemented as a combination of avoidance, protection, on-site replacement, where feasible, and off-site preservation or creation of oak woodland habitat. Recommended tree protection measures below include Sacramento County guidelines for protection measures to be implemented around trees that will remain in the Study Area.

- Tree Protection Fencing, consisting of four-foot tall, brightly-colored, high-visibility plastic fencing, shall be placed around the perimeter of the tree protection zone (TPZ) (dripline radius + 1 foot) on the project side of existing oak trees;

- Tree protection fencing shall not be moved without prior authorization from the Project Arborist or Sacramento County;

- No parking, portable toilets, dumping or storage of any construction materials, grading, excavation, trenching, or other infringement by workers or domesticated animals is allowed in the TPZ;

- No signs, ropes, cables, or any other item shall be attached to a protected tree, unless recommended by an ISA-Certified Arborist;

- Underground utilities should be avoided in the TPZ where feasible (as previously discussed, trenching within the dripline of trees along the western side of the existing driveway is not expected to further impact these trees);

- Cut or fill within the dripline of existing native oak trees should be avoided;

- Pruning of living limbs or roots over two inches in diameter shall be done under the supervision of an ISA-Certified Arborist; and

- Where trenching results in impacts to the roots of protected trees, the roots should be trimmed to a clean edge.

6.12 INVASIVE SPECIES

MM BIO-12a Prior to the issuance of a grading permit, the Applicant shall prepare a Weed Control Plan for review and approval by the County. Prior to the start of construction activities, the Applicant shall implement a comprehensive, adaptive Weed Control Plan for pre-construction and construction invasive weed abatement. The long-term Weed Control Plan, shall include, but is not limited to, the following:

- A pre-construction weed inventory shall be conducted by surveying all areas subject to ground-disturbing activity, including but not limited to, staging areas, access roads, and areas subject to grading.
- Weed populations that (1) are rated High or Moderate for negative ecological impact in the Cal-IPC database, and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head) shall be mapped and described according to density and area covered.
- In areas subject to ground disturbance, weed infestations shall be treated prior to construction according to control methods and practices for invasive weed populations.
- The Weed Control Plan shall be updated and utilized for eradication and monitoring postconstruction.
- Weed control treatments shall include all legally permitted herbicide, and manual and mechanical methods. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor and implemented by a Licensed Qualified Applicator.
- The timing of weed control treatment shall be determined for each plant species in consultation with USFWS with the goal of controlling populations before they start producing seeds.
- Surveying and monitoring of the identified and treated populations shall be required at all sites impacted by construction, and shall occur annually for years one to five and bi-annually for years six to ten.
- During project pre-construction and construction, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) prior to commencing work in off-road areas.

6.13 JURISDICTIONAL WATERS

MM BIO-13a Prior to the start of construction, the project proponent shall secure any required aquatic resources permits for impacts to jurisdictional waters of the U.S./State from the USACE, RWQCB, and CDFW, pursuant to Sections 404 and 401 of the Clean Water Act and Section 1600 of the Fish and Game Code and shall comply with all conditions of such permits including providing compensatory mitigation as required to achieve no net loss of wetlands or other waters.

Mitigation for potential impacts to jurisdictional waters shall consist of avoidance of preserved jurisdictional waters on or adjacent to the site. In the event such waters cannot be avoided, the project applicant shall obtain the appropriate permits and provide compensatory mitigation at a minimum of a 1:1 ratio. The type of mitigation shall be determined based upon the currently availability of mitigation options at the time of permitting.

- The Project shall be designed to avoid impacts to jurisdictional waters on and adjacent to the site. If jurisdictional waters cannot be avoided, prior to the start of construction, the Project applicant shall secure any required aquatic resources permits for impacts to jurisdictional waters of the U.S. and waters of the State from the USACE, Sacramento RWQCB, and CDFW, and shall comply with all conditions of such permits including providing compensatory mitigation as required to achieve no net loss of wetlands or other waters.

- For those waters of the U.S. and waters of the State and CDFW jurisdictional areas that are not avoided by Project construction, compensatory mitigation shall be provided. As approved by the Sacramento RWQCB and CDFW, the project applicant may purchase mitigation credits from an approved mitigation bank at a minimum 1:1 ratio or implement another method of mitigation satisfactory to the USACE, Sacramento RWQCB, and CDFW.

- Impacts shall also be minimized by the use of Best Management Practices to protect preserved waters of the U.S./State to ensure that water quality standards are not compromised in preserved wetlands and other waters within the watershed. These practices can include installing orange construction fencing buffers and straw wattles to keep fill from entering preserved/avoided wetlands and other waters, and other protective measures.

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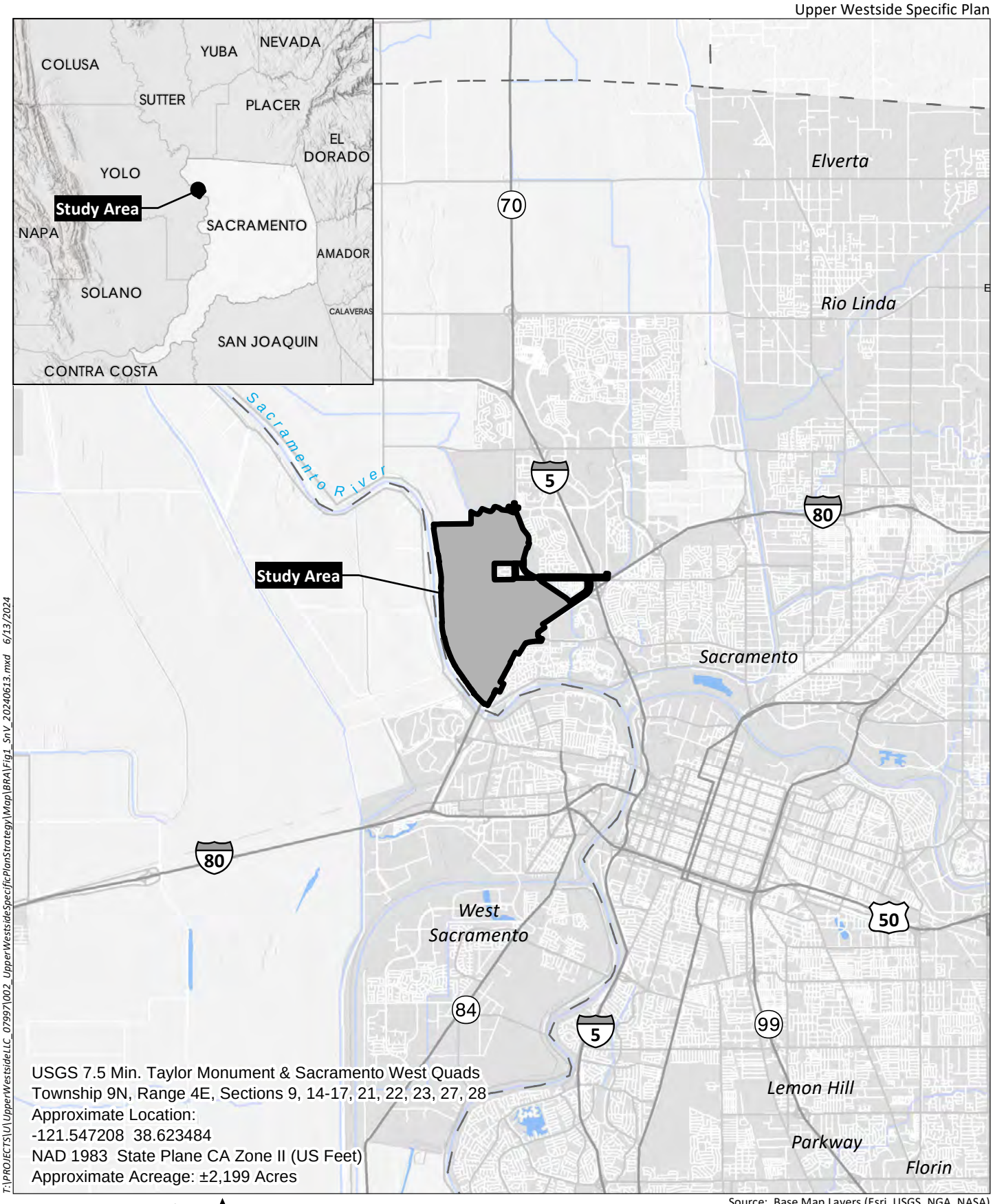
Appendix A

Figures



USGS 7.5 Min. Taylor Monument & Sacramento West Quads
Township 9N, Range 4E, Sections 9, 14-17, 21, 22, 23, 27, 28
Approximate Location:
-121.547208 38.623484
NAD 1983 State Plane CA Zone II (US Feet)
Approximate Acreage: ±2,199 Acres

T:\PROJECTS\U\UpperWestsideLLC_07997\002_UpperWestsideSpecificPlanStrategy\Map\BRA\Fig1_SnV_20240613.mxd 6/13/2024

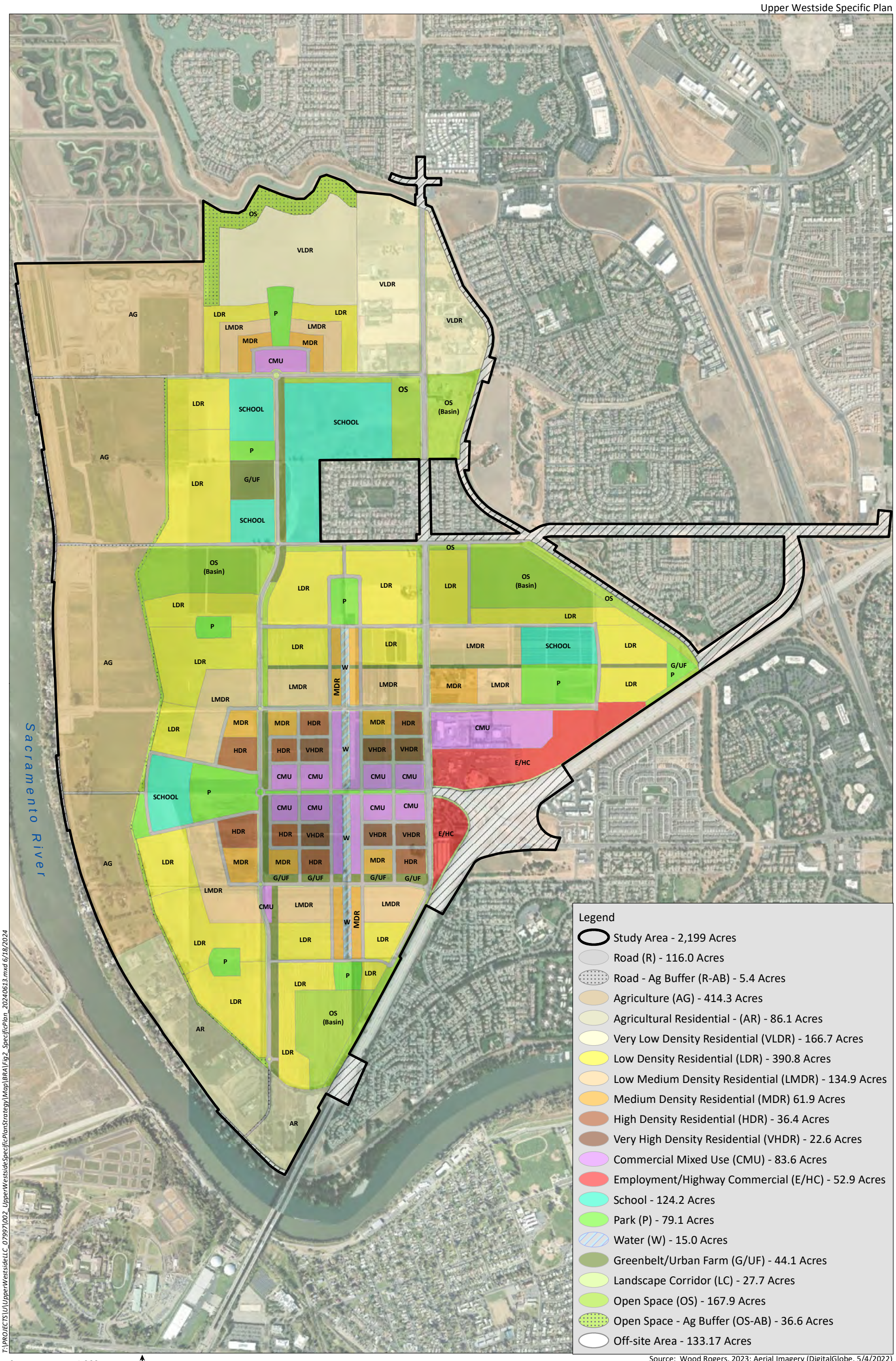
0 2 Miles

Source: Base Map Layers (Esri, USGS, NGA, NASA)

