

APPENDIX A
BIOLOGICAL RESOURCES
ASSESSMENT

Biological Resources Assessment

Kawana Springs Community Park
SANTA ROSA, SONOMA COUNTY, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

BMPs	Best Management Practices
BRA	Biological Resources Assessment
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
ESA	Federal Endangered Species Act
Inventory	CNPS Inventory of Rare and Endangered Plants
MSL	Mean Sea Level
MBTA	Migratory Bird Treaty Act
OWHM	Ordinary High Water Mark
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

WRA, Inc. (WRA) prepared this biological resources assessment (BRA) report on behalf of David J. Powers & Associates for the proposed Kawana Springs Community Park Project (Project). The proposed Project involves the development of a community park at an approximately 19.6-acre property located at the corner of Kawana Springs Road and Meda Avenue (APN #s: 044-510-013, 044-430-031, 044-410-052, and 044-380-098) in the southeast quadrant of the City of Santa Rosa, Sonoma County, California (Study Area; Appendix A - Figure 1). The proposed Kawana Springs Community Park would include various improvements, including but not limited to: picnic areas, a multi-use turf area, sports courts, a dog park, restrooms, parking lots and drop-off locations, and restrooms. A footbridge across Kawana Springs Creek is proposed at the eastern border of the Study Area, where an existing trail currently crosses the creek.

The purpose of this assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA). This report describes the results of the site visits, which assessed the Study Area for the (1) potential to support special-status species, (2) the potential presence of sensitive biological communities such as wetlands or riparian habitats, and (3) the potential presence of other sensitive biological resources protected by local, state, and federal laws and regulations. Specific findings on the habitat suitability or the presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted.

A BRA provides general information on the potential presence of sensitive species and habitats. The BRA is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit(s).

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the BRA, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Fish and Game Code (CFGF), and the CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all

other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in

the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” or “non-wetland waters” and are often characterized by an ordinary high water mark (OHWM). Other waters or non-wetland waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW, formerly the California Department of Fish and Game [CDFG]). The CDFW ranks sensitive communities and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2018). In the CNDDDB, vegetation alliances are ranked 1 through 5 based on NatureServe's (2018) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW special-status invertebrates, are all considered special-

status species. Although these aforementioned species generally have no special legal status, they are given special consideration under CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special-status and are considered under CEQA. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 through 4 are also considered special-status plant species and must be considered under the CEQA. A description of the CNPS Ranks is provided below in Table 1. In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the CFGC. Under these laws, destroying active bird nests, eggs, and/or young is illegal.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Santa Rosa Plain Conservation Strategy

The Study Area is located within the Santa Rosa Plain, an ecoregion which supports habitat for many vernal pool-associated special-status species. The USFWS developed the Santa Rosa Plain Conservation Strategy (Conservation Strategy; USFWS et al. 2005) as a conservation plan for these species. The Santa Rosa Plain Conservation Strategy Area is an area established by the USFWS for the protection and continued existence of California tiger salamander (CTS, *Ambystoma californiense*) and three endangered plant species: Burke’s goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*), and Sebastopol meadowfoam (*Limnanthes vinculans*). The Conservation Strategy (USFWS 2005) outlines the specific species of concern for this area along with guidance for specific conservation measures. In 2007 the Corps consulted with the USFWS on Section 404 permitting within the Conservation Strategy area which resulted in a Programmatic Biological Opinion (PBO). This 2007 PBO outlines the mitigation requirements resulting from impacts to wetlands and associated impacts to CTS and the three listed plants, and can be appended to permits authorized by the Corps. It is the PBO that dictates the mitigation requirements for CTS and the three listed plant species.

Critical Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

2.3 Local Policies, Ordinances, and Regulations

City of Santa Rosa Tree Ordinance

The City of Santa Rosa recognizes the aesthetic, environmental, and economic benefits mature trees provide to the citizens of the City. Chapter 17-24, "Trees" of the Santa Rosa City Code (Tree Ordinance) regulates the protection of certain trees on public and private properties within the City limits. The Tree Ordinance defines a "heritage tree" as: valley oak (*Quercus lobata*), blue oak (*Q. douglasii*), or buckeye (*Aesculus californica*) 19 inches circumference at breast height (measured at 4.5 feet above ground; or 6 inches diameter at breast height [DBH]) or greater; madrone (*Arbutus menziesii*) 38 inches circumference (12 inches DBH) or greater; coast live oak (*Q. agrifolia*), black oak (*Q. kelloggii*), Oregon oak (*Q. garryana*), canyon live oak (*Q. chrysolepis*), interior live oak (*Q. wislizenii*), red alder (*Alnus rubra* [*A. oregona*]), or white alder (*A. rhombifolia*) 57 inches circumference (18 inches DBH) or greater; or redwood (*Sequoia sempervirens*), bay (*Umbellularia californica*), Douglas fir (*Pseudotsuga menziesii*), or big-leaf maple (*Acer macrophyllum*) 75 inches circumference (24 inches DBH) or greater.

A Tree Permit is generally required for the removal, alteration or relocation of any "heritage tree", "protected tree" (i.e. any tree, including a heritage tree, designated to be preserved on an approved development plan or as a condition of approval of a tentative map, a tentative parcel map, or other development approval issued by the City), or "street tree" (i.e. any tree having a single trunk circumference greater than 6.25 inches or a diameter greater than 2 inches, a height of more than six feet, and one half or more of its trunk is within a public right of way or within 5 feet of the paved portion of a City street or a public sidewalk), except as exempted in Section 17-24.030 of the Tree Ordinance. Several non-native species including acacia, silver maple, ailanthus, hawthorn, fruitless mulberry, privet, pyracantha, Monterey pine, Monterey cypress, and fruit and nut trees (except walnut) are exempt from the provisions of the ordinance. Trees, other than heritage trees, situated within City owned parks and other City owned or controlled places when altered, removed, or relocated by City employees or by contractors retained by the City are also exempt.

Creekside Development Ordinance

Section 20-30.040 "Creekside Development", of the Santa Rosa City Code defines minimum setbacks from waterways for new structures to protect the public from the hazards of streambank failures and flooding. Under the ordinance, buildings of any type, driveways, streets, parking areas, patios, platforms, decks, fences, earth fill or other structural debris fill, and retaining walls, shall be setback a minimum of 50 feet from: (a) the top of the highest bank for streams with

defined channels and banks with slopes gentler than 2.5:1; (b) the intersection of 2.5:1 slope from toe of bank with top-of-bank where the natural bank is steeper than 2.5:1; or (c) the 100-year storm freeboard level for streams where there is no defined top-of-bank. Bridges for motor vehicles, pedestrians, and/or bicycles, and/or public utility infrastructure may cross through a waterway setback area and over or under its channel, provided that the installation has received all required approvals from the City.

3.0 METHODS

WRA biologists conducted a site visit on December 21, 2016. The Study Area was traversed on foot to determine (1) plant communities present within the Study Area, (2) whether existing conditions provide suitable habitat for any special-status plant or wildlife species, and (3) whether sensitive habitats are present. Project figures are provided in Appendix A. All plant and wildlife species encountered were recorded and are summarized in Appendix B. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2018), except where noted. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities. Special-status species with a potential for occurrence, determined based on field visits and habitat availability, are described in Appendix C. Representative photographs of the Study Area taken during field visits are included in Appendix D.

3.1 Biological Communities

Prior to the site visit, the *Soil Survey of Sonoma County*, California [U.S. Department of Agriculture (USDA) 1972] and SoilWeb (CSRL 2018) were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) or *A Manual of California Vegetation, Online Edition* (CNPS 2018a). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-Sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.1.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Non-Wetland Waters

Wetlands and non-wetland waters potentially subject to jurisdiction by the Corps, RWQCB, and/or CDFW were mapped following standard methods from the Corps (Environmental Laboratory 1987, Corps 2008a, b). Identification of wetlands focused on the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) indicators of wetland hydrology. Identification of non-wetland waters focused on the presence of an OHWM.

Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including riparian areas or other sensitive plant communities recognized by CDFW. Prior to the site visit, aerial photographs, local soil maps, and *A Manual of California Vegetation, Online Edition* (CNPS 2018a) were reviewed to assess the potential for sensitive biological communities to occur in the Study Area. All alliances within the Study Area with a ranking of 1 through 3 were considered sensitive biological communities and mapped. These communities are described in Section 4.1.2 below.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Santa Rosa 7.5-minute U.S. Geological Survey (USGS) quadrangle and the eight surrounding quadrangles: Healdsburg, Sebastopol, Two Rock, Cotati, Glen Ellen, Kenwood, Calistoga, and Mark West Springs. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- CNDDDB records (CDFW 2018)
- USFWS Information for Planning and Conservation Report (IPaC; USFWS 2018a)
- National Wetlands Inventory (USFWS 2018b)
- CNPS Rare and Endangered Plant Inventory (CNPS 2018b)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFG publication "California Bird Species of Special Concern" (Shuford and Gardali 2008)
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson *et al.* 2016)
- California Herps: A Guide to the Amphibians and Reptiles of California (CalHerp 2018)
- *Sonoma County Breeding Bird Atlas* (Madrone Audubon Society 1995)
- *A Flora of Sonoma County* (Best et al. 1996)

3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for special-status species. Habitat conditions observed at the Project Site were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the

investigating biologists. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

- **No Potential:** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely:** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential:** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential:** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present:** Species is observed on the site or has been recorded (i.e., CNDDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence will be recorded and discussed.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up to date information regarding species biology and ecology.

If a special-status species was observed during the site visit, its presence is recorded and discussed below in Section 4.2. For some species, a site assessment at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described below in Section 5.0.

4.0 RESULTS

A general description of the Study Area and the results of the site assessment are provided in the following sections. Project figures are provided in Appendix A. A list of plant and wildlife species observed is included as Appendix B. The assessment of the potential for special-status plant and wildlife species to occur in the Study Area is provided as Appendix C. Photographs of the Study Area are provided as Appendix D.

Study Area Description

Kawana Springs Community Park is approximately 19.66 acres of primarily undeveloped land which was deeded to the City as part of the Kawana Springs Subdivision Project. The Study Area is bisected by Kawana Springs Creek (also known as upper Colgan Creek), an intermittent United States Geological Survey (USGS) “blue-line” stream, which flows through the Study Area in a westerly direction. The City has prepared a preliminary conceptual site plan for park improvements which include: an open turf/multi-use field, bocce ball courts, sand volleyball, outdoor table tennis court, playground/fitness area, dog park, restrooms, parking lot and several shade pavilion/gathering areas for the southcentral portion of the Study Area, south of Kawana Springs Creek. Planned improvements for the northern portion of the Study Area, north of Kawana Springs Creek, include a paved trail with fitness stations, community garden, and additional parking and restrooms. A footbridge across Kawana Springs Creek is proposed at the eastern border of the Study Area, where an existing trail currently crosses the creek.

Topography and Soils

The topography in the Study Area is relatively flat, with the exception of Kawana Springs Creek, an intermittent stream that flows in a westerly direction through the Study Area. Elevations within the Study Area range from approximately 245 feet above mean sea level (amsl) at the northeastern corner of the Study Area to approximately 175 feet amsl at the western terminus within the bed of Kawana Springs Creek. SoilWeb (CSRL 2018) indicates that the Study Area contains two soil mapping units: Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes; and Goulding-Toomes complex, 9 to 50 percent slopes (Appendix A – Figure 2). Soil series that make up the aforementioned soil mapping units are described below.

Clear Lake Series. The Clear Lake series soils consist of very deep, poorly drained soils formed in fined textured alluvium derived from igneous, metamorphic, and sedimentary rocks. These soils occur in flood basins, flood plains, and in swales of drainageways. In a representative profile, the surface layer (A-horizon) is a very dark gray (N 3/0) neutral clay from 0 to 13 inches. This is underlain by a very dark gray (N 3/0), moderately alkaline clay Bss-horizon from 13 to 60 inches. The Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes mapping unit is considered a hydric soil (USDA 2018).

Goulding Series. Goulding series soils consist of shallow, somewhat excessively drained soils formed in material weathered from metavolcanic or metasedimentary rocks. These soils are located on mountains and have slopes of 5 to 75 percent. In a representative profile, the surface layer (A-horizon) is a dark brown (7.5YR 3/4), slightly acidic gravelly loam from 0 to 4 inches. This is underlain by a dark brown (7.5YR 3/4), slightly acidic very gravelly loam from 4 to 7 inches. This is underlain by a bedrock layer (R-horizon) of fractured hard metavolcanic rock at 17 inches and below.

Toomes Series. Toomes series soils consist of very shallow, and shallow, well to somewhat excessively drained soils formed in material weathered from tuff breccia, basalt, and andesite. These soils are on ridges and plateaus with slopes from 2 to 75 percent. In a representative profile, the surface layer (A-horizon) is a dark brown (7.5YR 3/4), slightly to moderately acid gravelly loam from 0 to 7 inches. This is underlain by a dark reddish brown (5YR 3/4), slightly acidic gravelly loam from 7 to 15 inches. This is underlain by a bedrock layer (R-horizon) of volcanic breccia.

Climate and Hydrology

Average annual precipitation for Santa Rosa is 25 inches, with the majority falling as rain in the winter months (December through March). The mean daily high temperatures in degrees Fahrenheit range from 56 in December to 81 in September. The mean daily low temperatures in degrees Fahrenheit range from 42 in December to 53 in September (WRCC 2018). Sources of hydrology within the Study Area include direct precipitation and surface runoff from adjacent slopes to the north and south.