HELIX Environmental Planning

Vicinity Map

Figure 1



Source: Wood Rogers, 2023; Aerial Imagery (DigitalGlobe, 5/4/2022)

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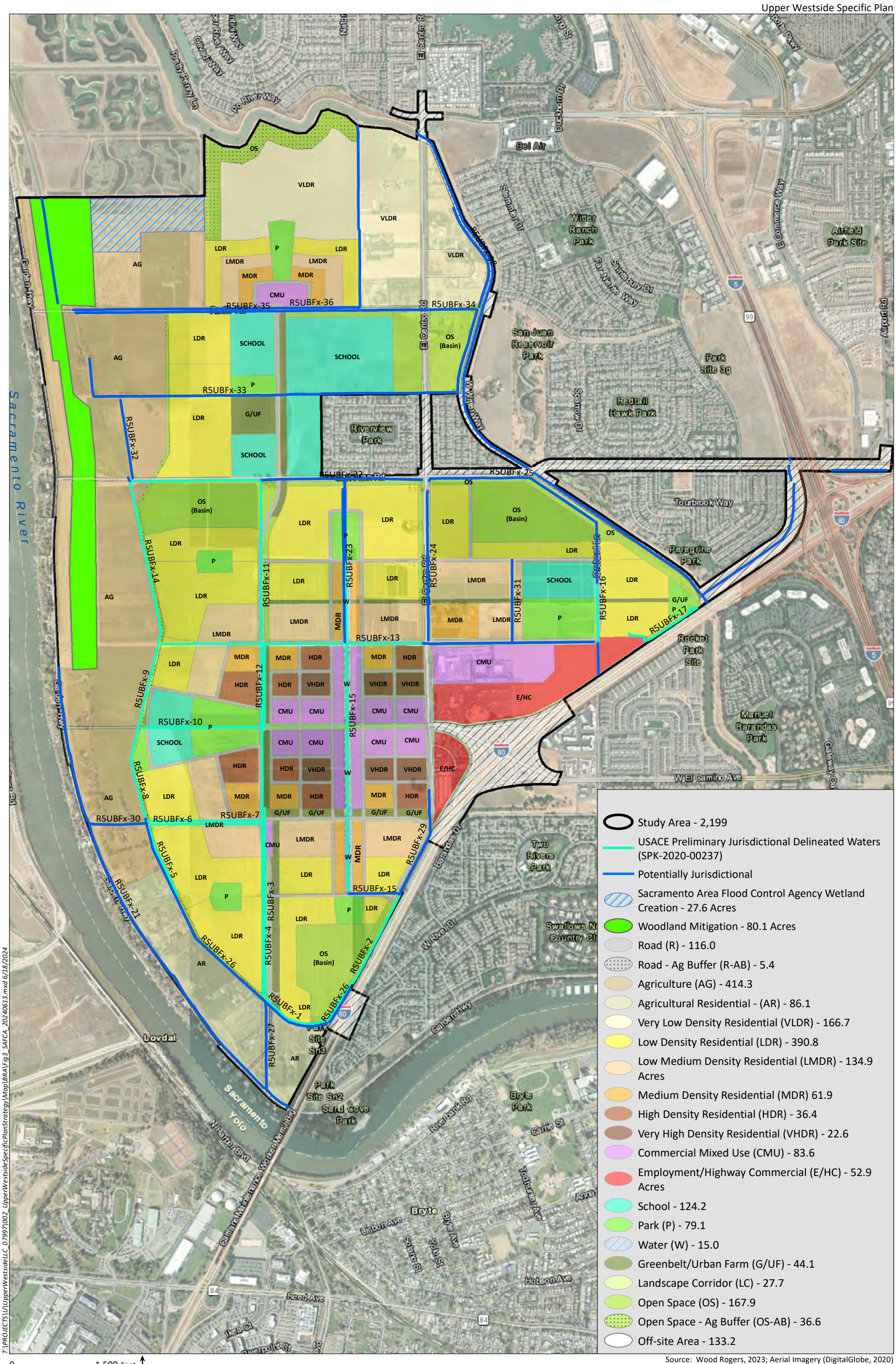
HELIX Environmental Planning

Proposed Project - Upper Westside Specific Plan

Figure 2



Source: Wood Rogers, 2023; Aerial Imagery (DigitalGlobe, 2020)

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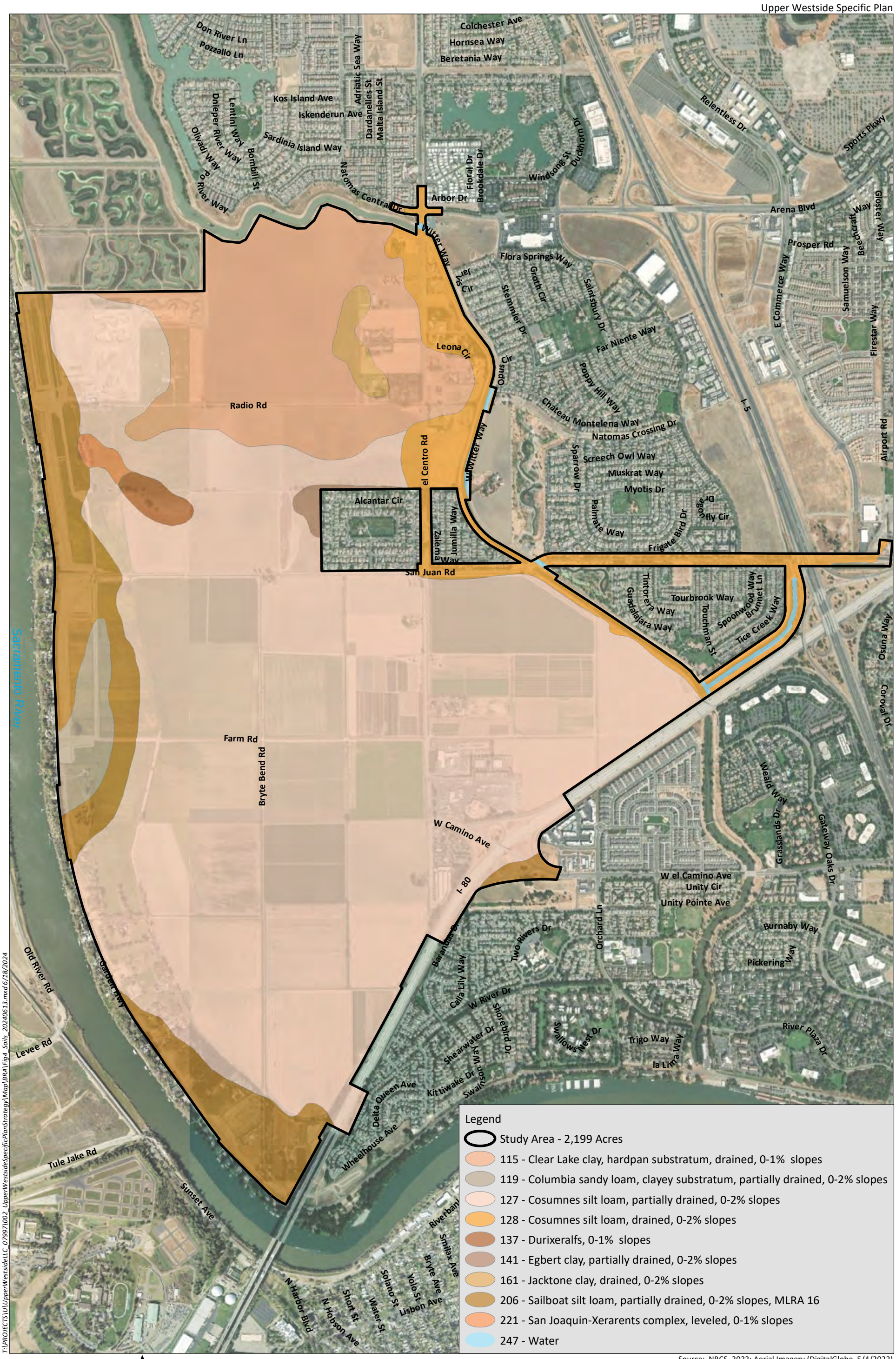
HELIX Environmental Planning

Upper Westside Specific Plan and Sacramento Area Flood Control Agency Properties

Figure 3



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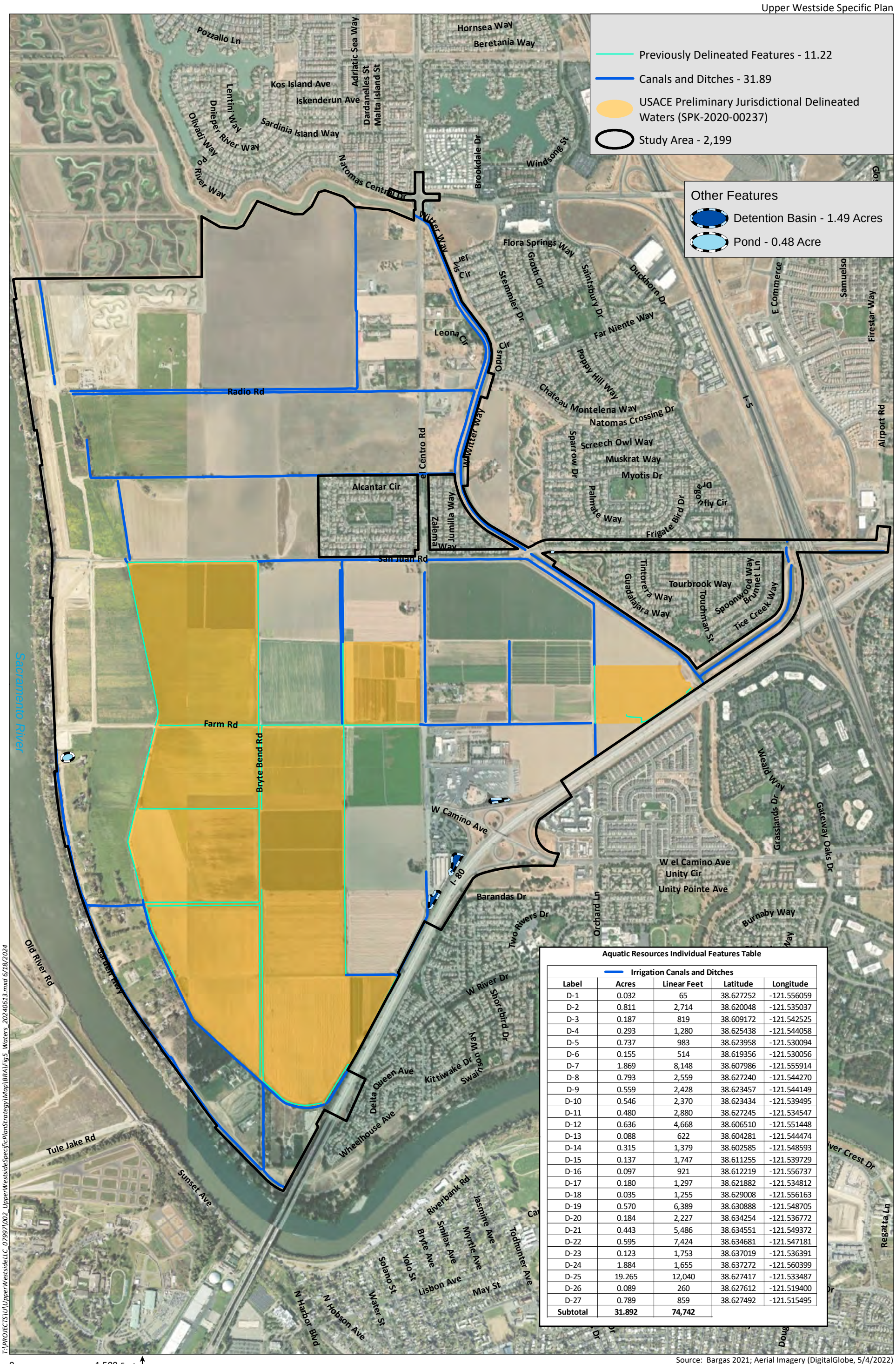
Source: NRCS, 2022; Aerial Imagery (DigitalGlobe, 5/4/2022)

HELIX Environmental Planning

Soils Map

Figure 4



Aquatic Resources Individual Features Table

Irrigation Canals and Ditches

Label	Acres	Linear Feet	Latitude	Longitude
D-1	0.032	65	38.627252	-121.556059
D-2	0.811	2,714	38.620048	-121.535037
D-3	0.187	819	38.609172	-121.542525
D-4	0.293	1,280	38.625438	-121.544058
D-5	0.737	983	38.623958	-121.530094
D-6	0.155	514	38.619356	-121.530056
D-7	1.869	8,148	38.607986	-121.555914
D-8	0.793	2,559	38.627240	-121.544270
D-9	0.559	2,428	38.623457	-121.544149
D-10	0.546	2,370	38.623434	-121.539495
D-11	0.480	2,880	38.627245	-121.534547
D-12	0.636	4,668	38.606510	-121.551448
D-13	0.088	622	38.604281	-121.544474
D-14	0.315	1,379	38.602585	-121.548593
D-15	0.137	1,747	38.611255	-121.539729
D-16	0.097	921	38.612219	-121.556737
D-17	0.180	1,297	38.621882	-121.534812
D-18	0.035	1,255	38.629008	-121.556163
D-19	0.570	6,389	38.630888	-121.548705
D-20	0.184	2,227	38.634254	-121.536772
D-21	0.443	5,486	38.634551	-121.549372
D-22	0.595	7,424	38.634681	-121.547181
D-23	0.123	1,753	38.637019	-121.536391
D-24	1.884	1,655	38.637272	-121.560399
D-25	19.265	12,040	38.627417	-121.533487
D-26	0.089	260	38.627612	-121.519400
D-27	0.789	859	38.627492	-121.515495
Subtotal	**31.892**	**74,742**		

T:\PROJECTS\U\UpperWestsideLLC_07997\002_UpperWestsideSpecificPlanStrategy\Map\BRA\Fig5_Waters_20240613.mxd 6/18/2024

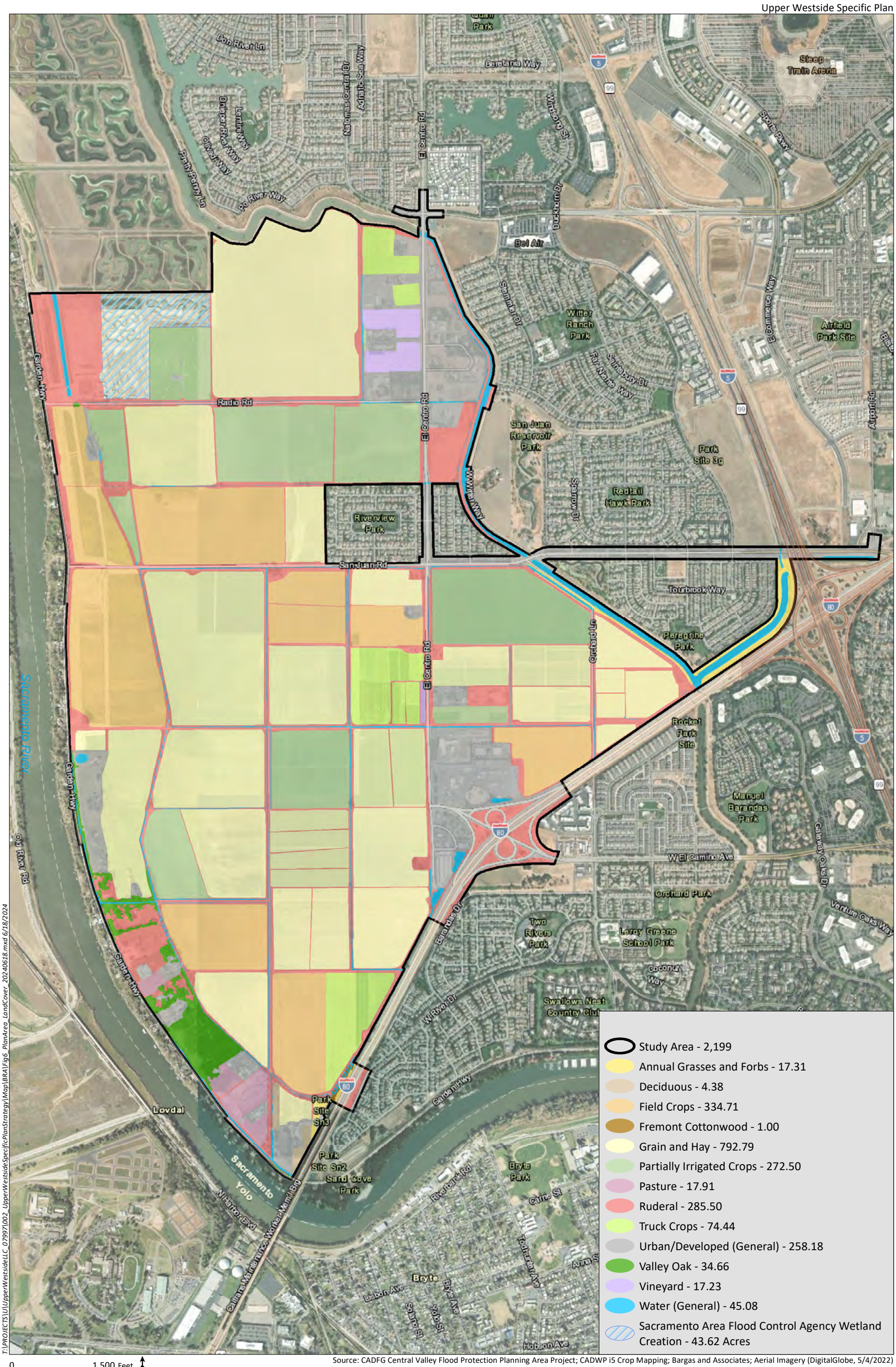
0 1,500 Feet

Source: Bargas 2021; Aerial Imagery (DigitalGlobe, 5/4/2022)

HELIX Environmental Planning

Aquatic Resources Map

Figure 5



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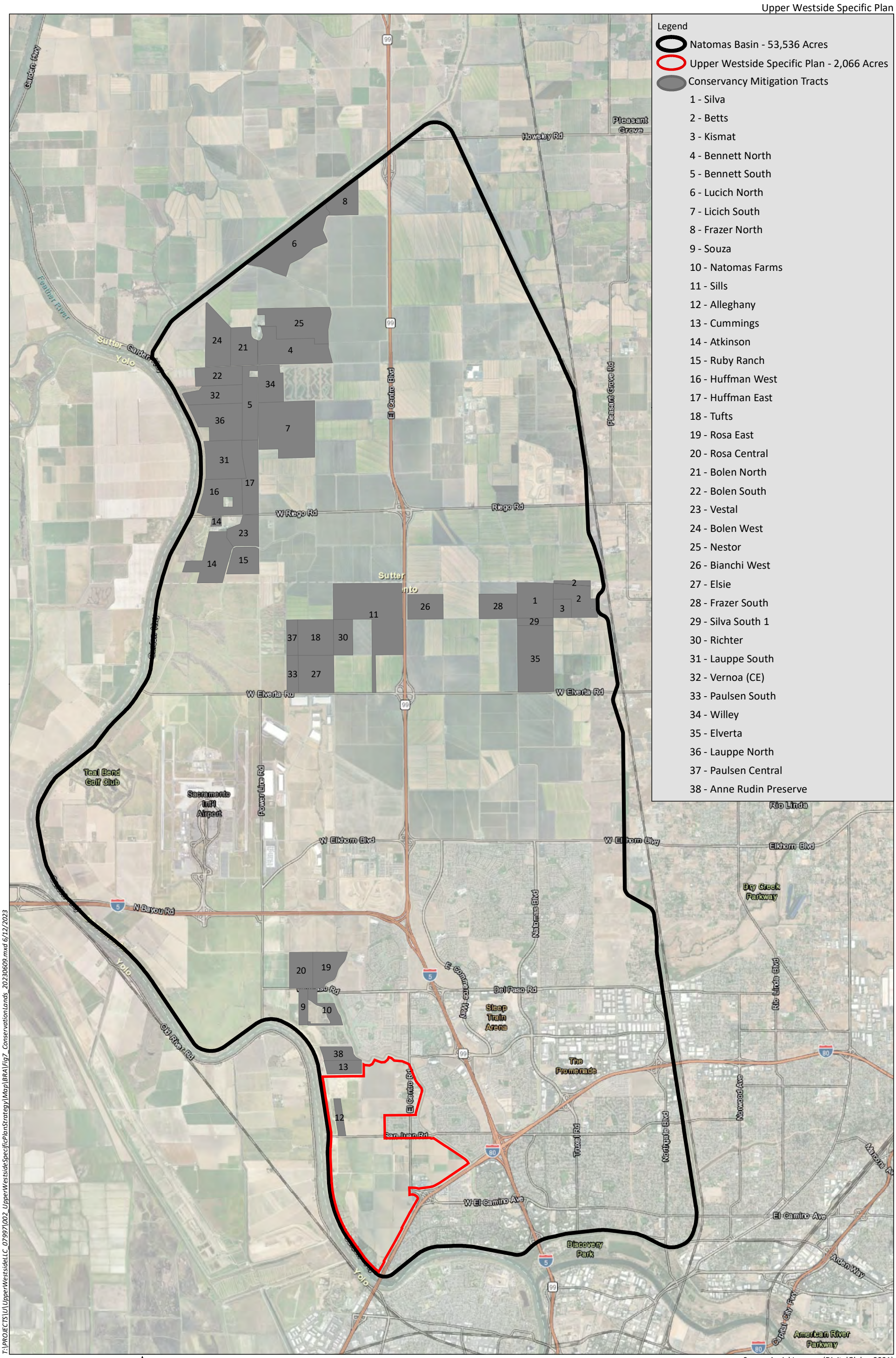
HELIX Environmental Planning

Existing Upper Westside Specific Plan Land Cover

Figure 6



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HELIX Environmental Planning

Natomas Basin Conservancy Mitigation Lands as of 2023

Figure 7

Upper Westside Specific Plan Impacts to Aquatic Resources

Aquatic Resources	Impacts Acres*	Impact Linear Feet*	Avoided Acres*	Avoided Linear Feet*	Total Acres*
Irrigation Canals and Ditches	18.766	74,195	24.346	42,266	43.112
TOTAL	**18.77**	**74,195**	**24.35**	**42,266**	**43.11**

*Acreages calculated at 6 significant figures and subsequently rounded.