The Study Area is entirely within the Russian River watershed (HUC 18010110). Kawana Springs Creek, an intermittent blue-line stream flows through the Study Area in a westerly direction and is the dominant drainage feature in the Study Area.

4.1 Biological Communities

Table 2 summarizes the area of each biological community type observed in the Study Area. The Study Area. Non-sensitive biological communities include: ruderal herbaceous grassland, developed/landscaped areas, and non-jurisdictional stormwater retention basin/bioswales. Sensitive biological communities include: intermittent stream, ephemeral stream, valley oak (*Quercus lobata*) riparian woodland, and mitigation seasonal wetland. Descriptions for each biological community are contained in the following sections and depicted in Appendix A - Figure 3.

Table 2. Summary of Biological Communities in the Study Area

Community Type	Area (acres [linear feet])
Non-sensitive	
Ruderal herbaceous grassland	12.25
Developed/landscaped	0.29
Stormwater retention basin	0.61
Sensitive	
Intermittent stream	0.57 [3,087 l.f.]
Ephemeral stream	0.01 [83 l.f.]
Valley oak riparian woodland	4.94
Mitigation seasonal wetland	0.99
Total	19.66

4.1.1 Non-Sensitive Biological Communities

Developed/landscaped. The Study Area contains approximately 0.29 acre of developed areas. Developed areas within the Study Area include a City of Santa Rosa utilities facility located in the northeastern portion of the Study Area. This area is of low habitat value, and vegetative cover is dominated by landscape plantings composed of mostly native species including coast live oak (*Quercus agrifolia*), and coast redwood (*Sequoia sempervirens*). Developed areas are not considered sensitive.

Ruderal herbaceous grassland. The majority of the Study Area is composed of ruderal herbaceous grassland. Approximately 12.25 acres of ruderal herbaceous grassland is present on relatively flat areas to the north and south of Kawana Springs Creek. Vegetative cover within these areas is typically dominated by common non-native invasive grasses and forbs including slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Harding grass (*Phalaris aquatica*), black mustard (*Brassica nigra*), and yellow starthistle (*Centaurea solstitialis*). Historic aerial photographs (Google Earth 2018) indicate that the majority of this area has been previously disturbed by mowing, discing, or heavy equipment storage. Scattered individual trees are present including coast live oak, and valley oak. Ruderal herbaceous grassland is not considered a sensitive biological community, however it does contain several native trees large enough to be considered heritage trees per the City of Santa Rosa Tree Ordinance.

Stormwater retention basin. The Study Area contains approximately 0.61 acre of stormwater retention basins located in the northeastern portion of the Study Area. Two stormwater basins exist within the Study Area, including a linear feature in the northeastern corner of the Study Area, which appears to flow into a secondary roughly rectangular basin to the west. Historic aerial photographs (Google Earth 2018) indicate that stormwater retention basins within the Study Area were constructed between 2006 and 2007 to capture stormwater runoff from an adjacent residential development to the north of the Study Area. The linear stormwater retention basin feature contains emergent marsh vegetation including broadleaf cattail (*Typha latifolia*), whereas vegetation within the western stormwater retention basin is typically dominated by hydrophytic grasses and forbs including meadow barley (*Hordeum brachyantherum*), and pennyroyal (*Mentha pulegium*). Stormwater retention basins within the Study Area are considered exempt per the CWA as they meet the definition of “stormwater control features constructed to convey, treat or store stormwater that are created in dry land” (33 CFR 328.3b).

4.1.2 Sensitive Biological Communities

Intermittent stream. The Study Area contains approximately 0.57 acre (3,087 linear feet) of an intermittent stream which bisects the Study Area flowing in a westerly direction. Kawana Springs Creek is an intermittent USGS blue-line stream. The bed of the channel is composed of rock and cobble mixed with sands and silts. Kawana Springs Creek was delineated within the Study Area based on observable OHWM indicators including: presence of a bed and bank, scouring, wrack, sediment deposition, and water stains on the banks. The OHWM was approximately 15 feet wide with the top-of-bank ranging from approximately 25 to 40 feet wide. Portions of the creek have steep, eroded banks as a result of high-flow events, and several fairly recent tree failures were observed crossing the creek. Dominant vegetation along the banks of the intermittent stream is composed of valley oak (*Quercus lobata*) riparian woodland described in detail below. Areas mapped as intermittent stream are considered jurisdictional under Section 404 of the CWA and Section 1602 of the CFGC. Kawana Springs Creek is also likely subject to development setbacks for structures (including buildings of any type, driveways, streets, parking areas, patios, platforms, decks, fences, earth fill or other structural debris fill, or retaining walls) of 50 feet from the top-of-bank, as per Section 20-30.040 “Creekside Development”, of the Santa Rosa City Code. Bridges for motor vehicles, pedestrians, and/or bicycles, and/or public utility infrastructure may cross through a waterway setback area and over or under its channel, provided that the installation has received all required approvals from the City.

Ephemeral stream. One ephemeral stream, a tributary to Kawana Springs Creek is located at the eastern end of the Study Area. The ephemeral stream is approximately 0.01 acre (83 linear feet), and enters the Study Area from adjacent slopes to the south in the Taylor Mountain Regional

Park. The bed of the ephemeral stream is approximately 2 feet wide with an approximate 4-foot width between tops-of-bank. The feature flows in a northerly direction into the Study Area, through non-native annual grassland, through an underground culvert underneath Kawana Terrace, and flows into Kawana Springs Creek near the site of the proposed bridge crossing. The ephemeral stream was flowing during the time of the site visit. Areas mapped as ephemeral stream are considered jurisdictional under Section 404 of the CWA and Section 1602 of the CFGC.

Valley oak riparian woodland. Valley oak riparian woodland occupies approximately 4.94 acres in the Study Area. Valley oak riparian woodland forms a contiguous canopy along the banks of Kawana Springs Creek (also referred to elsewhere as Colgan Creek), for the majority of the creek's length within the Study Area. This community was mapped in accordance with CNPS (2018) as having valley oak greater than 30 percent relative cover in the tree canopy with other tree species present. The overstory is composed of a mix of native trees and tolerant of winter flooding and/or a high water table, including valley oak, coast live oak (*Quercus agrifolia*), buckeye (*Aesculus californica*), arroyo willow (*Salix lasiolepis*), and Oregon ash (*Fraxinus latifolia*). Other non-native ornamental trees are present in low densities, including Monterey cypress (*Hesperocyparis gymnocarpa*), and cherry plum (*Prunus cerasifera*). The understory is dominated by non-native invasive Himalayan blackberry (*Rubus armeniacus*) throughout the majority of the community. Other non-native shrub species present include French broom (*Genista monspessulana*). Native woody understory species present include poison oak (*Toxicodendron diversilobum*), and California wild rose (*Rosa californica*). The herbaceous layer is dominated by non-native invasive big periwinkle (*Vinca major*), with other native and non-native forbs present including mugwort (*Artemisia douglasii*), licorice fern (*Polypodium calirhiza*), and cleavers (*Galium aparine*). Valley oak woodland is reported by the CDFW with a rarity ranking of G3, S3 (CNPS 2018a), indicating that it is considered vulnerable globally and in California. This community would therefore be considered sensitive and must be evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3). Valley oak riparian woodland is also considered a sensitive community under Section 1602 of the CFGC, and this community also contains many individual trees protected per the City of Santa Rosa Tree Ordinance. Any tree removal or development within this community, including but not limited to trail construction will require a CDFW permit.

Mitigation seasonal wetland. The Study Area contains three mitigation seasonal wetlands, totaling approximately 0.99 acre within the northern portion of the Study Area, north of Kawana Springs Creek. These mitigation wetlands were constructed in the Summer and Fall of 2007 as mitigation for impacts to jurisdictional wetlands associated with three Kawana Springs Subdivision Projects (WRA 2008). The mitigation wetlands were created by excavating an upland area to create a series of depressions, Mitigation Wetland 1 (W1), Mitigation Wetland 2 (W2) and Mitigation Wetland 3 (W3). The wetlands were designed to be inundated and/or saturated by direct precipitation and augmented by treated runoff from a bio-swale immediately east of the mitigation wetlands, and a stormwater retention basin directly west of the mitigation wetlands. All three mitigation wetlands appeared to be functioning as wetlands during the December 2016 site visit, as evidenced by observed saturation and/or inundation and dominance of hydrophytic vegetation within the wetland features. Vegetation within the mitigation wetlands was dominated by Italian rye grass (*Festuca perennis*) and meadow barley (*Hordeum brachyantherum*), with substantial cover of iris-leaf rush (*Juncus xiphioides*), common spikerush (*Eleocharis macrostachya*), Mediterranean barley (*Hordeum marinum*), tall flatsedge (*Cyperus eragrostis*), and additional herbaceous hydrophytic vegetation including bristly ox-tongue (*Helminthotheca echioides*), pennyroyal (*Mentha pulegium*), fiddle dock (*Rumex pulcher*), and California aster (*Symphyotrichum chilense*). Areas mapped as mitigation seasonal wetlands are considered jurisdictional under Section 404 of the CWA. The Santa Rosa City Code does not specify any setback requirements for the mitigation wetlands. The Corps generally requires a minimum of 25

feet. for setbacks around natural wetlands that are not being filled by a project, however the setback can typically be modified if there is an unavoidable “pinch point” where there is a need to get closer.

4.2 Special-Status Species

4.2.1 *Special-Status Plants*

Based upon a review of the resources and databases listed in Section 3.2.1 for the Santa Rosa, Healdsburg, Sebastopol, Two Rock, Cotati, Glen Ellen, Kenwood, Calistoga, and Mark West Springs 7.5-minute USGS quadrangles, it was determined that 90 special-status plant species have been documented from the vicinity of the Study Area; special-status plant species documented from within 5 miles of the site are shown in Appendix A - Figure 4. Of the 90 special-status species documented, all are either unlikely or have no potential to occur within the Study Area for one or more of the following reasons:

- The Study Area has been repeatedly and intensively altered from a natural state, by discing, mowing, and/or grading within the open grassland areas, thereby eliminating the seedbank or diminishing establishment of the special-status plant(s);
- The Study Area does not contain hydrologic conditions (e.g., perennial saline, freshwater marshes and swamps) necessary to support the special-status plant(s);
- The Study Area does not contain edaphic (soil) conditions (e.g., serpentine or volcanic substrate) necessary to support the special-status plant(s);
- The Study Area does not contain vegetation communities (e.g., chaparral, coastal scrub, vernal pools) associated with the special-status plant(s);
- Very unique pH characteristics, such as alkali scalds or acidic bogs and fens, are absent from the Study Area;
- Competition from vigorous non-native invasive species (e.g. Himalayan blackberry), likely precludes the species' ability to persist on-site.

All listed plant species covered by the Santa Rosa Plain Conservation strategy, Burke's goldfields, Sonoma sunshine, and Sebastopol meadowfoam are unlikely to occur within the Study Area due to a lack of vernal pool habitat, lack of suitable hydrology (i.e. extended ponding), prior disturbance (i.e. mowing), and lack of historical occurrences within the immediate proximity (within 2 miles) of the Study Area. Moreover, the Study Area is located in area assessed by the Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007) as “no listed plants in the area”.

4.2.2 *Special-Status Wildlife*

Based upon a review of the resources and databases listed in Section 3.2.1, it was determined that 41 special-status wildlife species have been documented from within the Cotati, Kenwood, Sebastopol, Calistoga, Glen Ellen, Healdsburg, Mark West Springs, Two Rock, and Santa Rosa USGS 7.5-minute quadrangles. Of these wildlife species, 13 have moderate or high potential to occur within the Study Area. Special-status wildlife species with potential to occur include three species of bat, eight species of bird, western pond turtle (WPT; *Actinemys marmorata*), California red-legged frog (CRLF; *Rana draytonii*), foothill yellow-legged frog (*Rana boylei*) and California giant salamander (*Dicamptodon ensatus*). These species may be affected both directly and indirectly by project activities if present.

Appendix C summarizes the potential for each of these species to occur in the Study Area. Special-status wildlife species documented in CNDDDB within a 5-mile radius of the Study Area are depicted in Appendix A - Figure 5.

Twenty-six (26) special-status wildlife species listed in Appendix C were determined to have no potential or are unlikely to occur within the Study Area for one or more of the following reasons:

- The Study Area is outside of the known or historical range of the species;
- The Study Area lacks suitable foraging habitat (e.g. marshes);
- The Study Area lacks suitable tall nesting structures (e.g. mature conifer trees);
- The Study Area lacks suitable soil for den development;
- No mine shafts, caves, or abandoned buildings are present within the Study Area;
- There is a lack of connectivity with suitable habitat.

While the aforementioned factors contribute to the absence of many special-status wildlife species from the Study Area, the following species determined to have adequate conditions and locality to warrant a moderate or high potential to occur.

Special-status Wildlife Species with Moderate or High Potential to Occur in the Study Area:

Hoary bat (*Lasiurus cinereus*), WBWG Medium Priority. Moderate Potential. Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, though this behavior is not typical. Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats probably mate in the fall, with delayed implantation leading to birth in May through July. They usually emerge late in the evening to forage, typically from just over one hour after sunset to after midnight. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2018). The Study Area contains mature trees which may provide dense foliage or cavities of sufficient size to potentially provide roosting structure for this species. In addition, Kawana Springs Creek provides adequate water for this species. This species has a moderate potential to occur within the Study Area.

Long-legged myotis (*Myotis volans*), WBWG High Priority. Moderate Potential. The long-legged myotis ranges across western North America from southeastern Alaska to Baja California and east to the Great Plains and central Texas. This species is usually found in coniferous forests, but also occurs seasonally in riparian and desert habitats. They use abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark and hollows within snags as summer day roosts. Caves and mines are used as hibernation roosts. Long-legged myotis forage in and around the forest canopy and feed on moths and other soft-bodied insects (WBWG 2018). The Study Area contains riparian habitat which may support roosting by this species and Kawana Springs Creek provides an adequate water source.

Pallid bat (*Antrozous pallidus*), CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in a number of

habitats ranging from rocky arid deserts to grasslands, and into higher elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet, but have been found up to 10,000 feet in the Sierra Nevada. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., ponderosa pine), inside basal hollows of redwoods and giant sequoias, and within bole cavities in oak trees. They have also been reported roosting in stacks of burlap sacks and stone piles. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground but sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2018). The Study Area contains trees of sufficient size to potentially provide roosting structure for this species. In addition, Kawana Springs Creek may provide adequate water for this species.

Oak titmouse (*Baeolophus inornatus*), USFWS Bird of Conservation Concern. High Potential. This relatively common species is year-round resident throughout much of California including most of the coastal slope, the Central Valley and the western Sierra Nevada foothills. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas (Cicero 2000). The oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own (Cicero 2000). Seeds and arboreal invertebrates make up the birds' diet. Suitable oak trees for nesting and foraging are present within the Study Area. Oak titmouse is regularly observed in the vicinity of the Study Area (eBird 2018).

Nuttall's woodpecker (*Picoides nuttalli*), USFWS Bird of Conservation Concern. High Potential. Nuttall's Woodpecker is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. Nuttall's woodpecker also occurs in older residential settings and orchards where trees provide suitable foraging and nesting habitat. This species forages on a variety of arboreal invertebrates. The Study Area contains oak woodland suitable for nesting and foraging by this species. This species has been observed near the Study Area (CDFW 2018).

White-tailed kite (*Elanus leucurus*), CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. The Study Area provides trees of suitable size for nesting as well as nearby foraging habitat. This species has been recorded nesting approximately 1.2 miles west of the Study Area (CDFW 2018).

Allen's hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Moderate Potential. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California and the Channel Islands. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves (Mitchell 2000). It feeds on nectar, as well as insects and spiders. Trees present within the Study Area provide potential nesting habitat and flowering species within

and adjacent to the Study Area provide foraging habitat for Allen's hummingbird. This species has been documented in the vicinity of the Study Area (eBird 2018).

Lawrence's goldfinch (*Spinus lawrencei*), USFWS Bird of Conservation Concern. Moderate Potential. This generally uncommon species is endemic as a breeder to arid woodland habitats in the Central Valley and coastal foothills of California, as well as northern Baja California. Annual distribution within the breeding range can be highly erratic. Wintering occurs in the greater southwest region, including southern California. Suitable woodland habitat is frequently dominated by oaks, and annual native plants are an important food resource (Davis 1999). The Study Area contains oak woodland suitable for nesting and foraging by this species.

(Brewster's) Yellow warbler (*Setophaga petechia brewsteri*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. The yellow warbler is a neotropical migrant bird that is widespread in North America, but has declined throughout much of its California breeding range. The Brewster's (*S.p. brewsteri*) subspecies is a summer resident and represents the vast majority of yellow warblers that breed in California. West of the Central Valley, typical yellow warbler breeding habitat consists of dense riparian vegetation along watercourses, including wet meadows, with willow growth especially being favored (Shuford and Gardali 2008). Insects comprise the majority of the diet. The Study Area contains riparian habitat which may be suitable for nesting or foraging by this species.

Western pond turtle (*Actinemys marmorata*), CDFW Species of Special Concern. Moderate Potential. The western pond turtle is the only native freshwater turtle in California. This turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and Transverse Ranges. Western pond turtle inhabits annual and perennial aquatic habitats, such as coastal lagoons, lakes, ponds, marshes, rivers, and streams from sea level to 5,500 feet in elevation. Pond turtle also occupies man-made habitats such as stock ponds, wastewater storage, percolation ponds, canals, and reservoirs. This species requires low-flowing or stagnant freshwater aquatic habitat with suitable basking structures, including rocks, logs, algal mats, mud banks and sand. Warm, shallow, nutrient-rich waters are ideal as they support prey items, which include aquatic invertebrates and occasionally fish, carrion, and vegetation. Turtles require suitable aquatic habitat for most of the year; however, pond turtle often occupies creeks, rivers, and coastal lagoons that become seasonally unsuitable. To escape periods of high water flow, high salinity, or prolonged dry conditions, western pond turtle may move upstream and/or take refuge in vegetated, upland habitat for up to four months (Rathbun et al. 2002). Although upland habitat is utilized for refuging and nesting, this species preferentially utilizes aquatic and riparian corridors for movement and dispersal.

Western pond turtle nests from late April through July. This species requires open, dry upland habitat with friable soils for nesting and prefer to nest on unshaded slopes within 15 to 330 feet of suitable aquatic habitat (Rathbun et al. 1992). Females venture from water for several hours in the late afternoon or evening during the nesting season to excavate a nest, lay eggs, and bury the eggs to incubate and protect them. Nests are well-concealed, though native mammals are occasionally able to locate and predate upon eggs. Hatchlings generally overwinter in the nest and emerge in early spring of the following year. The Study Area contains an intermittent stream which could support this species through part of the year. There are multiple recorded occurrences of this species within 5-miles of the Study Area (CDFW 2018).

Foothill yellow-legged frog (*Rana boylei*), State Candidate, CDFW Species of Special Concern. Moderate Potential. The foothill yellow-legged frog (FYLF) historically occurred in coastal and mountain streams from southern Oregon to Los Angeles County, but has declined in

many parts of this range. This species is strongly associated with rivers and creeks, and prefers shallow, flowing water with a rocky substrate. Individuals do not typically move overland and are rarely observed far from a source of permanent water. In northern California, it was observed adults were on average within ten feet and rarely over 40 feet from the stream (Bourque 2008). Although upland habitat usage is not well studied, the data suggest that movements away from water are related to flood events (Kupferberg 1996, Bourque 2008, Thomson et al. 2016). Frogs in intermittent drainages may move more than those in perennial but movements are within the creek corridors (Kupferberg 1996, Bourque 2008, Gonsolin 2010). There were opportunistic observations that coastal yellow-legged frogs may use upland habitats in winter (Nussbaum et al. 1983, Welsh, H. per. comm. as reported in Bourque 2008); however, this has not been supported by data and these movements away from water into terrestrial habitat are likely in response to high flows and flood events (Kupferberg 1996, Bourque 2008). Aquatic breeding sites are often near stream confluences, with egg masses typically deposited behind or sometimes under rocks in low-flow areas with cobble and/or gravel (Thomson et al. 2016). The Study Area contains a small, low gradient, intermittent stream that could support metamorphosed FYLF during part of the year. Connectivity to more suitable downstream habitats that may support breeding is compromised by dense urban surroundings. However, because some habitat exists for the species and several recent records for the species are present in the City of Santa Rosa (iNaturalist 2018), there is potential for FYLF to be present in the stream within the Study Area.

California red-legged frog (*Rana draytonii*). Federal Threatened Species, CDFW Species of Special Concern. Moderate Potential. CRLF is dependent on suitable aquatic and upland habitat. Specifically, there are four physical and biological features that are considered to be essential for the conservation or survival of the species. The features for the CRLF include aquatic breeding habitat; non-breeding aquatic habitat; upland habitat; and dispersal habitat (USFWS 2010). Aquatic breeding habitat consists of low-gradient fresh water bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. It does not include deep water habitat, such as lakes and reservoirs. Aquatic breeding habitat must hold water for a minimum of 20 weeks in most years. This is the average amount of time needed for egg, larvae, and tadpole development and metamorphosis so that juveniles can become capable of surviving in upland habitats (USFWS 2010). Aquatic non-breeding habitat may or may not hold water long enough for CRLF to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLF. These waterbodies include plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period. CRLF can use large cracks in the bottom of dried ponds as refugia to maintain moisture and avoid heat and solar exposure (Alvarez 2004). Non-breeding aquatic features enable CRLF to survive drought periods, and disperse to other aquatic breeding habitat (USFWS 2010).

Upland habitats include areas adjacent to aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. These upland features provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat can include structural features such as boulders, rocks and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010). Dispersal habitat includes accessible upland or riparian habitats between occupied locations within 1 miles of each other that allow for movement between these sites. Dispersal habitat includes various natural and altered habitats such as agricultural fields, which do not contain barriers to dispersal. Moderate to high-density urban or industrial developments, large reservoirs and heavily traveled roads without bridges or culverts

are considered barriers to dispersal (USFWS 2010). Although CRLF is highly aquatic, this species has been documented to make overland movements of several hundred meters and up to one mile during a winter-spring wet season in Northern California (Bulger et al. 2003, Fellers and Kleeman 2007) and 2,860 meters (1.8 miles) in the central California coast (Rathbun and Schneider 2001). Frogs traveling along watercourses can exceed these distances. Kawana Springs Creek is intermittent and does not provide suitable breeding habitat for this species. Suitable aquatic breeding habitat exists approximately 1-mile of the Study Area, where CRLF was observed as recently as 2016 (CDFW 2018). Based upon distance from breeding habitat, this species may disperse into woodland, grassland, or intermittent streams within the Study Area during periods of rainfall but is otherwise unlikely to be present.

California giant salamander (*Dicamptodon ensatus*). CDFW Species of Special Concern. Moderate Potential. The California giant salamander is endemic to the north-central California Coast Ranges, and occurs in two discrete areas north and south of San Francisco Bay respectively. This species primarily occupies moist coniferous and mixed forests, but is also found along streams in coastal woodland and chaparral areas. Adults are largely terrestrial and fossorial, but similar to other fossorial amphibians, can be active at or near the surface in wet conditions such as high humidity or rain events (Thomson et al. 2016). Discoveries of this species at burrows are restricted to wet, shaded along streams, stream banks, and moist road cuts, and only above ground during fall and winter rain events (Fellers et al 2010, Thomson et al 2016). Observations of this species underground come from work in streams and all individuals were always within refugia in proximity to creek or spring features (Feller et al 2010). Breeding occurs in cold, permanent or semi-permanent streams, often in headwater reaches. Larvae typically remain aquatic for over a year before metamorphosing (Thomson et al. 2016). Some larvae never undergo metamorphosis, and become reproductively mature while remaining aquatic. Prey consists of a variety of invertebrates and small vertebrates. The Study Area contains woodland and aquatic habitat which may be seasonally suitable for this species. The Study Area is surrounded by development to the north and west, and the Study Area may not keep stream temperatures suitable for the species, but it is contiguous with potentially suitable habitat to the east and south. There is a moderate potential for this species to be present within the stream in the Study Area.

4.3 Protected Trees

WRA conducted an arborist survey within the Study Area concurrent with this assessment in January 6, 2017. The survey focused on identifying: (a) potential hazard trees in the Study Area, and (b) heritage and non-heritage trees that may be impacted by park improvements. The survey, conducted by WRA's ISA-Certified Arborist identified 47 trees in the vicinity of project improvements in the Study Area, including 27 heritage trees per the City of Santa Rosa Tree Ordinance, and 20 non-heritage trees. A figure showing surveyed trees is provided in Appendix A. A tree survey table with all pertinent information for surveyed trees is provided in Appendix E. The Project has been designed to avoid and preserve trees, especially heritage trees to the maximum extent feasible. As described above, the City is considered exempt from their own tree ordinance on trees, other than heritage trees, situated within City owned parks and other City owned or controlled places when altered, removed, or relocated by City employees or by contractors retained by the City.

5.0 POTENTIAL IMPACTS, AVOIDANCE, AND MINIMIZATION MEASURES

Four sensitive biological communities, including ephemeral stream, intermittent stream (Kawana Springs Creek), mitigation seasonal wetland, and valley oak riparian woodland were identified within the Study Area. No special-status plant species and two special-status wildlife species including oak titmouse and Nuttall's woodpecker were observed within Study Area during the site visit. No special-status plant species, and 15 special-status wildlife species have a moderate or high potential to occur. The following sections present recommendations for future studies and/or measures to avoid or reduce impacts to these species and sensitive habitats, if present. Potential impacts to sensitive biological communities and special-status species within the Study Area were evaluated based on the project site plans (GSM 2018). Potential impacts were analyzed using the framework provided in Appendix G of the CEQA Guidelines. Based on this framework, the Project is determined to have a potentially significant impact to biological resources if it may:

- a) 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;
- b) 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;
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The following sections provide an analysis of potential impacts using the framework outlined above, as well as recommended avoidance and minimization measures to reduce potential impacts and mitigation measures for unavoidable impacts. With the implementation of the recommended avoidance and minimization measures outlined below, all potential impacts are considered less-than-significant.

5.1 Potentially Significant Impacts

Sensitive Biological Communities

Potential Impact BIO-1: Wetlands and Waters of the U.S., Riparian Habitat

The Study Area contains intermittent and ephemeral streams, and mitigation seasonal wetlands which are likely to be considered jurisdictional waters of the U.S. All areas mapped as ephemeral

stream, intermittent stream, and mitigation seasonal wetland will be avoided by the Project. However, the site plan includes one footbridge crossing across Kawana Springs Creek which may have potential impacts to habitat adjacent to the creek. The Project plans indicate that bridge footings will be situated outside of the OHWM, and above TOB. However, if impacts occur below the top of bank (TOB), within riparian habitat, or the project proposes to fill wetlands or areas below the OHWM of the creek, a mitigation measure (MM BIO-1) for impacts to jurisdictional wetlands and Waters of the U.S. and riparian habitat is discussed in Section 5.2 below. With implementation of MM BIO-1 these impacts would be less-than-significant.