Legend
- Project Footprint - 1,765 Acres
- Study Area - 2,199 Acres
- Off-site Area - 133.2 Acres

Other Features
- Pond - 0.48 Acre
- Detention Basin - 1.49 Acres

Potential Bike Trail on Top of Existing Levee (West Side of Canal)

Raido Road Connection to Garden Highway

Potential Bike Trail Bridge Crossing of Levee and Connection to Trail on East Side of Canal

Potential Bike Trail on Top of Existing Levee (West Side of Canal)

San Juan Road Connection to Garden Highway

Potential Alternative Alignment Corridor for Sewer Force Main

El Camino Road Connection to Garden Highway

Potential Improvements or Expansion of Interchange

Potential Water Connection to Existing in West River Drive

Bryte Bend Road Connection to Garden Highway

T:\PROJECTS\U\UpperWestsideLLC_07997\002_UpperWestsideSpecificPlanStrategy\Map\BRA\Fig8_ImpactsWaters_20240618.mxd 6/24/2024

0 1,500 Feet

Source: Bargas 2021; Aerial Imagery (DigitalGlobe, 2020)

HELIX Environmental Planning

Impacts to Upper Westside Specific Plan Aquatic Resources Map

Figure 8

Appendix B

CNDDB, CNPS, and USFWS Lists of Regionally Occurring Special-Status Species

CALIFORNIA NATIVE PLANT SOCIETY

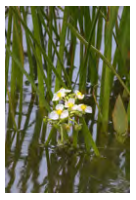
CNPS Rare Plant Inventory

Search Results

19 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] , Quad is one of [**3812154:3812155:3812146:3812156:3812166:3812165:3812145:3812144**], **0** meters between Plant low elevation and high elevation, **300** meters between Plant low elevation and high elevation

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1		1994-01-01	 Dean Wm. Taylor 1997
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available

Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Myosurus minimus ssp. *apus*	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	 © 2017 Chris Winchell
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	 © 2005 Dean Wm Taylor

Showing 1 to 19 of 19 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 5 March 2024].

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sacramento West (3812155) OR Sacramento East (3812154) OR Saxon (3812146) OR Davis (3812156) OR Grays Bend (3812166) OR Rio Linda (3812164) OR Taylor Monument (3812165) OR Clarksburg (3812145) OR Florin (3812144))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G1	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2	SSC
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Chloropyron palmatum palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Eryngium jepsonii Jepson's coyote-thistle	PDAPI0Z130	None	None	G2	S2	1B.2
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia chrysantha alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia pop. 1 song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 11 chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
Oncorhynchus tshawytscha pop. 7 chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S2	
Plagiobothrys hystriculus bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	G3	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G2	S2	1B.2
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
Spirinchus thaleichthys longfin smelt	AFCHB03010	Proposed Endangered	Threatened	G5	S1	
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tuctoria mucronata Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S3	
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 80

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:
Project Code: 2024-0058045
Project Name: Upper Westside Project

March 05, 2024

Subject: List of threatened and endangered species that may occur in your proposed project location 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, 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 U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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 IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC 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: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

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 Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

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

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

PROJECT SUMMARY

Project Code: 2024-0058045
Project Name: Upper Westside Project
Project Type: Commercial Development
Project Description: Develop a specific plan for the Upper Westside Plan Area to support a master planned community to balance multiple land uses such as residential development and supporting infrastructure, agriculture, and conservation.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.62203065,-121.54193793386312,14z

Counties: Sacramento County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 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 Fisheries[1], 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.

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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.

BIRDS

NAME	STATUS
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered

REPTILES

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap 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.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

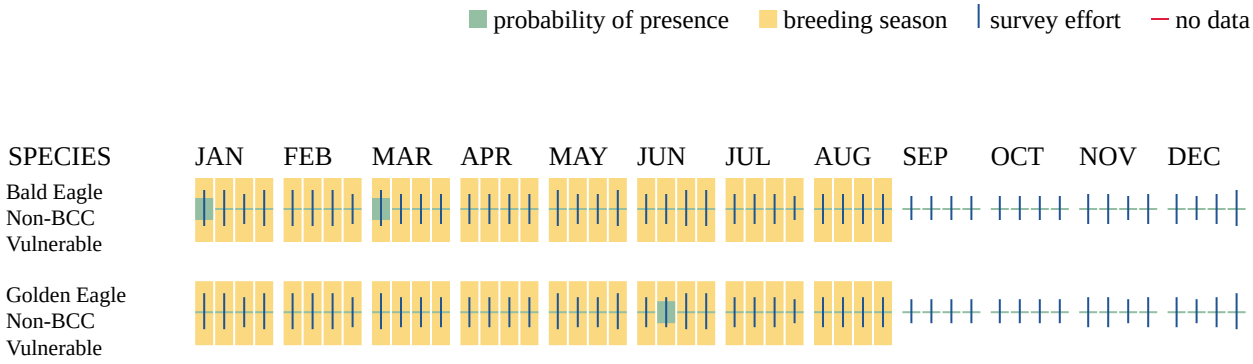
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9458	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10955	Breeds Mar 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10575	Breeds Jun 1 to Aug 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

NAME	BREEDING SEASON
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Oak Titmouse *Baeolophus inornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird *Agelaius tricolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds elsewhere
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10668	Breeds Mar 15 to Aug 10
Yellow-billed Magpie *Pica nuttalli* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

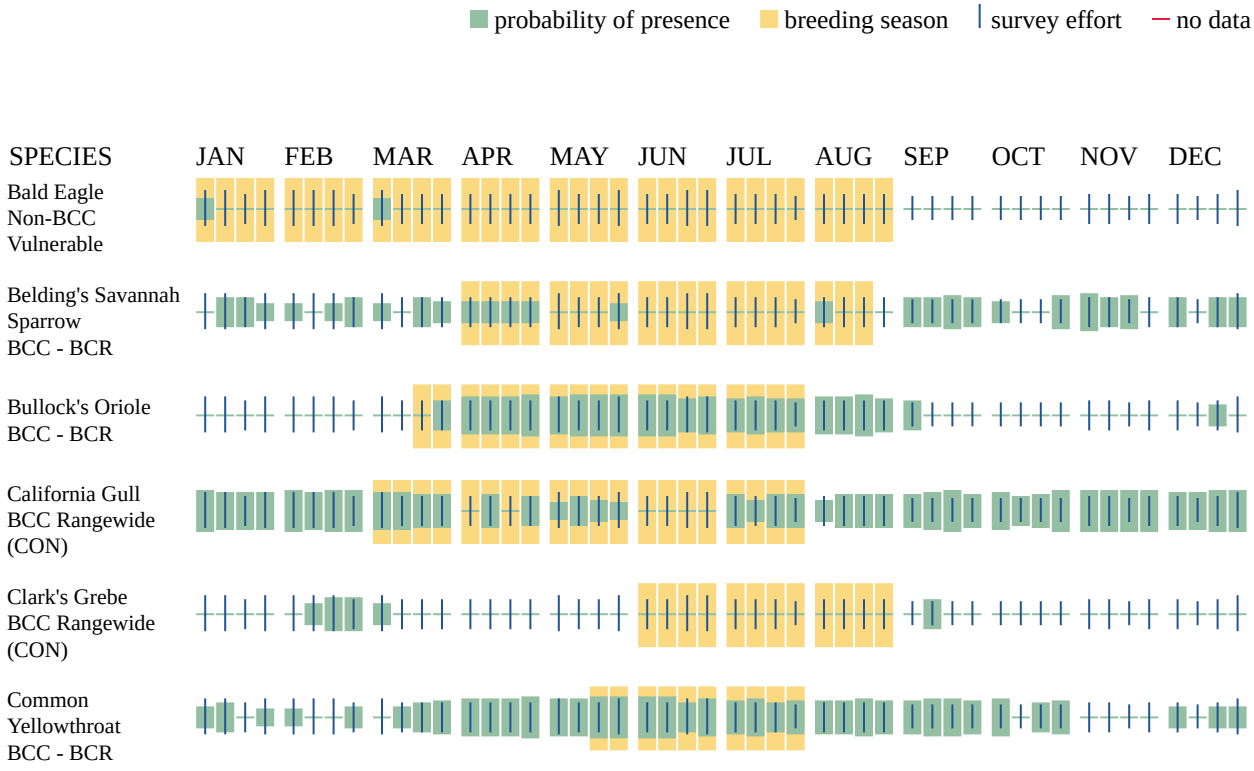
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

- PSSC

RIVERINE

- R2UBHx
- R5UBFx
- R4SBC
- R5UBF

FRESHWATER POND

- PABFx

IPAC USER CONTACT INFORMATION

Agency:	HELIX Environmental Planning Inc.
Name:	Christine Heckler
Address:	1677 Eureka Road Suite 100
Address Line 2:	Suite 100
City:	Roseville
State:	CA
Zip:	95661
Email	christineh@helixepi.com
Phone:	9164351202

Appendix C

Potential for Special-Status Species and Critical Habitats in the Region to Occur in the Project Site