Special-Status Plant Species

All special-status plant species documented within the vicinity of the Study Area are unlikely or have no potential to occur in the Study Area. The Project is not anticipated to impact special-status plant species. No further surveys or mitigation measures are recommended for special-status plant species.

Special-Status Wildlife Species

Fifteen (15) special-status wildlife species were determined to have moderate or high potential to occur within the Study Area. The Project may also affect non-special-status native nesting birds which are protected by the CFGC. Kawana Springs Creek may be seasonally suitable for California giant salamander and western pond turtle; however, because aquatic habitat within the Study Area is marginal and work will not occur below top of bank, project activities are unlikely to adversely affect these species.

Potential Impact BIO-2: Nesting Bird Species

The Project has the potential to impact special-status and non-special-status native nesting birds protected by CFGC and the MBTA including white-tailed kite, oak titmouse, Allen's hummingbird, Nuttall's woodpecker, Lawrence's goldfinch, yellow-breasted chat, yellow warbler, and Vaux's swift. Project activities such as vegetation removal and ground disturbance associated with development would have the potential to affect these species by causing direct mortality of eggs or young, or by causing auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of an active nest. If Project Activities occur during the nesting season, which generally extends from February 1 through August 31 nests of both special-status and non-special-status native birds could be impacted by construction and other ground disturbing activities.

The direct removal/destruction of active nests due to project activities or disturbance to breeding birds sufficient to result in the abandonment of active nests is a potentially significant impact under CEQA. A mitigation measure (MM BIO-2) for impacts to nesting birds is discussed in Section 5.2 below. With implementation of MM BIO-2 these impacts would be less-than-significant.

Potential Impact BIO-3: Special-Status Bat Species

The Study Area contains trees with foliage and possible cavities that may provide roost habitat to special-status bat species documented in the vicinity and outlined in Appendix C: hoary bat, long-legged bat, and pallid bat. Impacts to these species and their roost habitats could occur during the removal of trees within the Study Area. These activities could result in the direct removal or

destruction of a roost and/or maternity roost. Project activities may also create audible, vibratory and/or visual disturbances which cause maternity roosting bats to abandon their roost site.

Activities that result in the direct removal of active roosts or disturbance to maternity roosting bats sufficient to result in the abandonment of the roost is a potentially significant impact under CEQA. A mitigation measure (MM BIO-3) for impacts to roosting bats is discussed in Section 5.2 below. With implementation of MM BIO-3, impacts would be less-than-significant.

Potential Impact BIO-4: California Red-legged Frog

CRLF breeding and year-round aquatic habitat is within 1-mile of the Study Area. CRLF may use Kawana Springs Creek for non-breeding aquatic habitat. CRLF have potential to disperse into the Study Area from nearby suitable aquatic habitat during rain events. Project activities including vegetation removal and grading could result in direct injury or mortality.

Activities that result in disturbance to CRLF is a potentially significant impact under CEQA. A mitigation measure (MM BIO-4) for impacts to CRLF is discussed in Section 5.2 below. With implementation of MM BIO-4, impacts would be less-than-significant.

Potential Impact BIO-5: Foothill Yellow-legged Frog

The Study Area contains a small, low gradient, intermittent stream that could support FYLF during part of the year. Impacts to this species could occur during vegetation removal or ground disturbing activities in close proximity to Kawana Springs Creek or during flood periods where FYLF may occur above top of bank.

The direct injury or harm of FYLF due to project activities is a potentially significant impact under CEQA. In addition, FYLF is a candidate for listing under the CESA, and take as defined by CESA is prohibited unless permitted through consultation under CFGC Section 2081 with CDFW. A mitigation measure (MM BIO-5) for impacts to FYLF is discussed in Section 5.2 below. With implementation of MM BIO-5 these impacts would be less-than-significant.

Protected Trees

Impact BIO-6: Protected Trees

WRA's ISA-Certified Arborist identified 47 trees in the vicinity of project improvements in the Study Area, including 27 heritage trees per the City of Santa Rosa Tree Ordinance, and 20 non-heritage trees. The Project has been designed to avoid and preserve trees, especially heritage trees to the maximum extent feasible. As described above, the City is considered exempt from their own tree ordinance on trees, other than heritage trees, situated within City owned parks and other City owned or controlled places when altered, removed, or relocated by City employees or by contractors retained by the City. Potential tree removal impacts were assessed by overlaying the proposed improvements over tree survey data (Figure 3). Based on a preliminary impact assessment it appears that three non-heritage trees (trees #36, 37, and 38) may require removal to facilitate project improvements. Two of the three trees, #36 and 37 are dead cherry plum trees, and tree #38 is a live cherry plum tree. Removal of non-heritage trees would not be considered a significant impact as it would not conflict with the City of Santa Rosa Tree Ordinance. However, if heritage trees require removal, a mitigation measure (MM BIO-6) for impacts to heritage trees is discussed in Section 5.2 below. With implementation of MM BIO-6, impacts would be less-than-significant.

5.2 Mitigation Measures

Sensitive Biological Communities

MM BIO-1: Wetlands and Waters of the U.S., Riparian Habitat

Project plans indicate that bridge footings will be situated outside of the OHWM, and above TOB. However, if impacts occur below the top of bank (TOB), within riparian habitat, or the project proposes to fill wetlands or areas below the OHWM of the creek, the following permits will be required:

- Corps Section 404 Nationwide Permit (OHWM, mitigation seasonal wetland),
- RWQCB Section 401 Water Quality Certification (OHWM, mitigation seasonal wetland),
- RWQCB Waste Discharge Requirements (TOB), and
- CDFW Section 1602 Streambed Alteration Agreement (TOB, valley oak riparian woodland);

If project work will avoid the OHWM of the creek, and mitigation wetlands, no formal wetland delineation or permits from the Corps would be required. Stream setbacks for new structures may apply per Section 20-30.040, "Creekside Development" of the Santa Rosa City Code. The setback area on either side of Kawana Springs Creek is typically measured as 50 feet from the top of the highest bank of the creek. When the bank is steeper than 2.5:1, the setback is measured by projection of the slope of 2.5:1 from the toe of the stream bank to ground level above top of bank, plus 50 feet.

Removal of vegetation, particularly woody trees and shrubs within the valley oak riparian woodland will likely require a CDFW 1602 permit and require replacement mitigation. Potential impacts to valley oak riparian woodland and potential riparian trees are shown on Figure 3. Impacts to valley oak riparian woodland are mostly limited to trail construction within valley oak riparian woodland underneath riparian trees, which would not require mitigation. However, the Project may require removal of two dead non-native cherry plum trees (trees #36, and 37), and one live cherry plum tree (tree #38) within riparian habitat, in which case mitigation replacement plantings on the order of 3:1 replacement trees planted to trees removed would likely be required, for a maximum of 9 replacement trees.

A habitat mitigation and monitoring plan (HMMP) should be developed that will provide details on how to replace trees to compensate for removal of riparian trees. Replacement plantings should be sited in non-native annual grassland habitat adjacent to valley oak riparian woodland with the intention of filling in gaps in existing riparian woodland habitat, and/or expanding the extent of riparian habitat within the Project Area. The Plan shall include: 1) a plant palette of species/quantity riparian species to be planted; 2) approximate area of temporary and permanent riparian impacts; 3) a map showing restoration locations, area dimensions, and riparian enhancement methods; and 5) performance standards, monitoring and reporting programs, and corrective actions to be taken when enhancement measures do not meet performance standards.

With the obtainment of applicable permits outlined above, and adherence to any required mitigation measures as required by such permits, impacts to Wetlands and Waters of the U.S. and riparian habitat would be less-than-significant.

Special-Status Wildlife Species

MM BIO-2: Special-Status and Non-Status Nesting Birds

WRA recommends the following measures be implemented to avoid impacts to white-tailed kite, oak titmouse, Allen's hummingbird, Nuttall's woodpecker, Lawrence's goldfinch, yellow warbler, and other nesting birds protected by the MBTA and/or CFGC.

- If ground disturbance or vegetation removal is initiated in the non-breeding season (September 1 through January 31), no pre-construction surveys for nesting birds are required and no adverse impact to birds would result.
- If ground disturbance or removal of vegetation occurs in the breeding bird season (February 1 through August 31), pre-construction surveys shall be performed by a qualified biologist no more than 14 days prior to commencement of such activities to determine the presence and location of nesting bird species. If active nests are present, temporary no-work buffers shall be placed around active nests to prevent adverse impacts to nesting birds. Appropriate buffer distance shall be determined by a qualified biologist and is dependent on species, surrounding vegetation, and topography. Once active nests become inactive, such as when young fledge the nest or the nest is subject to predation, work shall continue in the buffer area and no adverse impact to birds will result.

The implementation of the above measures will reduce impacts to protected nesting bird species to less-than-significant levels.

MM BIO-3: Special-Status Bat Species

WRA recommends the following measures be implemented to avoid impacts to special-status bat species:

- *Pre-construction roost assessment survey:* A qualified biologist shall conduct a roost assessment survey of trees located within the Study Area. The survey will assess use of the trees and cavities for roosting as well as potential presence of bats. If the biologist finds no evidence of, or potential to support bat roosting, no further measures are recommended. If evidence of bat roosting is present, additional measures described below shall be implemented:
 - *Work activities outside the maternity roosting season:* If evidence of bat roosting is discovered during the pre-construction roost assessment and tree removal is planned August 1 through February 28 (outside the bat maternity roosting season), a qualified biologist shall implement passive exclusion measures to prevent bats from re-entering the tree cavities. After sufficient time to allow bats to escape and a follow-up survey to determine if bats have vacated the roost, tree removal may continue and impacts to special-status bat species will be avoided.
 - *Work activities during the maternity roosting season:* If a pre-construction roost assessment discovers evidence of bat roosting in the trees during the maternity roosting season (March 1 through July 31), and determines maternity roosting bats are present, removal of maternity roost trees shall be avoided during the maternity roosting season or until a qualified biologist determines the roost has been vacated.

The implementation of the above measures will reduce impacts to special-status bat species to less-than-significant levels.

MM BIO-4: California Red-legged Frog

The following measures will be implemented to minimize effects and avoid take of CRLF prior to and/or during project activities.

- All workers will receive a worker environmental awareness training program describing CRLF, its status, and penalties for take.
- Work buffers will be observed around CRLF if any are detected, and a designated Project biologist will be contacted to document the observation and recommend additional measures if determined necessary.
- Any trenches or pipes will be covered or capped overnight and BMPs will be constructed of natural materials that will not entrap wildlife.
- If construction personnel observe a dead or injured listed species or if a listed species is killed or injured during construction-related activities, the worker will immediately report the incident to the Service-approved biologist and the USFWS will be notified within 24-hours of the incident.
- No ground disturbance work will occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation.

The implementation of the above measures will reduce impacts to CRLF to a less-than-significant level.

MM BIO-5: Foothill Yellow-legged Frog

The following measures will be implemented to minimize impacts to foothill yellow-legged frog prior to and/or during project activities.

- Work within 100 feet of any streams, ponds, or riparian areas will be limited to the dry season (April 1 to October 31) to the extent feasible.
- No work within the bed and banks of Kawana Springs Creek will occur. If in-channel work is necessary, a Project biologist will be contacted to determine if consultation with CDFW under Section 2081 is warranted for an Incidental Take Permit.
- If work must occur outside of the dry season (November 1 to March 31), pre-construction surveys will be conducted within 5 days of the start of initial project work within areas that may support FYLF. These surveys will investigate for the presence of all life stages (adults, subadults, tadpoles, or egg masses). If the species is detected, a qualified biologist will be present during work within 100 feet of top of bank to ensure prevention of take of the species under the CESA.
- Any personnel involved in construction activities will receive worker environmental educational program training from a biologist in the identification, life history, habitat requirements for the species, status of the species, and receive instructions on what to do if the species is encountered in or near the work area.

The implementation of the above measures will reduce impacts to FYLF to less-than-significant levels.

Protected Trees

MM BIO-6: Compensatory Mitigation for Heritage Tree Removal

Based on a preliminary impact assessment it appears that three non-heritage trees may require removal to facilitate project improvements. Removal of non-heritage trees would not be considered a significant impact as it would not conflict with the City of Santa Rosa Tree Ordinance. No permit shall be required for the removal of non-heritage trees, and no additional replacement trees shall be required beyond what replacement trees may be required by CDFW as described above. However, if the Project requires removal or trimming of roots or branches of any heritage trees, the Project shall obtain a tree removal permit for any heritage tree removal and for potential impacts to heritage tree root zones. The project shall follow all requirements of permit approval, such as replacement of trees.

The City's tree replacement requirement for removal of heritage trees is as follows: "For each six inches or fraction thereof of the diameter of a [heritage] tree which was approved for removal, two trees of the same genus and species as the removed tree (or another species, if approved by the Director), each of a minimum 15-gallon container size, shall be planted on the project site, provided however, that an increased number of smaller size trees of the same genus and species may be planted if approved by the Director, or a fewer number of such trees of a larger size if approved by the Director." For example, removal of a 12-inch diameter heritage valley oak tree, would require two 15-gallon container size valley oak replacement trees.