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Plants			
Astragalus tener var. *ferrisiae* Ferris' milk-vetch	--/--/1B.1	An annual herb found in vernally mesic meadows and seeps, and subalkaline flats in valley and foothill grassland, from 2 to 75 meters elevation. Previously thought extinct and rediscovered in 1989; currently known from 13 locations in the Sacramento Valley. Blooms April to May (CNPS 2024).	**Will not occur.** There is no suitable wetland habitat, subalkaline flat or grassland habitat for this species on the Study Area. There is one record of this species within a 5-mile radius of the Study Area located 2.3 miles southwest of the Study Area (CDFW 2024). The record documents a non-specific area from 1954 (CDFW 2024).
Astragalus tener var. *tener* alkali milkvetch	--/--/1B.2	An annual herb found in alkaline mesic habitats in playas, valley and foothill grassland (adobe clay soils), and vernal pools in the Central Valley from 1 to 60 meters elevation. Blooms March to June (CNPS 2024).	**Will not occur.** There is no suitable adobe soils or vernal pool habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Atriplex cordulata var. *cordulata* heartscale	--/--/1B.2	An annual herb found on saline or alkaline soils in chenopod scrub, meadows, seeps, sandy valley, and foothill grasslands from 0 to 560 meters elevation. Blooms April to October (CDFW 2024; CNPS 2024).	**Will not occur.** There is no suitable saline or alkaline soils or chenopod scrub habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Atriplex depressa brittlescale	--/--/1B.2	An annual herb found on alkaline, clay soils in chenopod scrub, meadows, seeps, playas, vernal pools, and valley and foothill grasslands from 1 to 320 meters elevation. Blooms April to October (CNPS 2024).	**Will not occur.** There is no suitable saline or alkaline soils or chenopod scrub habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Carex comosa bristly sedge	--/--/2B.1	A perennial rhizomatous herb found in coastal prairie, lake margins, and valley and foothill grassland in wet places from 0 to 625 meters elevation. Blooms May to September (CDFW 2024; CNPS 2024).	**Will not occur.** There is no suitable coastal prairie, lake margin or suitable mesic grassland habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Centromadia parryi ssp. *parryi* pappose tarplant	--/--/1B.1	An annual herb found in alkaline habitats in valley and foothill grassland from 0 to 230 meters elevation. Blooms May to October (November) (CNPS 2024).	**Will not occur.** There is no suitable alkaline grassland habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). here are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Chloropyron palmatum palmate-bracted bird's-beak	FE/SE/1B.1	An annual hemiparasitic herb found in alkaline wetlands in chenopod scrub, and valley and foothill grassland from 5 to 155 meters elevation in the Central Valley. Blooms May to October (CNPS 2024).	**Will not occur.** There is no suitable alkaline soil on chenopod scrub or suitable grassland habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	--/--/2B.2	An annual parasitic vine found in freshwater marshes and swamps from 15 to 280 meters elevation. Known from 5 locations; last seen in 1948 in Merced County. Blooms July to October (CNPS 2024).	**Will not occur.** There is no suitable freshwater marsh or swamp habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Downingia pusilla dwarf downingia	--/--/2B.2	An annual herb found in vernal pools and mesic microsites in valley and foothill grassland from 1 to 445 meters elevation. Blooms March to May (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or mesic microsite habitat for this species on the Study Area. There is one record of this species within a 5-mile radius of the Study Area located 4.8 miles northeast of the Study Area. This record documents 50 plants observed in Northern Hardpan Vernal Pool habitat on private property in 1993 (CDFW 2024).
Eryngium jepsonii Jepson's coyote thistle	--/--/1B.2	A perennial herb on clay soils in vernal pools and valley and foothill grassland from 3 to 300 meters elevation. Blooms April to August (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or mesic microsite habitat over clay soil for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	An annual herb found in alkaline habitats in chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 1 to 835 meters elevation. Blooms April to October (CNPS 2024).	**Will not occur.** There is no suitable alkaline soil on chenopod scrub or suitable grassland habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Gratiola heterosepala Boggs Lake hedge-hyssop	--/SE/1B.2, NBHCP	An annual herb found on clay soils in marshes and swamps at lake margins, and in vernal pools from 10 to 2,375 meters elevation. Blooms April to August (CNPS 2024).	**Will not occur.** There is no suitable lake or vernal pool over clay soil for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow	--/--/1B.2	A perennial rhizomatous emergent herb found in freshwater marshes and swamps from 0 to 120 meters elevation, often in riprap along levees. Blooms June to September (CNPS 2024).	**Not expected.** Suitable habitat is present in agricultural ditches and canals that occur throughout the Study Area which may provide suitable wetland habitat for this species. This species was not detected during multiple rounds of botanical surveys conducted during 2019 and 2020 of accessible areas during the blooming period for this species (Bargas 2020). There are two records of this species within a 5-mile radius of the Study Area. The nearest CNDDB occurrence is located on the eastern portion of the Study Area along Interstate 80 at the W El Camino Avenue off ramp. This record documents two plants observed in a ditch lacking freshwater marsh habitat and documented with upland non-wetland vegetation. CDFW ranks the record as poor, which was documented by Caltrans in 1988 (CDFW 2024).
Lasthenia chrysantha alkali-sink goldfields	--/--/1B.1	An annual herb found in alkaline vernal pools and wet saline flats from below 200 meters elevation. Blooms February to April (Jepson Flora Project 2024; CDFW 2024).	**Will not occur.** There is no suitable vernal pool or saline flats for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Lathyurus jepsonii Delta tule pea	--/--/1B.2, NBHCP	A perennial herb found in freshwater and brackish marshes from 0 to 5 meters elevation. Blooms May to July (September) (CNPS 2024).	**Will not occur.** There is no suitable freshwater marsh brackish habitat for this species on the Study Area and the Study Area is outside of this species' known range in the Delta. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Legenere limosa legenere	--/--/1B.1, NBHCP	An annual herb found in vernal pools from 1 to 880 meters elevation. Blooms April to June (CNPS 2024).	**Will not occur.** There is no suitable vernal pool habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Lepidium latipes var. *heckardii* Heckard's pepper-grass	--/--/1B.2	An annual herb found on alkaline flats in vernal pools and valley and foothill grasslands from 2 to 200 meters elevation. Blooms March to May (CDFW 2024; CNPS 2024).	**Will not occur.** There is no suitable alkaline soil or vernal pool habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Lilaeopsis masonii Mason's lilaeopsis	--/SR/1B.1	A perennial rhizomatous herb found in tidal zones of marshes, swamps, and riparian scrub from 0 to 10 meters elevation. Range is restricted to the Delta, Suisun Bay, and San Pablo Bay. Typically occurs in muddy or silty soil formed through river deposition. Blooms April to November (CDFW 2024; CNPS 2024).	**Will not occur.** The Study Area is outside of the extant range of this species. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Myosurus minimus ssp. *apus* little mousetail	--/--/3.1	An annual herb found in alkaline vernal pools in valley and foothill grassland from 20 to 640 meters elevation. Blooms March to June (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or alkaline soil for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	--/--/1B.1	An annual herb found in mesic meadows and vernal pools in cismontane woodland, lower montane coniferous forest, and valley and foothill grassland from 5 to 1,740 meters elevation. Blooms April to July (CNPS 2024).	**Will not occur.** There is no suitable mesic habitat in suitable woodlands or grasslands. Woodland and grassland habitats in the Study Area are disturbed and better described as ruderal that occur along roadsides, private residences or levees. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Neostapfia colusana Colusa grass	FT/SE/1B.1, NBHCP	An annual herb found in the bottoms of large, deep vernal pools, typically on adobe substrate, from 5 to 200 meters elevation. Blooms May to August (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or adobe clay soil for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Orcuttia tenuis slender Orcutt grass	FT/SE/1B.1, NBHCP	An annual herb found in vernal pools from 35 to 1,760 meters elevation. Blooms May to October (CNPS 2024).	**Will not occur.** There is no suitable vernal pool habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Orcuttia viscida Sacramento Orcutt grass	FE/SE/1B.1, NBHCP	An annual herb found in vernal pools from 30 to 100 meters in elevation. Currently known to occur in Sacramento county. Elevation: 30 to 100 m amsl. Flowering period April to July (September) (CNPS 2024).	**Will not occur.** There is no suitable vernal pool habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Plagiobothrys hystriculus bearded popcornflower	--/--/1B.1	An annual herb found in mesic valley and foothill grassland, and along the margins of vernal pools and vernal swales from 0 to 274 meters elevation. Blooms April to May (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or suitable mesic grassland habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Puccinellia simplex California alkali grass	--/--/1B.2	An annual herb found in alkaline, vernally mesic sinks, flats, and lake margins in chenopod scrub, meadows, seeps, vernal pools, and valley and foothill grasslands from 2 to 930 meters elevation. Blooms March to May (CNPS 2024).	**Will not occur.** There is no suitable alkaline soil, vernal pool or other suitable wetland or grassland habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2, NBHCP	A perennial rhizomatous herb found in marshes, swamps, and assorted shallow freshwater habitats that include ditches from 0 to 650 meters elevation. Blooms May to October (November) (CNPS 2024).	**Not expected.** Suitable habitat is present in agricultural ditches and canals that occur throughout the Study Area which may provide suitable wetland habitat for this species. This species was not detected during multiple rounds of botanical surveys conducted during 2019 and 2020 of accessible areas during the blooming period for this species (Bargas 2020). There are three CNDDB reported occurrences within a 5-mile radius of the Study Area. The nearest record documents this species 3.1 miles east of the Study Area. This record documents two populations documented in Arcade Creek and a shallow ditch which was observed in 2011 (CDFW 2024).
Sidalcea keckii Keck's checker mallow	FE/--/1B.1	An annual herb found in cismontane woodland and valley and foothill grassland, often in serpentinite and clay soils, from 75 to 650 meters elevation. Blooms April to May (June) (CNPS 2024).	**Will not occur.** There is no suitable clay or serpentinite soil habitat for this species on the Study Area. The Study Area is below the elevational range of this species. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Symphyotrichum lentum Suisun Marsh aster	--/--/1B.2	A perennial rhizomatous herb found in freshwater and brackish marsh from 0 to 3 meters elevation. Blooms May to November (CNPS 2024).	**Will not occur.** There is no suitable freshwater marsh or brackish marsh habitat for this species. Freshwater habitat is limited to agricultural ditches and canals. There is one CNDDB within a 5-mile radius of the Study Area. The record documents this species 4.1 miles southwest of the Study Area at the southwest end of Green Lake (CDFW 2024). The record documents an observation of this species in 2005 and 2013, which needs to be studied further to determine whether this is Suisun Marsh aster (CDFW 2024).
Trifolium hydrophilum saline clover	--/--/1B.2	An annual herb found in marshes, swamps, mesic alkaline valley and foothill grassland, and vernal pools from 0–- 300 meters elevation. Blooms April to June (CNPS 2024).	**Will not occur.** There is no suitable marsh or wetland or suitable mesic grassland habitat for this species on the Study Area. Soils in the Study Area are predominately neutral, but some soils range to slightly alkaline to acidic (NRCS 2024). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Tuctoria mucronata Crampton's tuctoria or Solano grass	FE/SE/1B.1	An annual herb found on mesic soils in vernal pools, and valley and foothill grasslands from 5 to 10 meters elevation. Blooms April to August (CNPS 2024).	**Will not occur.** There is no suitable vernal pool or other suitable wetland or grassland habitat for this species on the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Animals			
Invertebrates			
Bombus crotchii crotch bumble bee	--/SCE/--	Crotch bumble bee occurs in grassland and scrub habitats (California Department of Fish and Wildlife [CDFW] 2019). New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (CDFW 2019). This species is a generalist forager and has been reported visiting a wide variety of flowering plants. A short-tongued bumble bee; food plants include *Asclepias* spp., *Antirrhinum* spp., *Clarkia* spp., *Eschscholzia* spp., *Eriogonum* spp., *Chaenactis* spp., *Lupinus* spp., *Medicago* spp., *Phacelia* spp., and *Salvia* spp. (Koch *et al.* 2012). The flight period for queens in California is from February to October. New queens hibernate over the winter and initiate a new colony the following spring. Rare throughout its range and in decline in the Central Valley and southern California (CDFW 2019). The most current known range of this species follows a small strip from western Trinity County south to Tehama County and along the entire Central Valley and coast south of Monterey to the southernmost portions of the State. The range is generally bound on the east by the high Sierra Nevada range and areas east of Bishop, Ridgecrest, and the Salton Sea (CDFW 2023).	**Will not occur.** Suitable grassland habitat is not present in the Study Area. The Study Area has been managed for agriculture for over 100 years and has been subjected to use of herbicides and pesticides which are one of the leading causes for decline in bumble bees. Additionally, constant disturbance of soil from agricultural uses is not suitable for underground bee colonies and overwintering queens, which is further exacerbated by fragmented habitat (CDFW 2019). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Bombus occidentalis western bumble bee	--/SCE/--	Bumble bees are primitively eusocial insects that live in underground colonies made up of one queen, female workers, and reproductive members of the colony. New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (Thorp *et al.* 1983). This species occurs in meadows and grasslands with an abundance of floral resources (CDFW 2019). This species is a generalist forager and have been reported visiting a wide variety of flowering plants. A short-tongued bumble bee; select food plants include *Melilotus* spp., *Cirsium* spp., *Trifolium* spp., *Centaurea* spp., *Eriogonum* spp., and *Chrysothamnus* spp. (Koch *et al.* 2012). This species has a short tongue and typically prefers open flowers with short corollas but is known to chew through the base of flowers with long corollas. The flight period for queens in California is from early February to late November, peaking in late June and late September. New queens hibernate over the winter and initiate a new colony the following spring (Thorp *et al.* 1983). Rare throughout its range and in decline west of the Sierra Nevada crest. The most current known range of this species is limited to areas near the Klamath and northern Coast Range mountains as well as mountain areas in Shasta, Plumas, Sierra, Nevada, Placer, El Dorado, Lassen, Amador, Alpine, and Calaveras counties CDFW 2023).	**Will not occur.** Suitable habitat is not present in the Study Area and the Study Area is outside of this species current known range. The Study Area consists almost entirely of agricultural lands, developed lands and other isolated native habitats. The Study Area has been managed for agriculture for over 100 years and has been subjected to use of herbicides and pesticides which are one of the leading causes for decline in bumble bees. Additionally, constant disturbance of soil from agricultural uses is not suitable for underground bee colonies and overwintering queens, which is further exacerbated by fragmented habitat (CDFW 2019). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Branchinecta conservatio Conservancy fairy shrimp	FE/--/--	Occupies large clay bottomed vernal pools to vernal lakes with turbid water in grasslands. The historical distribution of this species is unknown and it is currently distributed throughout the Central Valley and southern coastal regions of California (USFWS 2005).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Branchinecta lynchi vernal pool fairy shrimp	FT/--/--	Vernal pools ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It is most frequently found in pools measuring less than 0.05 acre; although has been collected from vernal pools exceeding 25 acres. The known range within California includes the Central Valley and southern California (USFWS 2005).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are four CNDDB reported occurrences for this species with the closest occurrence documented three miles east of the Study Area along railroad tracks. This record documents a 1995 observation of this species in a long and narrow wetland (CDFW 2024).
Branchinecta mesovallensis mid-valley fairy shrimp	--/--/NBHCP	Occurs in a variety of seasonally inundated habitats, especially shallower pools and swales.	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Danaus plexippus pop. 1 monarch - California overwintering population	FCE/--/--	The federal listing on December 17, 2020 was for overwintering populations of Monarch butterflies that roost in wind protected tree groves, especially with Eucalyptus sp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (Asclepias sp.; Nial *et al.* 2019 and USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring. The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).	**Will not occur.** Suitable overwintering habitat or larval food plants are not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT/--/NBHCP	Endemic to elderberry shrubs (*Sambucus* spp.) occurring in riparian habitat in the Sacramento and San Joaquin Valleys, riparian habitats in the Sacramento and San Joaquin Valleys, and less common throughout riparian forests of the Central Valley from Redding to Fresno County (USFWS 2014) typically below 152 meters elevation (USFWS 2017a).	**Not expected.** This species could occur on elderberry shrubs in the Study Area, especially along riparian forests, such as valley oak woodland along the Sacramento River, which is contiguous with known observations of this species. Observations of this species in the CNDDB are abundant in the region with the nearest CNDDB occurrence located 0.3-mile northwest of the Study Area in riparian forest along the Sacramento River. This CNDDB record dates to 1985 and documents two exit holes on an elderberry shrub (CDFW 2024).
Lepidurus packardi vernal pool tadpole shrimp	FE/--/--	Occurs in vernal pools from 54 square feet to 89 acres, containing clear- to highly-turbid water. It's known range is within the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Fishes			
Acipenser medirostris pop. 1 green sturgeon southern DPS	FT/--/--	Spawn in freshwater streams, in fast, deep water, over gravel, cobble, or boulders. Juveniles inhabit estuarine waters for 1-4 years until dispersing into coastal marine waters as adults. Adults return to spawn in fresh water every 6-10 years. Sacramento River watershed, including the Feather River, is the only known historical and present spawning areas for green sturgeon (NMFS 2018).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Archoplites interruptus Sacramento perch	--/--/SSC	Extinct in its native range, all known populations of this species are the result of introductions. The species is adapted for life in sloughs, slow moving rivers, and large lakes in the Central Valley, and can tolerate high temperatures and salinities as well as high pH (alkalinity). Extant populations are in reservoirs; the species has been replaced in its native range by introduced game fishes (Crain and Moyle 2011).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Hypomesus transpacificus Delta smelt	FT/SE/--	Delta smelt are tolerant of a wide salinity range. They have been collected from estuarine waters up to 14 ppt (parts per thousand) salinity. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse into river channels and tidally-influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edge-waters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as cattails, bulrush, tree roots and submerged branches. Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties (USFWS 2017b).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Oncorhynchus mykiss pop. 11 Central Valley steelhead DPS	FT/--/--	This distinct population segment includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs. Steelhead spawn in rivers and streams with cool, clear, water and suitable silt free substrate (NMFS 2016).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. This species is known to migrate through the Sacramento River adjacent to the Study Area (CDFW 2024).
Oncorhynchus tshawytscha pop. 11 Central Valley chinook salmon spring-run ESU	FT/ST/--	Central Valley spring-run Chinook salmon spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Historically occurred in all major rivers and tributaries of the Central Valley. Spawning is currently located in tributary streams of the Sacramento River. Immigration of adults through the Delta and lower Sacramento River occurs from March through September. Spawning occurs between late-August through October (NMFS 2014).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. This species is known to migrate through the Sacramento River adjacent to the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Oncorhynchus tshawytscha pop. 7 Sacramento River chinook salmon winter-run ESU	FE/SE/--	Chinook salmon spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Immigration of adults through the Delta and lower Sacramento River occurs from December through July. Spawning is currently limited to the Sacramento River downstream of Keswick Dam and upstream of the Red Bluff Diversion and the lower reaches of Battle Creek. Spawning occurs between late-April through mid-August (NMFS 2014).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. This species is known to migrate through the Sacramento River adjacent to the Study Area (CDFW 2024).
Pogonichthys macrolepitodus Sacramento splittail	--/--/SSC	Endemic to the Central Valley. They occur below the Red Bluff Diversion Dam in Tehama County to the downstream reaches of the Sacramento and American Rivers. They also occur in the lower reaches of the Feather, Merced, Tuolumne River and the San Joaquin Rivers. This species is largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and Sacramento-San Joaquin estuary. This species occurs predominantly in freshwater estuarine systems and prefers low-salinity, shallow-water habitats. Occurs in slow-moving sections of rivers, sloughs, and marshes. Species abundance is strongly tied to outflows because spawning occurs over flooded vegetation (Moyle *et al* 2015).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area.
Spirinchus thaleichthys longfin smelt	FC/ST/--	The longfin smelt is a pelagic estuarine fish that spawns in freshwater and then moves downstream to brackish water to rear. They usually live for 2 years, spawn, and then die, although some individuals may spawn as 1- or 3-year-old fish before dying. Longfin smelt in the Bay-Delta may spawn as early as November and as late as June, although spawning typically occurs from January to April. The specific spawning substrate remains unknown (USFWS 2022). The known range of the longfin smelt extends from the San Francisco Bay-Delta in California northward to Alaska. Longfin smelt have been observed in their winter and spring spawning period as far upstream as Colusa State Park in the Sacramento River, the City of Lathrop in the San Joaquin River system, Hog Slough off the South-Fork Mokelumne River, and in the South Delta near Old River south of Indian Slough (USFWS 2022).	**Will not occur.** Suitable aquatic habitat is not present in the Study Area. This species is known to migrate through the Sacramento River adjacent to the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Amphibians			
Ambystoma californiense California tiger salamander	FT/ST/NBHCP	California tiger salamanders are generally restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities from sea level to about 1,500 feet in central California. This species spends the majority of its life in upland areas in the vicinity of suitable breeding ponds, where it inhabits rodent burrows. In order to provide suitable habitat for this species, suitable breeding habitat must be present in combination with suitable upland habitat. In the Coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County, and in the Central Valley and Sierra Nevada foothills from Yolo to Kern counties (USFWS 2017c).	**Will not occur.** Suitable aquatic breeding habitat and adjacent upland habitat is not present in the Study Area for this species. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Spea hammondii western spadefoot	--/--/SSC, NBHCP	Amphibian that breeds in vernal pools and seasonal ponds or slow portions of streams in grasslands and woodlands. Adults spend most of their time in underground burrows in grasslands surrounding breeding pools (Jennings and Hayes 1994). Breeding is typically finished by the end of March. Tadpoles mature through late-spring and disperse as pools dry (Zeiner *et al.* 1990).	**Will not occur.** Suitable aquatic breeding habitat and adjacent upland habitat is not present in the Study Area for this species. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Reptiles			
Actinemys (=Emys) marmorata western pond turtle	FPT/--/SSC, NBHCP	Turtle that inhabits slow-moving water with dense submerged vegetation, abundant basking sites, gently sloping banks, and dry clay or silt soils in nearby uplands. Turtles will lay eggs up to 0.25-mile from water, but typically go no more than 600 feet (Jennings and Hayes 1994). This species is known to regularly overwinter on land (Ultsch 2006), which it likely does to avoid increased flows during the winter (Thomson *et al.* 2016). This species will use a variety of habitats to overwinter, but typically uses areas above the ordinary high water mark where it burrows into loose soil and/or under leaf litter. Other nonriverine habitats that experience little water level fluctuation, this species may overwinter under water (Thomson *et al.* 2016).	**May occur.** Suitable habitat is present for this species along canals and ditches in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Thamnophis gigas giant garter snake	FT/ST/NBHCP	Endemic to the San Joaquin and Sacramento Valley floors. Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant. Primarily found in marshes and sloughs as well as slow-moving creeks but absent from large rivers (USFWS 2017d).	**Present.** Suitable aquatic habitat that is inundated during the active season for this species is present in agricultural ditches and canals that occur throughout the Study Area. Additionally, upland habitat is present in areas adjacent to ditches and there are known occurrences of this species in and around the Study Area. This species is documented within the Study Area in West Drainage Canal and is also well documented in areas surrounding the Study Area. The CNDDB occurrence within the Study Area documents the presence of this species in Fisherman's Lake and West Drainage Canal in 2016 (CDFW 2024). Protocol surveys that included trapping did not detect this species in the Study Area; however, eDNA sampling did test positive in ditches surrounding the Study Area which implies this species is present (Bargas 2020, Hansen 2019).
Birds			
Accipiter cooperii Cooper's hawk	--/--/WL	Nests in woodlands and urban trees. Preys on medium-sized birds and small mammals. Forages in open woodland and habitat edges (Zeiner *et al.* 1990).	**Present.** Suitable habitat is present for this species in the Study Area. This species could nest in trees throughout the Study Area and forage in forested areas along the Sacramento River, agricultural crops, fallowed fields or ruderal areas in the Study Area or in other adjacent habitats. This species was observed on March 7, 2023, during the site visit. There are two CNDDB reported occurrences for this