Although the Project is not anticipated to impact heritage trees, and no permit shall be required for removal of non-heritage trees, the following relevant tree protection measures during construction are recommended as excerpted from Section 17-24.050 of the Tree Ordinance:

- (1) Before the start of any clearing, excavation, construction or other work on the site, every protected tree [within 25 feet of ground disturbance work] shall be securely fenced off at the "protected perimeter," which shall be either the root zone [defined as the outer extent of the tree's dripline, plus 10 feet] or other limit as may be established by the City. Such fences shall remain continuously in place for the duration of all work undertaken in connection with the development. The area so fenced off shall not be used as a storage area or altered or disturbed except as may be permitted under this subsection.
- (2) If the proposed development, including any site work for the development, will encroach upon the protected perimeter of a protected tree, special measures shall be utilized, as approved by the Director or the Planning Commission, to allow the roots to obtain oxygen, water, and nutrients as needed. Any excavation, cutting, filling, or compaction of the existing ground surface within the protected perimeter, if authorized at all by the Director, shall be minimized and subject to such conditions as may be imposed by the Director. No significant change in existing ground level shall be made within the drip line of a protected tree. No burning or use of equipment with an open flame shall occur near or within the protected perimeter. All brush, earth and other debris shall be removed in a manner which prevents injury to the protected tree.
- (3) No oil, gas, chemicals or other substances that may be harmful to trees shall be stored or dumped within the protected perimeter of any protected tree, or at any other location on the site from which such substances might enter the perimeter of a protected tree. No construction materials shall be stored within the protected perimeter of a protected tree.

- (4) Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees. If avoidance is impractical, tunnels shall be made below the roots. Trenches shall be consolidated to service as many units as possible. Trenching within the drip line of protected trees shall be avoided to the greatest extent possible and shall only be done under the on-site directions of a Certified Arborist.
- (5) No concrete or asphalt paving shall be placed over the root zones of protected trees [selected for preservation]. No artificial irrigation shall occur within the root zone of oaks.
- (6) No compaction of the soil within the root zone of protected trees [selected for preservation] shall occur.

Implementation of these BMPs will reduce tree removal impacts to less-than-significant levels.

6.0 REFERENCES

- Alvarez, J. A. 2004. *Rana aurora draytonii* (California red-legged frog) Microhabitat. *Herpetological Review* 35:162-163.
- Baldwin, BG, DH Goldman, DJ Keil, R Patterson, TJ Rosatti, and DH Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California*, second edition. University of California Press, Berkeley, CA.
- Best, C, JT Howell, W Knight, I Knight, and M Wells. 1996. *A Flora of Sonoma County: Manual of the Flowering Plants and Ferns of Sonoma County, California*. CNPS.
- Bourque, R.M. 2008. Spatial ecology of an inland population of the foothill yellow-legged frog (*Rana boylei*) in Tehama County, California. Master's thesis, Humboldt State University, Arcata, CA
- Bulger J. B., J. S. Norman, And R. B. Seymour. 2003. Terrestrial Activity and Conservation Of Adult California Red-Legged Frogs *Rana aurora draytonii* In Coastal Forests And Grasslands. *Biological Conservation*, 110:85.-95.
- Cicero, C. 2000. Oak Titmouse (*Baeolophus inornatus*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/485a>
- City of Santa Rosa. 2018. Chapter 17-24, Trees (Tree Ordinance, Ord. 2858 § 1, 1990). Online at: <http://ci.santa-rosa.ca.us/departments/cityadmin/cityclerk/Pages/CityCode.aspx>
- [CalHerp] California Herps. A Guide to the Amphibians and Reptiles of California. 2018. Online at: <http://www.californiaherps.com>. Accessed: September 2018.
- [CDFW] California Department of Fish and Wildlife. 2018. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Most recently accessed: August 2018.
- [CNPS] California Native Plant Society. 2018a. A Manual of California Vegetation, Online Edition. Sacramento, California. Online at: <http://vegetation.cnps.org/>; most recently accessed: August 2018.
- [CNPS] California Native Plant Society. 2018b. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, California. Online at: <http://rareplants.cnps.org/>; most recently accessed: August 2018.
- [CNPS] California Native Plant Society. 2018c. CNPS Rare Plant Ranks. Online at: <https://www.cnps.org/rare-plants/cnps-rare-plant-ranks>; most recently accessed: August 2018.
- [CSRL] California Soil Resources Lab. 2018. Online Soil Survey. Available at: <http://casoilresource.lawr.ucdavis.edu/drupal/> Most recently accessed: August 2018.
- [CCH] Consortium of California Herbaria. 2018. Data provided by the participants of the Consortium of California Herbaria. Available at: <http://ucjeps.berkeley.edu/consortium>. Most recently accessed: August 2018.

- [Corps] U.S. Army Corps of Engineers. 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. May 2008.
- [Corps] U.S. Army Corps of Engineers. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OWHM) in the Arid West Region of the Western United States. August 2008.
- Davis, Jeff N. 1999. Lawrence's Goldfinch (*Spinus lawrencei*). In: Poole, A., ed. The Birds of North America Online. Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/480/articles/introduction>
- Dunk, JR. 1995. White-tailed Kite (*Elanus leucurus*), The Birds of North America Online (A Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/178>.
- eBird. 2018. Explore Data, eBird Records. Online at: <https://ebird.org/ebird/explore>. Accessed August 2018.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.
- Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. *Journal of Herpetology* 41(2): 276-286.
- Fellers, G.M., L.L. Wood, S. Carlisle, and D. Pratt. 2010. Unusual subterranean aggregations of the California giant salamander, *Dicamptodon ensatus*. *Herpetological Conservation and Biology* 5:149-154.
- Google Earth. 2018. Aerial Imagery 1993-2018. Most recently accessed: August 2018.
- Gonsolin, T.E. 2010. Ecology of foothill yellow-legged frogs in upper Coyote Creek, Santa Clara County, CA. Master's thesis, San Jose State University, San Jose, CA.
- [GSM] GSM Landscape Architects, Inc. 2018. City of Santa Rosa, Kawana Springs Community Park Site Plan. January 22.
- Holland, RF. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Game, Sacramento, CA.
- Howell, JT, F Almeda, W Follette, and C Best. 2007. Marin Flora: An Illustrated Manual of the Flowering Plants, Ferns, and Conifers of Marin County, California. California Academy of Sciences (CAS), and CNPS Marin Chapter.
- iNaturalist. 2018. Observations, iNaturalist Records. Online at: <https://www.inaturalist.org/observations>. Accessed September 2018.
- Jepson Flora Project (eds.). 2018. Jepson eFlora. Online at: <http://ucjeps.berkeley.edu/IJM.html>; most recently accessed August 2018.
- Kupferberg, S.J. 1996. Hydrologic and geomorphic factors affecting conservation of a river-breeding frog (*Rana boylei*). *Ecological Applications* 6:1332-1344.

- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- Lowther, Peter E. 2000. Nuttall's Woodpecker (*Picoides nuttallii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:<http://bna.birds.cornell.edu/bna/species/555>. Accessed: July 2018.
- Madrone Audubon Society. 1995. Sonoma County Breeding Bird Atlas. Madrone Audubon Society. Sonoma County, CA.
- Mitchell, D.E. 2000. Allen's Hummingbird (*Selasphorus sasin*), The Birds of North America Online (A Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online:<http://bna.birds.cornell.edu/bna/species/501>.
- NatureServe. 2018. NatureServe Conservation Status. Available online at: <http://explorer.natureserve.org/ranking.htm>; most recently accessed August 2018.
- Nussbaum, R.A., E.D.J. Brodie, and R.M. Storm. 1983. Amphibians and Reptiles of the Pacific Northwest. Moscow, ID: University of Idaho Press. 332 pp.
- Rathbun, G.B. and J. Schneider. 2001. Translocation of California red-legged frogs (*Rana aurora draytonii*). *Wildlife Society Bulletin* 29(4): 1300-1303.
- Rathbun, GB, NJ Scott, Jr., and TG Murphey. 2002. Terrestrial habitat use by Pacific pond turtles in a Mediterranean climate. *The Southwestern Naturalist* 47: 225-235.
- Rathbun, GB, N Seipel and DC Holland. 1992. Nesting behavior and movements of western pond turtles, *Clemmys marmorata*. *The Southwestern Naturalist* 37: 319-324.
- Sawyer, JO, T Keeler-Wolf, and JM Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA.
- Shuford, WD, and T Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds* 1. Western Field Ornithologists, Camarillo, CA and CDFG, Sacramento, CA.
- Thomson, R.C., Wright, A.N., Shaffer, H.B. 2016. California Amphibian and Reptile Species of Special Concern. University of California Press and California Department of Fish and Wildlife. California.
- [USDA] U.S. Department of Agriculture, Soil Conservation Service. 1972. Soil Survey of Sonoma County, California. In cooperation with the University of California Agricultural Experiment Station.
- [USFWS] United States Fish and Wildlife Service. 2005. Santa Rosa Plain Conservation Strategy.

- [USFWS] United States Fish and Wildlife Service. 2007. Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (Corps File No. 223420N).
- [USFWS] U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register, Vol. 75, No. 51. 12815-12959.
- [USFWS] United States Fish and Wildlife Service. 2016. Recovery Plan for the Santa Rosa Plain. Region 8 U.S. Fish and Wildlife Service, Sacramento, California.
- [USFWS] U. S. Fish and Wildlife Service. 2018. Information for Planning and Conservation Report (iPAC), Sacramento Fish and Wildlife Office. Online at: <http://www.fws.gov/sacramento>. Accessed: August 2018.
- [USFWS] U. S. Fish and Wildlife Service. 2018. National Wetlands Inventory. Available at: <http://www.fws.gov/wetlands/index.html>. Accessed: August 2018.
- [WBWG] Western Bat Working Group. 2018. Species Accounts. Available online at: <http://wbwg.org/western-bat-species/>; Accessed July 2018.
- [WRCC] Western Regional Climate Center. Online Climatic Data. Available online at: www.wrcc.dri.edu; most recently accessed: August 2018.
- Zeiner, DC, WF Laudenslayer, Jr., KE Mayer, and M White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

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APPENDIX A
PROJECT FIGURES

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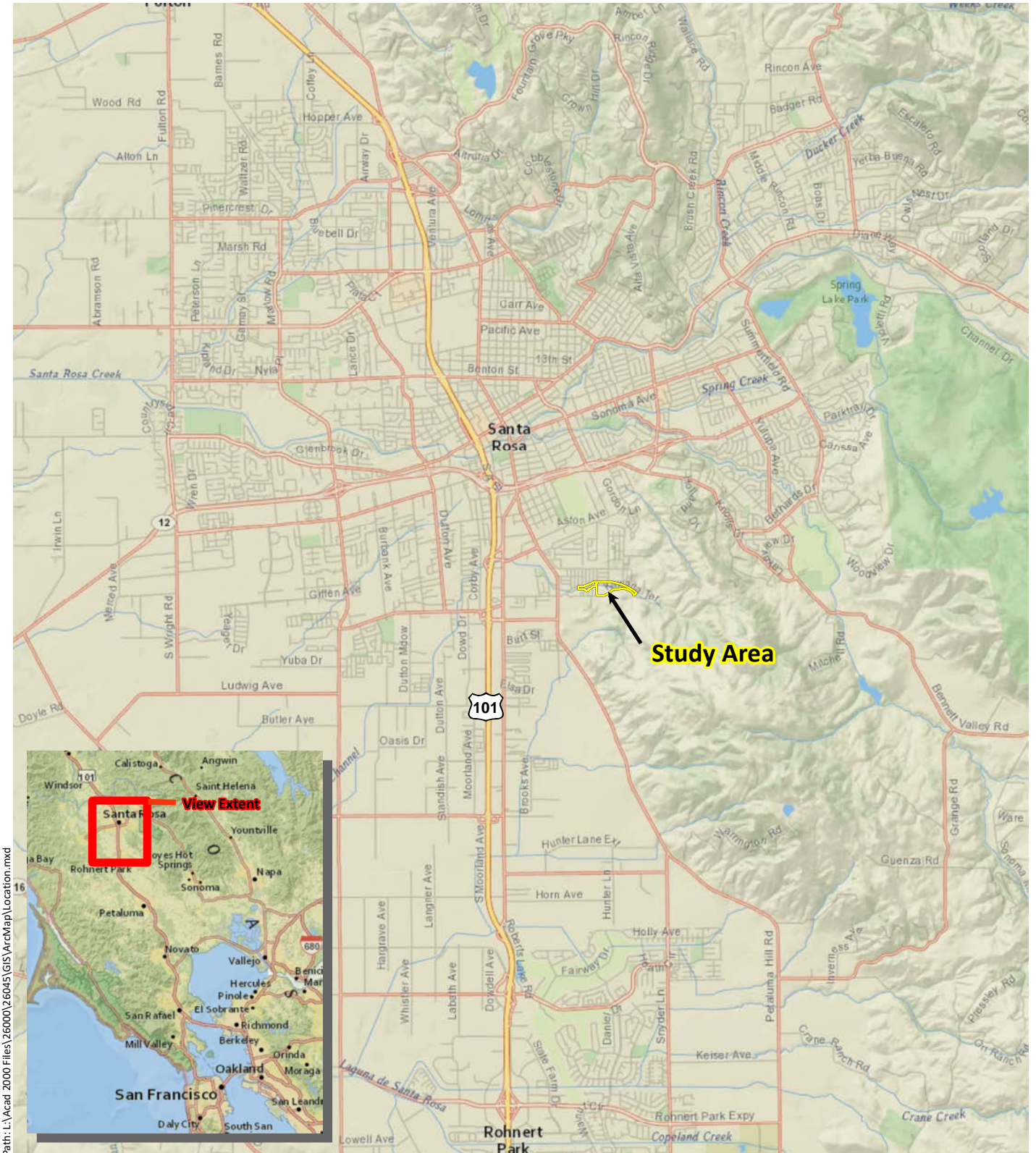