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
			species within a 5-mile radius of the Study Area. The nearest CNNDB reported occurrence is located approximately 3.9 miles south of the Study Area. This record documents a nest from 2008 in the City of Sacramento (CDFW 2024).
Agelaius tricolor tricolored blackbird	--/ST/SSC, NBHCP	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation and thorny vegetation such as Himalayan blackberry (*Rubus armeniacus*) as well as cattails and tules. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. Forages on ground in croplands, grassy fields, flooded land, and edges of ponds for insects (Shuford and Gardali 2008).	**May occur.** Nesting habitat for this species is present in the Study Area along ditches that supports trees, blackberry brambles and other emergent vegetation in ditches and canals. This species could also forage in the Study Area as they are known to forage in agricultural fields up to four miles from nesting sites. There are several CNDDB reported occurrences within a 5-mile radius of the Study Area. The nearest CNDDB reported occurrence is located approximately 1.8 miles northeast of the Study Area and documents an extirpated nesting colony from 1992 (CDFW 2024).
Ammodramus savannarum grasshopper sparrow	--/--/SSC	A summer resident of foothills and lowlands west of the Cascade-Sierra Nevada crest. Occurs in grasslands with scattered shrubs or other tall structures which it utilizes as singing perches. Nests on the ground in dense grass with overhanging taller grasses and forbs (Zeiner *et al.* 1990).	**Will not occur.** Suitable grassland habitat for this species is absent from the Study Area. Herbaceous habitats in the Study Area consist of agricultural crops and ruderal fields subject to constant and regular disturbance. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Athene cunicularia burrowing owl	--/--/SSC, NBHCP	Forages in grasslands, agricultural fields, and disturbed places where burrowing mammals are abundant with low and sparse vegetation. Nests in burrows, especially those of California ground squirrel, but will use other refuge sites (*Otospermophilus beecheyi*; Shuford and Gardali 2008). In the Central Valley of California, most foraging occurs within a 600-m radius of the nest (Gervais *et al.* 2003).	**May occur.** Suitable habitat is present for burrowing owl in the Study Area in ruderal or fallowed fields and along the banks of ditches, canals, and levees especially where small mammal burrows are present. But burrowing owl may also use other refuge sites such as abandoned irrigation pipes or other similar structures. CNDDB records for burrowing owl in the region are abundant with the nearest record located approximately 0.2 mile east of the Study Area. This record documents a wintering owl along a drainage ditch in 1991; however, this site is likely extirpated since the area has been developed (CDFW 2024).
Branta hutchinsii leucopareia Aleutian cackling goose	--/--/NBHCP	This species may winter in the Study Area; however, the Study Area is outside of its breeding range. Cackling geese breed across a broad range of subarctic and arctic habitats in Canada and Alaska. Individual and/or semi-colonial nests are located in remote areas that provide a clear view in all directions but in the proximity of permanent water (e.g., lakes, ponds, larger streams, marshes, muskegs, and wet hummocky areas). Breeding habitat consists of tundra on grass-covered islands that are inaccessible to mammalian predators. Aleutian cackling geese nest on the Aleutian Islands, often on steep grassy slopes. Primary foraging wintering habitats are harvested cornfields, winter wheat, alfalfa, and irrigated pasture grasses (Dahl 1995). Roosting habitats are shallowly flooded agricultural lands or seasonal wetlands.	**Will not occur.** Suitable foraging habitat is present in the Study Area for this species; however, this species does not nest in California. This species has not been detected in the Natomas Basin since 2004 (ICF 2020) or by Bargas (Bargas 2019, 2020). There are no CNDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Buteo regalis ferruginous hawk	--/--/WL (wintering)	Found in arid and semi-arid open grasslands, sagebrush flats, desert scrub, low foothills and areas of pinyon and juniper habitat. Ferruginous hawks' nest in trees, large shrubs, utility poles and occasionally on the ground near river cut banks, but this species does not nest in California near the Study Area. Preys upon ground squirrels, rabbits, mice, and gophers. (Dechant *et al.* 1999).	**Not expected.** This species is a winter migrant and will not nest in the Study Area. However, this species could disperse through the Study Area moving between suitable foraging habitat. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Buteo swainsoni Swainson's hawk	--/ST/NBHCP	Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Breeds in California and winters in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1 and migrate south between September and October. Swainson's hawks usually nest in trees adjacent to suitable foraging habitat (CDFW 2016), but may travel as far as 9.3 miles when foraging on adjacent lands is limited (Babcock 1995). Swainson's hawk nests are usually located in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Mature oak and riparian trees are the most used nest trees, typically associated with high quality foraging habitat (CDFW 2016). Suitable foraging areas for Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, idle land, certain grain and row croplands, and ruderal lands. Swainson's hawks primarily feed on voles; but will take a variety of prey including small mammals, birds, and insects (CDFW 1994).	**High.** Suitable habitat is present for this species in the Study Area. This species could nest in trees throughout the Study Area and forage in agricultural crops, fallowed fields or ruderal areas in the Study Area or in adjacent habitats. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area and this species is well documented as nesting and foraging in the Study Area and in the region. There are five documented CNDDB reported occurrences of this species nesting on the Study Area. Three records document nesting activity in cottonwoods and oak trees in 1992 and 1993; one historic record and one recent record document this species in valley oak woodland along the Sacramento River on the Western side of the Study Area; and the last record in the Study Area is an extirpated nest along San Juan Road from 2003 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Circus hudsonius northern harrier	--/--/SSC	Inhabits a variety of treeless habitats including freshwater marsh, brackish- and saltwater marsh, wet meadows, lake margins, grasslands, croplands, desert sinks, and sagebrush flats. Builds nests on large mounds of vegetation between March and August. Forages in most open habitats (Shuford and Gardali 2008).	**Present.** Suitable habitat is present for this species to nest along canals and ditches. This species did not show up during the species query search, indicating there are no documented occurrences of this species within a 5-mile radius of the Study Area. However, this species has been observed foraging in the Study Area (Bargas 2019; 2021).
Charadrius montanus mountain plover	--/--/SSC	A winter resident of the Central Valley, southern deserts, and southern coast, as well as Texas, Arizona, and northern Mexico; does not breed in California. Found in places with sparse, low-growing vegetation such as fallow or burned agricultural fields, heavily grazed pastures, and playas (Shuford and Gardali 2008).	**Not expected.** This species is a winter migrant and will not nest in the Study Area. However, this species could disperse through the Study Area moving between suitable foraging habitat. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Charadrius nivosus nivosus western snowy plover	FT/--/SSC	Federal listing applies only to coastal populations that nest on sand beaches above the high tide line. Interior populations nest on barren to sparsely vegetated flats along the shores of lakes, braided river systems, salt ponds, and agricultural sumps. Adults feed on insects and brine shrimp (Shuford and Garaldi 2008).	**Will not occur.** Suitable nesting habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE/--	Occurs at isolated sites in Sacramento Valley in northern California, and along Kern and Colorado River systems in southern California. Frequents valley foothill and desert riparian habitats dominated by willows. Inhabits riparian habitats with dense understory foliage along river bottoms or other mesic habitats with high humidity. Prefers dense willows for roosting but will use adjacent orchard in the Sacramento Valley. Typically requires expansive riparian habitat for nesting (Zeiner *et al.* 1990).	**Will not occur**. Suitable expansive riparian forest required for nesting is not present in the Study Area. Small areas of valley oak woodland adjacent to the Sacramento River are developed in their understory and are unlikely to provide habitat for this species. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Elanus leucurus white-tailed kite	--/--/FP	Raptor that inhabits rolling foothills and valley margins with scattered oaks, as well as river bottomlands or marshes next to deciduous woodland. Nests in isolated, dense-topped trees in open areas. Forages in a variety of habitats including grassland, marshes, and agricultural fields (Zeiner *et al.* 1990).	**High.** Suitable habitat is present for this species in the Study Area. This species could nest in trees throughout the Study Area and forage in agricultural crops, fallowed fields or ruderal areas in the Study Area or in adjacent habitats. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest CNNDB reported occurrence is located approximately 2.6 miles south of the Study Area, which documents a nest from 2017 in a large oak tree in a residential neighborhood (CDFW 2024).
Falco columbarius merlin	--/--/WL (wintering)	An uncommon winter migrant in California; breeds in Alaska and Canada. Uses a variety of habitats but requires trees close to water for cover and is usually found near coastlines, lakeshores, and wetlands (Zeiner *et al.* 1990).	**Not expected.** This species is a winter migrant and will not nest in the Study Area. However, this species could disperse through the Study Area moving between suitable patches of foraging habitat. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Lanius ludovicianus loggerhead shrike	--/--/SSC, NBHCP	Loggerhead shrike prefers open habitats with scattered shrubs, trees, posts, or other perches. It can be found in shrublands or open woodlands with bare ground, or sparse herbaceous cover. The loggerhead shrike is often found in open cropland, but nests in dense shrubs and small trees (Zeiner *et al.* 1990).	**High**. Suitable foraging and nesting habitat are present for this species in the Study Area. Loggerhead shrike is a year-round resident of the Natomas Basin and found throughout the NBHCP area (City of Sacramento *et al*. 2003). There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024) and this species was not documented by Bargas in the Study Area (Bargas 2019, 2020).
Laterallus jamaicensis coturniculus California black rail	--/ST/FP	Inhabits brackish marsh, primarily in the upper marsh zone dominated by alkali heath (*Frankenia salina*), cattail, and rush (*Juncus* spp.); prefers lower salinity environments. In the Sierra Nevada foothills, black rail is a year-round resident along wetland edges where water is 1.2 inches or less. Black rail is typically associated with perennial wetlands associated with flowing water such as irrigation canals, perennial streams and springs with dense vegetation in the Sierra Nevada foothills. Forages on the ground, under cover of dense vegetation (Richmond *et al.* 2010).	**Will not occur.** Suitable marsh habitat is not present, and the Study Area is not located within this species' known breeding range. There is one CNDDB reported occurrence for this species within a 5-mile radius of the Study Area located 4.3 miles south of the Study Area at a constructed pond.. The CNDDB record references an eBird database record where several observers heard a California black rail calling in July of 2017 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Melospiza melodia song sparrow (Modesto Population)	--/--/SSC	Breeds in riparian thickets in shrubs or vines near fresh or saline emergent wetland. Nests are typically situated low to the ground or on the ground under dense riparian vegetation (Shuford and Gardali 2008).	**High.** Suitable nesting habitat is present for this species within vegetation along ditches and canals. There is one CNDDB reported occurrence for this species within a 5-mile radius of the Study Area, which is not specific with regards to its location (CDFW 2024). The record documents breeding in a canal along the edge of a wheat field in 1877, which the eggs and nest were preserved at the Museum of Vertebrate Zoology in Berkeley (CDFW 2024).
Nannopterum auritum double-crested cormorant	--/--/WL	A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters. Rests in daytime and roosts overnight beside water on offshore rocks, islands, steep cliffs, dead branches of tall trees, wharfs, jetties, or even transmission lines (Zeiner *et al.* 1990).	**Will not occur.** Suitable habitat is not present for this species in the Study Area. This species is more likely to occur along the Sacramento River and other nearby marshes with suitable nesting habitat. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Pandion haliaetus osprey	--/--/WL	Osprey breed in Northern California from the Cascade Ranges southward to Lake Tahoe, and along the coast south to Marin County. They prey primarily on fish but also predate small mammals, birds, reptiles, and invertebrates. Foraging areas include open, clear waters of rivers, lakes, reservoirs, bays, estuaries, and surf zones. Habitat and nesting requirements include large trees, snags, and dead-topped trees in open forest habitats for cover and nesting (Zeiner *et al*. 1990).	**Present.** Suitable habitat is present for this species for foraging along the Sacramento River and nesting in trees or structures in the Study Area. This species was observed in flight over the Study Area on March 7, 2023. A large nest structure was observed along the Sacramento River outside of the Study Area.

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Plegadis chihi white faced ibis	--/--/WL/NBHCP	This species nests sporadically in the Sacramento-San Joaquin Valley but occurs as a transient throughout California. This species requires extensive marshes for nesting and forages in marshes, pastures, and croplands. It no longer nests regularly in the Central Valley (Zeiner *et al.* 1990).	**Not expected.** Suitable marsh habitat is not present in the Study Area; however, this species could forage in croplands and pastures. Nesting habitat is not present in the Study Area. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Progne subis purple martin	--/--/SSC	Nests in cavities in open areas with low canopy cover at the height of the nest, near large bodies of water that support high densities of large insects. Martins use a variety of cavities including in bridges, large tree snags, and collapsed lava tubes. The species is very sensitive to competition from European starlings and is extirpated from most low-elevation areas by starlings (Shuford and Gardali 2008).	**May occur.** Suitable habitat is present for this species in the Study Area in tree cavities where large trees are present or other within artificial structures such as utility poles. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024). The nearest CNDDB record for this species is located 2.5 miles southeast of the Study Area and documents this species nesting in weep holes under the I-5 bridge in 2007 (CDFW 2024).
Riparia riparia bank swallow	--/ST/NBHCP	Found primarily in riparian and lowland habitat in California. Nests in colonies along cliffs or steep riverbanks in holes. In California, a majority of the population is situated along the Sacramento River and the Feather River. Other smaller populations persist near Monterey and north of Shasta counties (Zeiner *et al*. 1990).	**Will not occur.** Suitable steep riverbank habitat for colonial nesting is not present in the Study Area. There is one CNDDB reported occurrence for this species within a 5-mile radius of the Study Area. The record documents a nesting colony along the American River 2.9 miles southeast of the Study Area in 1986 (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Vireo bellii pusillus least Bell's vireo	FE/SE/--	Is an obligate riparian species during the breeding season that prefers early successional habitat (USFWS 1998). Typically found in structurally diverse habitat such as cottonwood-willow forests, oak woodlands, and mule fat scrub (USFWS 1998) that generally contains both canopy and shrub layers and includes some associated upland habitat. This species will winter in arroyos that contain mesquite scrub habitat and are not limited to willow dominated habitats. Previously considered to be limited to southern California, recent account of this species with successful breeding in Salinas Valley and in Yolo County show that this species is expanding back into its former range (NatureServe 2024; CDFW 2024).	**Will not occur.** Suitable habitat is not present in the Study Area, which consists almost entirely of agricultural lands, developed lands and isolated natural communities surrounded by developed communities. Oak woodlands that occur in the Study Area are adjacent to the Sacramento River but these areas are developed under the tree canopy so suitable riparian understory does not exist. There is one CNDDB reported occurrence for this species within a 5-mile radius of the Study Area. The record documents a collection of this species in 1877 and was likely collected from riparian vegetation along the Sacramento River (CDFW 2024).
Xanthocephalus xanthocephalus yellow-headed blackbird	--/--/SSC	Occurs in California mainly as a summer migrant, but small numbers over-winter in the southern San Joaquin Valley and deserts. Breeds in marshes with tall emergent vegetation, generally along edges over deep water. Usually forages on seeds and aquatic insects within individual territories but may use nearby agricultural fields if resources are scarce (Shuford and Gardali 2008).	**May occur.** Nesting habitat for this species is present in the Study Area along ditches and canals with emergent vegetation. This species is commonly found nesting with other species of blackbirds. This species could also forage in the Study Area as they are known to forage in agricultural fields. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name[1]	Status[2]	Habitat, Ecology and Life History	Potential to Occur[3]
Mammals			
Antrozous pallidus pallid bat	--/--/SSC	Occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to 6,000 feet. Most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned buildings, bird boxes, tree hallows, and under bridges (Bolster, ed. 1998).	**May occur**. Suitable habitat is present for this species in buildings, bridges and tree hollows. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).
Taxidea taxus American badger	--/--/SSC	Inhabits drier open stages of most shrub, forest, and herbaceous habitats with loose, friable soils. Preys on a wide variety of mammals, reptiles, birds, and carrion, and hunts mostly by digging out fossorial prey. Occasionally takes prey on the surface. Not tolerant of cultivation. No longer occurs in the Central Valley except in the extreme western edge (Williams 1986).	**Will not occur.** Suitable habitat is not present in the Study Area, which consists almost entirely of agricultural lands, developed lands and isolated natural communities surrounded by developed communities and the Sacramento River. There are no CNDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).