Figure 1. Study Area Location

Kawana Springs
Sonoma County, California

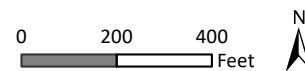
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Figure 2. Study Area Soils Map

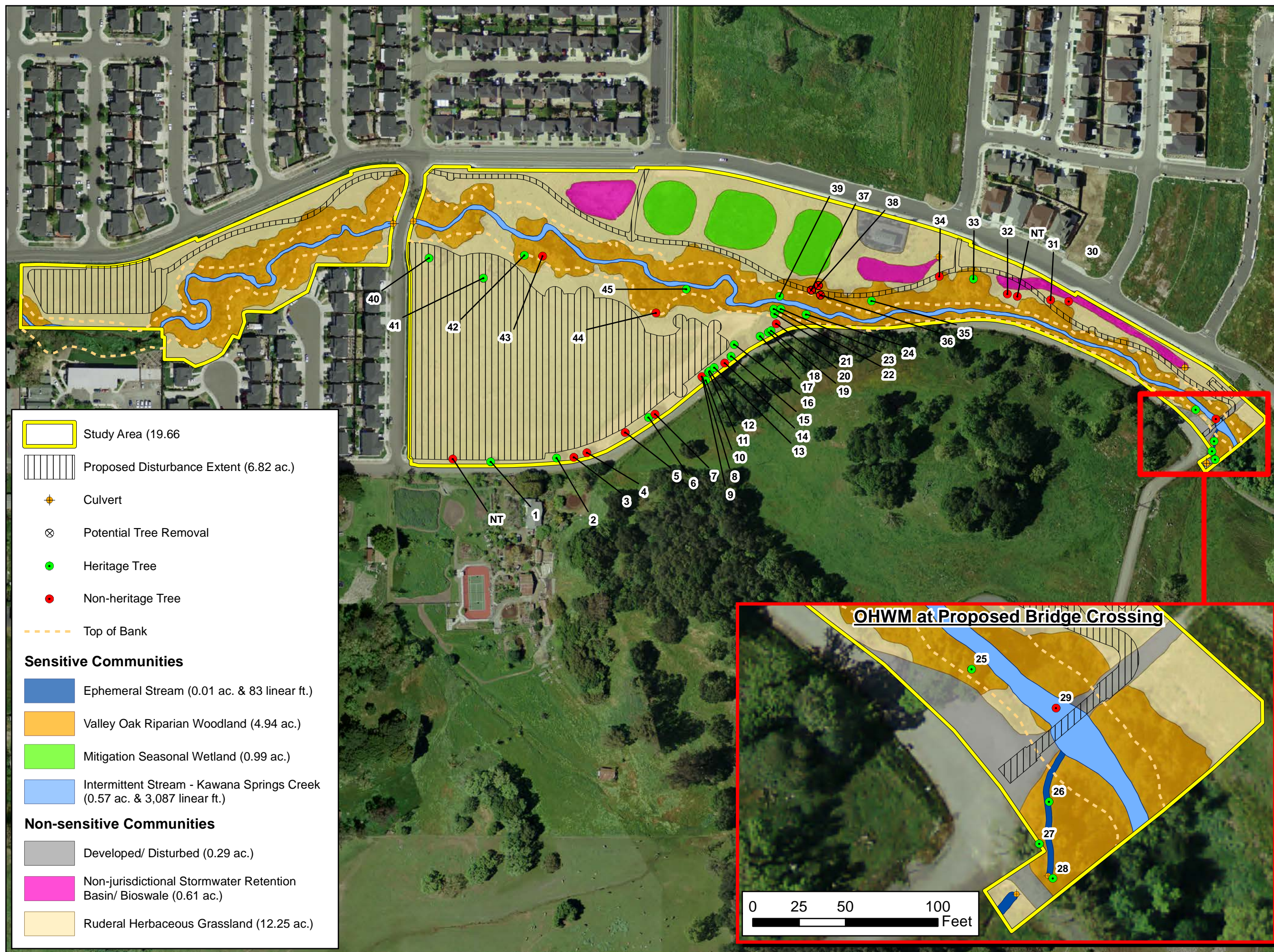
Kawana Springs
Sonoma County, California



Kawana Springs

Sonoma County,
California

Figure 3. Biological
Communities and
Potential Impacts



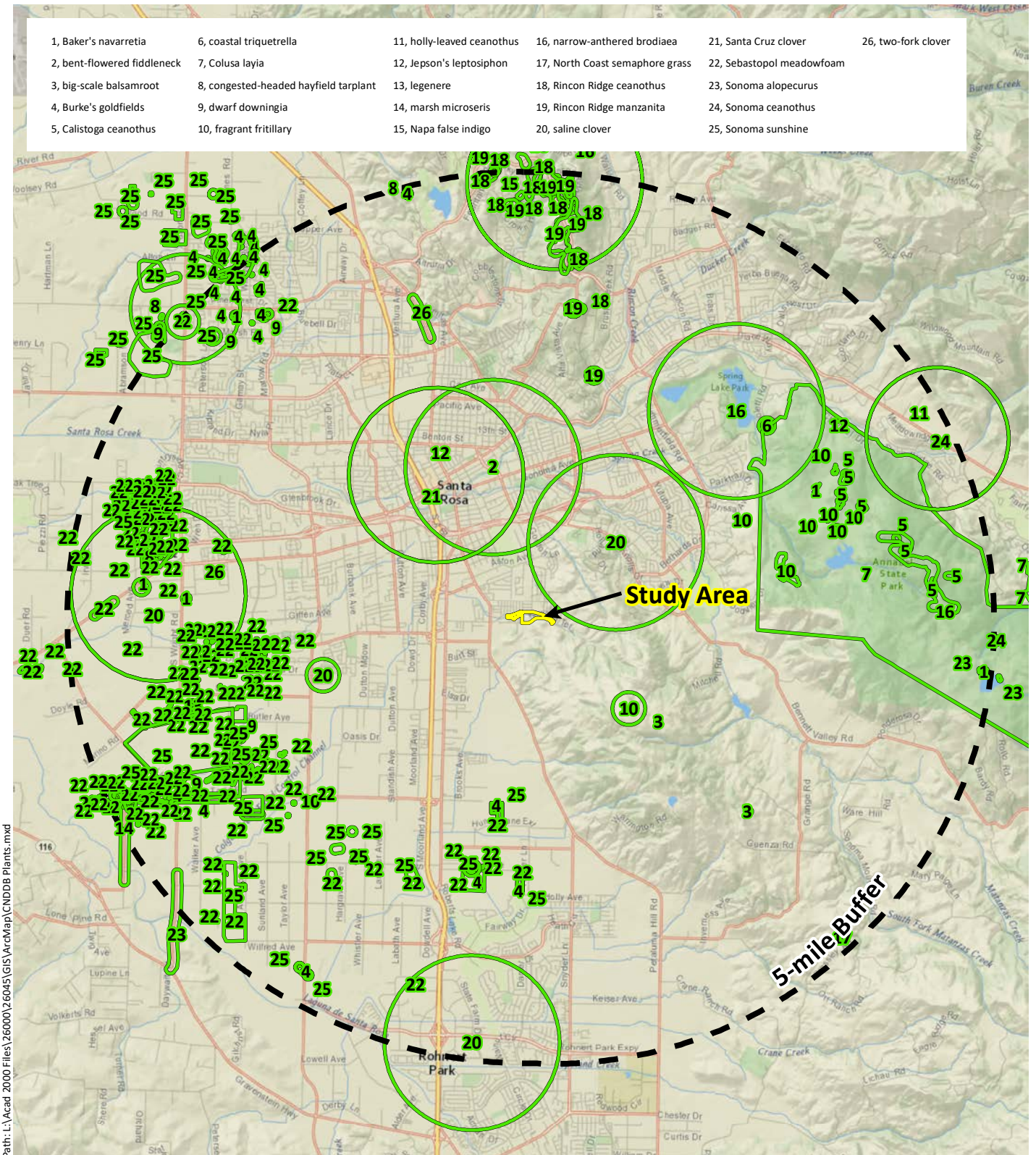


Figure 4. Special-Status Plant Species Documented within 5-miles of the Study Area

Kawana Springs
Sonoma County, California

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Miles



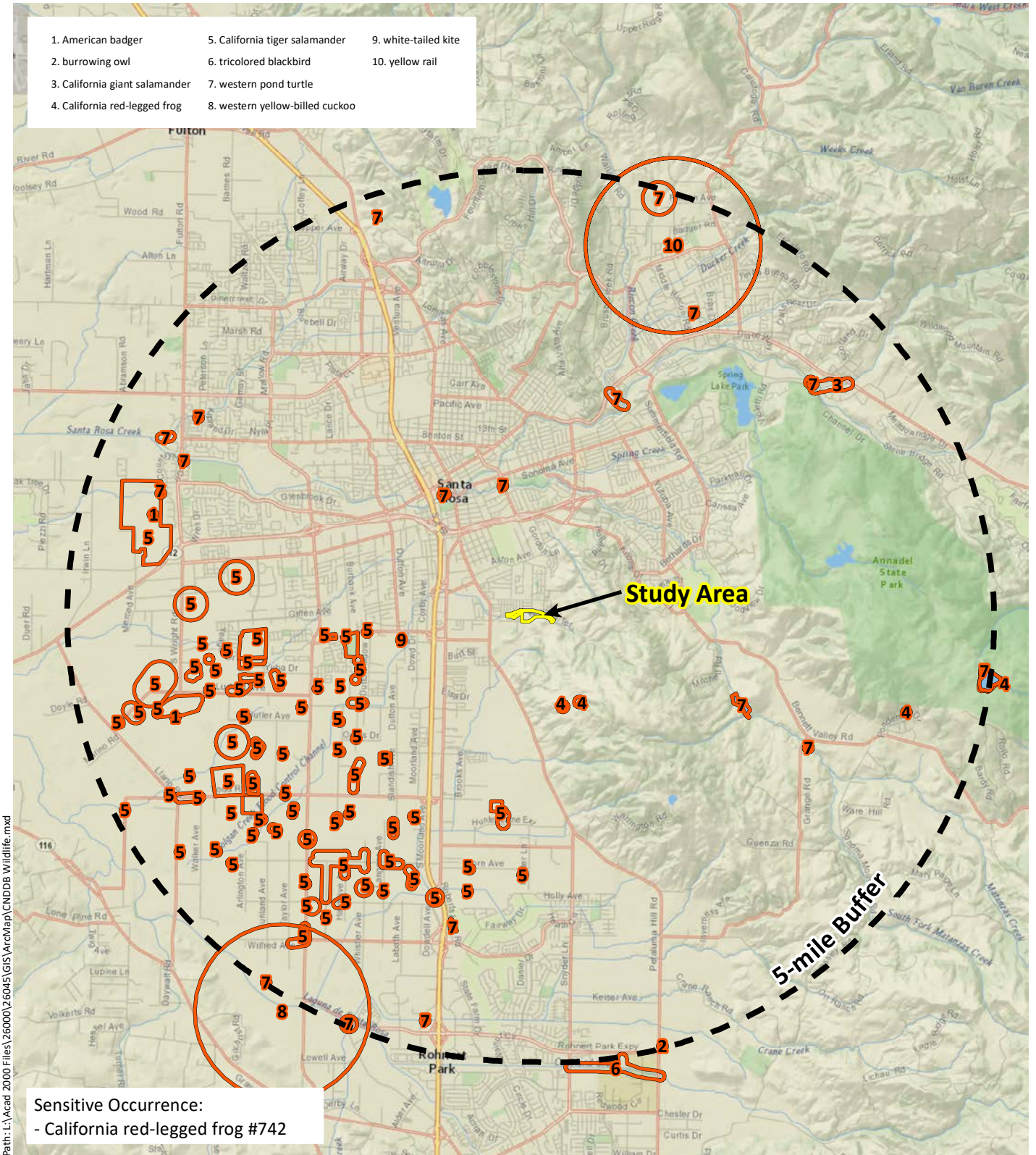


Figure 5. Special-Status Wildlife Species Documented within 5-miles of the Study Area

Kawana Springs
 Sonoma County, California

0 1 2
 Miles



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APPENDIX B

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

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Appendix B-1. Plant Species Observed in the Study Area on December 21, 2016.