1 Sensitive species reported in CNDDB or CNPS on the "*Sacramento West*" and eight surrounding USGS quads, or in USFWS lists for the project site.

2 Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; P= Proposed; C = Candidate; FP=Fully Protected; SSC=Species of Special Concern; WL=Watch List.

3 Status in the Project site is assessed as follows. **Will Not Occur**: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the project site; **Not Expected**: Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the project site; however, focused surveys conducted for the current project were negative; **May Occur**: Species was not observed on the site and breeding habitat is not present but the species has the potential to utilize the site for dispersal, **High**: Habitat suitable for residence and breeding occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Present**: The species was observed during biological surveys for the current project and is assumed to occupy the project site or utilize the project site during some portion of its life cycle.

CRPR = California Rare Plant Rank: 1B to rare, threatened, or endangered in California and elsewhere; 2B to rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 to seriously endangered; .2 to moderately endangered.

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Appendix D

Plant and Wildlife Species Observed in the Project Site

Family	Species Name	Common Name	Status
Native			--
Asteraceae	*Erigeron canadensis*	Canada horseweed	--
Cyperaceae	*Carex barbarae*	valley sedge	--
	Carex praegracilis	field sedge	--
	Cyperus eragrostis	tall flatsedge	--
	Schoenoplectus acutus	hardstem bulrush	--
Euphorbiaceae	*Croton setiger*	turkey-mullein	--
Fagaceae	*Quercus lobata*	valley oak	--
	Quercus wislizeni	Interior live oak	--
Juncaceae	*Juncus balticus*	Baltic rush	--
Onagraceae	*Epilobium brachycarpum*	annual fireweed	--
Poaceae	*Phalaris arundinacea*	reed canarygrass	--
Salicaceae	*Populus fremontii*	Fremont cottonwood	--
	Salix gooddingii	Goodding's black willow	--
	Salix lasiandra	Pacific willow	--
	Salix lasiolepis	arroyo willow	--
Solanaceae	*Datura wrightii*	sacred thorn apple	--
Typhaceae	*Typha latifolia*	common cattail	--
Non-native			
Asteraceae	*Carduus pycnocephalus*	Italian thistle	Moderate
	Centaurea solstitialis	yellow-star thistle	High
	Cichorium intybus	chicory	--
	Daucus carota	wild carrot	--
	Dittrichia graveolens	stinkwort	Moderate
	Helminthotheca echioides	bristly ox-tongue	Limited
	Lactuca serriola	prickly lettuce	--
	Silybum marianum	milk thistle	Limited
	Taraxacum officinale	common dandelion	--
Brassicaceae	*Brassica nigra*	black mustard	Moderate
	Hirschfeldia incana	summer mustard	Moderate
	Raphanus sativus	wild radish	Limited
Convolvulaceae	*Convolvulus arvensis*	field bindweed	--/C
Cyperaceae	*Cyperus rotundus*	nutgrass	--
Fabaceae	*Medicago polymorpha*	bur clover	Limited
	Medicago sativa	alfalfa	--
	Trifolium hirtum	rose clover	Limited
Geraniaceae	*Erodium botrys*	broadleaf filaree	--
Lamiaceae	*Marrubium vulgare*	white horehound	Limited
Malvaceae	*Malva parviflora*	cheeseweed	--
Myrtaceae	*Eucalyptus* spp.	eucalyptus	Limited
Plantaginaceae	*Plantago lanceolata*	English plantain	Limited
Poaceae	*Arundo donax*	giant reed	High
	Avena fatua	wild oats	Moderate
	Bromus diandrus	common ripgut grass	Moderate
	Bromus hordeaceus	soft brome	Limited
	Cynodon dactylon	Bermuda grass	Moderate
	Elymus caput-medusae	medusahead	High
	Festuca myuros	foxtail grass	Moderate
	Festuca perennis	Italian ryegrass	--

Family	Species Name	Common Name	Status
Poaceae (cont.)	*Hordeum marinum* ssp. *gussoneanum*	Mediterranean barley	--
	Paspalum dilatatum	dallisgrass	--
	Phalaris aquatica	Harding grass	Moderate
	Polypogon monspeliensis	annual beard grass	Limited
	Sorghum halepense	Johnsongrass	--
	Triticum aestivum	wheat	--
Polygonaceae	*Rumex crispus*	curly dock	Limited
	Rumex pulcher	fiddledock	--
Rosaceae	*Prunus* spp.	fruit trees	--
	Rubus armeniacus	Himalayan blackberry	High

Cal-IPC categorizes plants as “high, moderate, or limited,” reflecting the level of each species’ negative ecological impact in California.

Family	Scientific Name	Common Name
Birds		
Accipitridae	*Accipiter cooperii*	Cooper's hawk
	Buteo jamaicensis	red-tailed hawk
	Buteo lineatus	red-shouldered hawk
Anatidae	*Anas platyrhynchos*	mallard
	Branta canadensis	Canada goose
Ardeidae	*Ardea alba*	great egret
	Ardea Herodias	great blue heron
	Egretta thula	snowy egret
Cathartidae	*Cathartes aura*	turkey vulture
Columbidae	*Columba livia*	rock pigeon
	Zenaida macroura	mourning dove
Corvidae	*Aphelocoma californica*	California scrub jay
	Corvus brachyrhynchos	American crow
	Corvus corax	common raven
	Pica nuttalli	yellow-billed magpie
Fringillidae	*Haemorhous mexicanus*	house finch
	Spinus psaltria	lesser goldfinch
Hirundinidae	*Tachycineta bicolor*	tree swallow
	Tachycineta thalassina	violet-green swallow
Icteridae	*Agelaius phoeniceus*	red-winged blackbird
	Euphagus cyanocephalus	Brewer's blackbird
	Sturnella neglecta	western meadowlark
Mimidae	*Mimus polyglottos*	northern mockingbird
Pandionidae	*Pandion haliaetus*	osprey
Paridae	*Baeolophus inornatus*	oak titmouse
Parulidae	*Setophaga coronata*	yellow-rumped warbler
Passerellidae	*Zonotrichia leucophrys*	white-crowned sparrow
Pelecanidae	*Pelecanus erythrorhynchos*	American white pelican
Phalacrocoracidae	*Nannopterum auritum*	double-crested cormorant
Picidae	*Colaptes auratus*	northern flicker
	Dryobates nuttallii	Nuttall's woodpecker
	Melanerpes formicivorus	acorn woodpecker
Ptiliogonatidae	*Phainopepla nitens*	phainopepla
Sittidae	*Sitta carolinensis*	white-breasted nuthatch
Sturnidae	*Sturnus vulgaris*	European starling
Troglodytidae	*Thryomanes bewickii*	Bewick's wren
Turdidae	*Sialia mexicana*	western bluebird
	Turdus migratorius	American robin
Tyrannidae	*Sayornis nigricans*	black phoebe
	Sayornis saya	Say's phoebe
Mammals		
Leporidae	*Lepus californicus*	black-tailed jackrabbit
Reptiles		
Trionychidae	*Trachemys scripta elegans*	red-eared slider

Appendix E

Representative Site Photos

Photo 1. Representative view of a ditch (D-5) that occurs along the eastern perimeter of the Study Area and south of San Juan Road. Photo date March 7, 2023.

Photo 2. Representative view of an agricultural canal previously delineated (SPK-2020-00237). Photo date March 7, 2023.

Photo 3. Representative view of detention basin (B-1). Photo date March 7, 2023.

Photo 4. Representative view of a ditch (D-4) that occurs perpendicular and south of San Juan Road. Photo date March 7, 2023.

Photo 5. Representative view of a ditch (D-7) that occurs parallel and east to Garden Highway. Photo date March 7, 2023.

Photo 6. Representative view of ditch along agricultural fields and valley oak woodland (D-16). Photo date March 7, 2023.