Family	Scientific Name	Common Name	Origin	Form	Rarity Status¹	CAL-IPC Status²
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Poison oak	native	vine, shrub	-	-
Apiaceae	<i>Conium maculatum</i>	Poison hemlock	non-native (invasive)	perennial herb	-	Moderate
Apiaceae	<i>Daucus carota</i>	Carrot	non-native (invasive)	perennial herb	-	-
Apiaceae	<i>Foeniculum vulgare</i>	Fennel	non-native (invasive)	perennial herb	-	High
Apiaceae	<i>Torilis arvensis</i>	Field hedge parsley	non-native (invasive)	annual herb	-	Moderate
Asteraceae	<i>Artemisia douglasiana</i>	California mugwort	native	perennial herb	-	-
Asteraceae	<i>Baccharis pilularis</i>	Coyote brush	native	shrub	-	-
Asteraceae	<i>Centaurea solstitialis</i>	Yellow starthistle	non-native (invasive)	annual herb	-	High
Asteraceae	<i>Cichorium intybus</i>	Chicory	non-native	perennial herb	-	-
Asteraceae	<i>Erigeron canadensis</i>	Canada horseweed	native	annual herb	-	-
Asteraceae	<i>Helminthotheca echioides</i>	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	Limited
Asteraceae	<i>Senecio vulgaris</i>	Common groundsel	non-native	annual herb	-	-

Family	Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²
Asteraceae	<i>Silybum marianum</i>	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited
Asteraceae	<i>Sonchus oleraceus</i>	Sow thistle	non-native	annual herb	-	-
Brassicaceae	<i>Brassica nigra</i>	Black mustard	non-native (invasive)	annual herb	-	Moderate
Brassicaceae	<i>Hirschfeldia incana</i>	Mustard	non-native (invasive)	perennial herb	-	Moderate
Brassicaceae	<i>Raphanus sativus</i>	Jointed charlock	non-native (invasive)	annual, biennial herb	-	Limited
Cupressaceae	<i>Hesperocyparis macrocarpa</i>	Monterey cypress	native	tree	Rank 1B.2*	-
Fabaceae	<i>Genista monspessulana</i>	French broom	non-native (invasive)	shrubb	-	High
Fabaceae	<i>Robinia pseudoacacia</i>	Black locust	non-native (invasive)	tree	-	Limited
Fabaceae	<i>Vicia sativa</i>	Spring vetch	non-native	annual herb, vine	-	-
Fabaceae	<i>Vicia villosa</i>	Hairy vetch	non-native (invasive)	annual herb, vine	-	-
Fagaceae	<i>Quercus agrifolia</i>	Coast live oak	native	tree	-	-
Fagaceae	<i>Quercus kelloggii</i>	California black oak	native	tree	-	-

Family	Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²
Fagaceae	<i>Quercus lobata</i>	Valley oak	native	tree	-	-
Geraniaceae	<i>Erodium cicutarium</i>	Coastal heron's bill	non-native (invasive)	annual herb	-	Limited
Geraniaceae	<i>Geranium dissectum</i>	Wild geranium	non-native (invasive)	annual herb	-	Limited
Geraniaceae	<i>Geranium molle</i>	Crane's bill geranium	non-native (invasive)	annual, perennial herb	-	-
Juncaceae	<i>Juncus patens</i>	Rush	native	perennial grasslike herb	-	-
Lamiaceae	<i>Mentha pulegium</i>	Pennyroyal	non-native (invasive)	perennial herb	-	Moderate
Lauraceae	<i>Umbellularia californica</i>	California bay	native	tree	-	-
Malvaceae	<i>Malva</i> sp.	-	-	-	-	-
Oleaceae	<i>Fraxinus latifolia</i>	Oregon ash	native	tree	-	-
Onagraceae	<i>Epilobium ciliatum</i>	Slender willow herb	native	perennial herb	-	-
Oxalidaceae	<i>Oxalis pes-caprae</i>	Bermuda buttercup	non-native (invasive)	perennial herb	-	Moderate
Plantaginaceae	<i>Plantago lanceolata</i>	Ribwort	non-native (invasive)	perennial herb	-	Limited

Family	Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²
Poaceae	<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate
Poaceae	<i>Bromus catharticus</i>	Rescue grass	non-native	annual, perennial grass	-	-
Poaceae	<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate
Poaceae	<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited
Poaceae	<i>Cynosurus echinatus</i>	Dogtail grass	non-native (invasive)	annual grass	-	Moderate
Poaceae	<i>Elymus triticoides</i>	Beardless wild rye	native	perennial grass	-	-
Poaceae	<i>Festuca perennis</i>	Italian rye grass	non-native	annual, perennial grass	-	-
Poaceae	<i>Hordeum brachyantherum</i>	Meadow barley	native	perennial grass	-	-
Poaceae	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Barley	non-native (invasive)	annual grass	-	Moderate
Poaceae	<i>Phalaris aquatica</i>	Harding grass	non-native (invasive)	perennial grass	-	Moderate
Polygonaceae	<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	-	Limited

Family	Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²
Polygonaceae	<i>Rumex pulcher</i>	Fiddleleaf dock	non-native	perennial herb	-	-
Polypodiaceae	<i>Polypodium calirhiza</i>	Licorice fern	native	fern	-	-
Rosaceae	<i>Fragaria vesca</i>	Wild strawberry	native	perennial herb	-	-
Rosaceae	<i>Prunus cerasifera</i>	Cherry plum	non-native (invasive)	tree	-	Limited
Rosaceae	<i>Rosa californica</i>	California wild rose	native	shrub	-	-
Rosaceae	<i>Rubus armeniacus</i>	Himalayan blackberry	non-native (invasive)	shrub	-	High
Rubiaceae	<i>Galium aparine</i>	Cleavers	native	annual herb	-	-
Salicaceae	<i>Populus fremontii</i> ssp. <i>fremontii</i>	Cottonwood	native	tree	-	-
Salicaceae	<i>Salix lasiolepis</i>	Arroyo willow	native	tree, shrub	-	-
Sapindaceae	<i>Acer macrophyllum</i>	Bigleaf maple	native	tree	-	-
Sapindaceae	<i>Aesculus californica</i>	Buckeye	native	tree	-	-
Typhaceae	<i>Typha latifolia</i>	Broadleaf cattail	native	perennial herb (aquatic)	-	-
Viscaceae	<i>Phoradendron leucarpum</i> ssp. <i>tomentosum</i>	Mistletoe	native	shrub (parasitic)	-	-

*Monterey cypress is not native to the Study Area. This species has been widely planted and naturalized outside of its native. CNPS rarity status only applies to two native occurrences which are not found in the Study Area (CNPS 2016b)

All species identified using the *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012) and *Jepson eFlora* (Jepson Flora Project [eds.] 2016); Nomenclature follows *Jepson eFlora*.

¹Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2016)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated 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 more 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
Rank 4:	Plants of limited distribution – a watch list

²Invasive Status: California Invasive Plant Inventory (Cal-IPC 2016)

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

Table B-2. Wildlife Species Observed in the Study Area on December 21, 2016

Common Name (status if applicable)	Species
MAMMALS	
black-tailed deer	<i>Odocoileus hemionus columbianus</i>
BIRDS	
acorn woodpecker	<i>Melanerpes formicivorus</i>
Anna's hummingbird	<i>Calypte anna</i>
wild turkey	<i>Meleagris gallopavo</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Nuttall's woodpecker *	<i>Picoides nuttallii</i>
oak titmouse *	<i>Baeolophus inornatus</i>
violet-green swallow	<i>Tachycineta thalassina</i>
black phoebe	<i>Sayornis nigricans</i>
lesser goldfinch	<i>Spinus psaltria</i>
golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
European starling	<i>Sturnus vulgaris</i>
turkey vulture	<i>Cathartes aura</i>
California quail	<i>Callipepla californica</i>
house wren	<i>Troglodytes aedon</i>
house finch	<i>Haemorhous mexicanus</i>
common raven	<i>Corvus corax</i>
northern flicker	<i>Colaptes auratus</i>
belted kingfisher	<i>Megasceryle alcyon</i>
downy woodpecker	<i>Picoides pubescens</i>
northern mockingbird	<i>Mimus polyglottos</i>
white-breasted nuthatch	<i>Sitta carolinensis</i>
REPTILES	
western fence lizard	<i>Sceloporus occidentalis</i>
AMPHIBIANS	
Pacific chorus frog	<i>Pseudacris regilla</i>
INVERTEBRATES	
Pipevine swallowtail	<i>Battus philenor</i>
swallowtail butterfly	<i>Anise sp.</i>
honey bee	<i>Apis sp.</i>

* USFWS Birds of conservation concern (special-status species)

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APPENDIX C

POTENTIAL FOR SPECIAL-STATUS PLANT AND WILDLIFE SPECIES TO OCCUR IN THE STUDY AREA

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Appendix C. Potential for Special-Status Plant and Wildlife Species to Occur in the Study Area. Special- status plant and wildlife species table with the potential to occur within the vicinity of the Study Area (Santa Rosa, Healdsburg, Sebastopol, Two Rock, Cotati, Glen Ellen, Kenwood, Calistoga, and Mark West Springs USGS 7.5' topographic quadrangles) Results include database searches of California Native Plant Society (CNPS) Rare and Endangered Plant Inventory, California Natural Diversity Database (CNDDB, CDFW) as well as U.S. Fish and Wildlife Service Threatened and Endangered Species Lists and Santa Rosa Plain Conservation Strategy (2005), Santa Rosa Plain Programmatic Biological Opinion (2007).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	Rank 1B.2	Cismontane woodland, valley and foothill grassland/clay, volcanic, often serpentine. Elevation ranges from 170 to 980 feet. Blooms (Apr), May-Jun.	No Potential. The Study Area lacks volcanic and serpentine substrates known to support this species.	No further recommendations for this species.
Sonoma alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	FE, Rank 1B.1	Marshes and swamps (freshwater), riparian scrub. Elevation ranges from 20 to 1200 feet. Blooms May-Jul.	Unlikely. The Study Area lacks large, intact marshes and swamps known to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	Rank 1B.2	Broadleafed upland forest (openings), chaparral, cismontane woodland. Elevation ranges from 390 to 6560 feet. Blooms Apr-Jul.	Unlikely. Riparian woodland habitat within the Study Area is relatively disturbed, and dominated by vigorous non-native invasive species such as Himalayan blackberry, which would likely outcompete this species. The Study Area is below the documented elevation range, and the nearest documented occurrence is greater than five miles away.	No further recommendations for this species.
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 1640 feet. Blooms Mar-Jun.	Unlikely. Despite potentially suitable grassland habitat, previous and ongoing disturbance within the Study Area likely precludes this species. There is only one historic occurrence of this species within the Study Area vicinity from 1940 (CDFW 2018).	No further recommendations for this species.
slender silver moss <i>Anomobryum julaceum</i>	Rank 4.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest/damp rock and soil on outcrops, usually on roadcuts. Elevation ranges from 330 to 3280 feet.	No Potential. The Study Area lacks suitable habitat for this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Vine Hill manzanita <i>Arctostaphylos densiflora</i>	SE, Rank 1B.1	Chaparral (acid marine sand). Elevation ranges from 160 to 390 feet. Blooms Feb-Apr.	No Potential. The Study Area lacks chaparral and acidic marine sand substrate known to support this species.	No further recommendations for this species.
Rincon Ridge manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rank 1B.1	Chaparral (rhyolitic), cismontane woodland. Elevation ranges from 250 to 1210 feet. Blooms Feb-Apr (May).	No Potential. The Study Area lacks chaparral and rhyolitic substrate known to support this species.	No further recommendations for this species.
Brewer's milk-vetch <i>Astragalus breweri</i>	Rank 4.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (open, often gravelly)/often serpentine, volcanic. Elevation ranges from 300 to 2400 feet. Blooms Apr-Jun.	No Potential. Despite potentially suitable grassland habitat, the Study Area lacks gravelly soils derived from serpentine or volcanic substrate.	No further recommendations for this species.
Clara Hunt's milk-vetch <i>Astragalus claranus</i>	FE, ST, Rank 1B.1	Chaparral (openings), cismontane woodland, valley and foothill grassland/serpentine or volcanic, rocky, clay. Elevation ranges from 250 to 900 feet. Blooms Mar-May.	No Potential. The Study Area lacks serpentine or volcanic substrates known to support this species	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/sometimes serpentine. Elevation ranges from 300 to 5100 feet. Blooms Mar-Jun.	Unlikely. The Study Area lacks chaparral, cismontane woodland and serpentine substrates associated with this species.	No further recommendations for this species.
Sonoma sunshine <i>Blennosperma bakeri</i>	FE, SE, Rank 1B.1	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 30 to 360 feet (10 to 110 meters). Blooms Mar-May.	Unlikely. The Study Area lacks vernal pools known to support this species. Seasonal wetlands within the Study Area are constructed mitigation wetlands dominated by non-native annual grasses which likely outcompete many native annual forb species. The Study Area is located in area assessed by the Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007) as “no listed plants in the area”.	No further recommendations for this species.
narrow-anthered brodiaea <i>Brodiaea leptandra</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/volcanic. Elevation ranges from 360 to 3000 feet. Blooms May-Jul.	No Potential. The Study Area lacks gravelly soils composed of volcanics.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Bolander's reed grass <i>Calamagrostis bolanderi</i>	Rank 4.2	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), north coast coniferous forest/mesic. Elevation ranges from 0 to 1490 feet. Blooms May-Aug.	Unlikely. The Study Area lacks the biological communities associated with this species. This species is more closely associated with coastal environments (Jepson eFlora 2018).	No further recommendations for this species.
Thurber's reed grass <i>Calamagrostis crassiglumis</i>	Rank 2B.1	Coastal scrub (mesic), marshes and swamps (freshwater). Elevation ranges from 30 to 200 feet. Blooms May-Aug.	Unlikely. The Study Area lacks coastal scrub, marshes and swamps associated with this species.	No further recommendations for this species.
serpentine reed grass <i>Calamagrostis ophiditis</i>	Rank 4.3	Chaparral (open, often north-facing slopes), lower montane coniferous forest, meadows and seeps, valley and foothill grassland/serpentine, rocky. Elevation ranges from 300 to 3490 feet. Blooms Apr-Jul.	No Potential. The Study Area lacks serpentine substrate known to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
pink star-tulip <i>Calochortus uniflorus</i>	Rank 4.2	Coastal prairie, coastal scrub, meadows and seeps, north coast coniferous forest. Elevation ranges from 30 to 3510 feet. Blooms Apr-Jun.	Unlikely. Despite potentially suitable grassland habitat, grasslands within the Study Area are relatively disturbed and dominated by non-native annual grasses that tend to outcompete small native perennial forbs such as this species.	No further recommendations for this species.
Mt. Saint Helena morning-glory <i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Rank 4.2	Chaparral, lower montane coniferous forest, valley and foothill grassland/serpentine. Elevation ranges from 920 to 3310 feet. Blooms Apr-Jun.	No Potential. The Study Area lacks serpentine substrates known to support this species.	No further recommendations for this species.
swamp harebell <i>Campanula californica</i>	Rank 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest/mesic. Elevation ranges from 0 to 1330 feet. Blooms Jun-Oct.	No Potential. The Study Area lacks coastal wetland habitats associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
johnny-nip <i>Castilleja ambigua</i> ssp. <i>ambigua</i>	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Elevation ranges from 0 to 1430 feet. Blooms Mar-Aug.	Unlikely. The Study Area lacks mesic grassland and wetland habitat known to support this species. Grasslands within the Study Area have been previously disturbed and they are dominated by non-native annual grasses and forbs with dense thatch accumulation, likely outcompeting many annual native forbs such as this species.	No further recommendations for this species.
Pitkin Marsh paintbrush <i>Castilleja uliginosa</i>	SE, Rank 1A	Marshes and swamps (freshwater). Elevation ranges from 790 to 790 feet (240 to 240 meters). Blooms Jun-Jul.	No Potential. The Study Area lacks large intact marshes and swamps known to support this species. This species was only known from Pitkin Marsh in Sebastapol, and is now presumed extinct (CNPS 2018).	No further recommendations for this species.
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	Rank 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland/volcanic or serpentine. Elevation ranges from 250 to 3490 feet. Blooms Feb-Jun.	No Potential. The Study Area lacks the vegetation communities and substrates known to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Calistoga ceanothus <i>Ceanothus divergens</i>	Rank 1B.2	Chaparral (serpentine or volcanic, rocky). Elevation ranges from 560 to 3120 feet. Blooms Feb-Apr.	No Potential. The Study Area lacks chaparral and substrates known to support this species.	No further recommendations for this species.
Vine Hill ceanothus <i>Ceanothus foliosus</i> var. <i>vineatus</i>	Rank 1B.1	Chaparral. Elevation ranges from 150 to 1000 feet. Blooms Mar-May.	No Potential. The Study Area lacks chaparral habitat.	No further recommendations for this species.
glory brush <i>Ceanothus gloriosus</i> var. <i>exaltatus</i>	Rank 4.3	Chaparral. Elevation ranges from 100 to 2000 feet. Blooms Mar-Jun (Aug).	No Potential. The Study Area lacks chaparral habitat.	No further recommendations for this species.
holly-leaved ceanothus <i>Ceanothus purpureus</i>	Rank 1B.2	Chaparral, cismontane woodland/volcanic, rocky. Elevation ranges from 390 to 2100 feet. Blooms Feb-Jun.	No Potential. The Study Area lacks chaparral and woodland habitats and volcanic substrates.	No further recommendations for this species.
Sonoma ceanothus <i>Ceanothus sonomensis</i>	Rank 1B.2	Chaparral (sandy, serpentine or volcanic). Elevation ranges from 710 to 2620 feet. Blooms Feb-Apr.	No Potential. The Study Area lacks chaparral and substrates known to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	Rank 1B.2	Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic)/often alkaline. Elevation ranges from 0 to 1380 feet. Blooms May-Nov.	No Potential. The Study Area lacks alkaline soils known to support this species.	No further recommendations for this species.
Sonoma spineflower <i>Chorizanthe valida</i>	FE, SE, Rank 1B.1	Coastal prairie (sandy). Elevation ranges from 30 to 1000 feet (10 to 305 meters). Blooms Jun-Aug.	No Potential. The Study Area lacks coastal prairie and sandy soils.	No further recommendations for this species.
Brewer's clarkia <i>Clarkia breweri</i>	Rank 4.2	Chaparral, cismontane woodland, coastal scrub/often serpentine. Elevation ranges from 710 to 3660 feet (215 to 1115 meters). Blooms Apr-Jun.	No Potential. The Study Area lacks the vegetation communities and serpentine soils associated with this species.	No further recommendations for this species.
Vine Hill clarkia <i>Clarkia imbricata</i>	FE, SE, Rank 1B.1	Chaparral, valley and foothill grassland/acidic sandy loam. Elevation ranges from 160 to 250. Blooms Jun-Aug.	No Potential. The Study Area lacks chaparral and acidic sandy loam soils. This species is only known from two extant occurrences in the Vine Hill area north of Graton (CNPS 2018).	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
serpentine bird's-beak <i>Cordylanthus tenuis</i> ssp. <i>brunneus</i>	Rank 4.3	Closed-cone coniferous forest, chaparral, cismontane woodland/usually serpentine. Elevation ranges from 1560 to 3000 feet. Blooms Jul-Aug.	No Potential. The Study Area lacks the associated vegetation communities and serpentine substrates.	No further recommendations for this species.
Pennell's bird's-beak <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>	FE, SR, Rank 1B.2	Closed-cone coniferous forest, chaparral/serpentine. Elevation ranges from 150 to 1000 feet. Blooms Jun-Sep.	No Potential. The Study Area lacks the associated vegetation communities and serpentine substrates.	No further recommendations for this species.
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Rank 2B.2	Marshes and swamps (freshwater). Elevation ranges from 50 to 920 feet. Blooms Jul-Oct.	Unlikely. The Study Area lacks large intact marsh habitat and many of the host plants preferred by this species (Jepson eFlora 2018). There is only one occurrence in the Study Area vicinity from 1946 (CDFW 2018).	No further recommendations for this species.
mountain lady's-slipper <i>Cypripedium montanum</i>	Rank 4.2	Broadleafed upland forest, cismontane woodland, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 610 to 7300 feet. Blooms Mar-Aug.	No Potential. The Study Area lacks the vegetation communities associated with this species. This species is closely associated with montane environments.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Baker's larkspur <i>Delphinium bakeri</i>	FE, SE, Rank 1B.1	Broadleafed upland forest, coastal scrub, valley and foothill grassland/decomposed shale, often mesic. Elevation ranges from 260 to 1000 feet. Blooms Mar-May.	No Potential. The Study Area lacks the associated vegetation communities and decomposed shale substrates. This species is only known from one extant native occurrence along Marshall-Petaluma Road, approximately 18 miles south-southwest (SSW) of the Study Area (CDFW 2018).	No further recommendations for this species.
golden larkspur <i>Delphinium luteum</i>	FE, SR, Rank 1B.1	Chaparral, coastal prairie, coastal scrub/rocky. Elevation ranges from 0 to 330 feet. Blooms Mar-May.	No Potential. The Study Area lacks the associated vegetation communities and rocky substrates.	No further recommendations for this species.
dwarf downingia <i>Downingia pusilla</i>	Rank 2B.2	Valley and foothill grassland (mesic), vernal pools. Elevation ranges from 0 to 1460 feet. Blooms Mar-May.	No Potential. The Study Area lacks vernal pools associated with this species.	No further recommendations for this species.
streamside daisy <i>Erigeron biolettii</i>	Rank 3	Broadleafed upland forest, cismontane woodland, north coast coniferous forest/rocky, mesic. Elevation ranges from 100 to 3610 feet. Blooms Jun-Oct.	No Potential. The Study Area lacks rocky, mesic sites associated with this species.	No further recommendations for this species.
serpentine daisy <i>Erigeron serpentinus</i>	Rank 1B.3	Chaparral (serpentine, seeps). Elevation ranges from 200 to 2200 feet. Blooms May-Aug.	No Potential. The Study Area lacks serpentine seeps associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
slender cottongrass <i>Eriophorum gracile</i>	Rank 4.3	Bogs and fens, meadows and seeps, upper montane coniferous forest/acidic. Elevation ranges from 4200 to 9510 feet Blooms May-Sep.	No Potential. The Study Area acidic bogs and fens, and is well below the documented elevation range.	No further recommendations for this species.
fragrant fritillary <i>Fritillaria liliacea</i>	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentine. Elevation ranges from 10 to 1350 feet. Blooms Feb-Apr.	Unlikely. Despite potentially suitable grassland habitat and clay soils, grasslands in the Study Area have been previously disturbed and they are dominated by non-native annual grasses and forbs with dense thatch accumulation, likely outcompeting many diminutive perennial native forbs such as this species.	No further recommendations for this species.
woolly-headed gilia <i>Gilia capitata</i> ssp. <i>tomentosa</i>	Rank 1B.1	Coastal bluff scrub, valley and foothill grassland/serpentine, rocky, outcrops. Elevation ranges from 30 to 720 feet. Blooms May-Jul.	No Potential. The Study Area lacks serpentine soils and rocky outcrops associated with this species.	No further recommendations for this species.
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	SE, Rank 1B.2	Marshes and swamps (lake margins), vernal pools/clay. Elevation ranges from 30 to 7790 feet. Blooms Apr-Aug.	No Potential. The Study Area lacks large intact marshes and swamps, or vernal pools associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
congested-headed hayfield tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i>	Rank 1B.2	Valley and foothill grassland/sometimes roadsides. Elevation ranges from 70 to 1840 feet. Blooms Apr-Nov.	Unlikely. Despite potentially suitable grassland habitat and clay soils, grasslands in the Study Area have been previously disturbed and they are dominated by non-native annual grasses and forbs with dense thatch accumulation, likely outcompeting many native annual forbs such as this species.	No further recommendations for this species.
hogwallow starfish <i>Hesperevax caulescens</i>	Rank 4.2	Valley and foothill grassland (mesic, clay), vernal pools (shallow)/sometimes alkaline. Elevation ranges from 0 to 1660 feet. Blooms Mar-Jun.	No Potential. The Study Area lacks vernal pools associated with this species. This species was included in the CNPS inventory database as a checklist for the Healdsburg quadrangle. However, this species is not documented in Sonoma or Marin counties (CCH 2018, Jepson eFlora 2018, CNPS 2018, Best et. al. 1996, Howell et. al. 2007).	No further recommendations for this species.
thin-lobed horkelia <i>Horkelia tenuiloba</i>	Rank 1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland/mesic openings, sandy. Elevation ranges from 160 to 1640 feet. Blooms May-Jul (Aug).	No Potential. The Study Area lacks thin, rocky or sandy soils associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
harlequin lotus <i>Hosackia gracilis</i>	Rank 4.2	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland/wetlands, roadsides. Elevation ranges from 0 to 2300 feet. Blooms Mar-Jul.	Unlikely. The Study Area lacks coastal wetland habitat most often associated with this species.	No further recommendations for this species.
coast iris <i>Iris longipetala</i>	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps/mesic. Elevation ranges from 0 to 1970 feet. Blooms Mar-May.	No Potential. The Study Area lacks coastal prairie and mesic coastal grasslands associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Burke's goldfields <i>Lasthenia burkei</i>	FE, SE, Rank 1B.1	Meadows and seeps (mesic), vernal pools. Elevation ranges from 50 to 1970 feet. Blooms Apr-Jun.	Unlikely. The Study Area lacks vernal pools associated with this species. Seasonal wetlands within the Study Area are relatively disturbed and dominated by non-native annual grasses which likely outcompete many native annual forb species. The Study Area is located in area assessed by the Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007) as "no listed plants in the area".	No further recommendations for this species.
Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i>	Rank 1B.2	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps. Elevation ranges from 200 to 1710 feet. Blooms Apr-Oct.	No Potential. There is only one documented occurrence of this species in the vicinity of the Study Area from 1899 (CDFW 2018). The majority of documented occurrences in Sonoma County are closer to the coast, and centered around the Bodega Bay area.	No further recommendations for this species.
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools/mesic. Elevation ranges from 0 to 1540 feet Blooms Mar-Jun.	No Potential. The Study Area lacks vernal pools and alkaline substrates associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Colusa layia <i>Layia sepentrionalis</i>	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/sandy, serpentine or volcanics, often in blue oak (<i>Quercus agrifolia</i>) woodland. Elevation ranges from 330 to 3590 feet. Blooms Apr-May.	No Potential. The Study Area lacks volcanic and serpentine soils and blue oak woodland most often associated with this species.	No further recommendations for this species.
legenere <i>Legenere limosa</i>	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2890 feet. Blooms Apr-Jun.	No Potential. The Study Area lacks vernal pools associated with this species.	No further recommendations for this species.
bristly leptosiphon <i>Leptosiphon acicularis</i>	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet. Blooms Apr-Jul.	Unlikely. Despite potentially suitable grassland habitat, grasslands in the Study Area have been previously disturbed and they are dominated by non-native annual grasses and forbs with dense thatch accumulation, likely outcompeting many diminutive native annual forbs such as this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	Rank 1B.2	Chaparral, cismontane woodland/usually volcanic. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Mar-May.	Unlikely. The Study Area lacks the vegetation communities and volcanic soils associated with this species.	No further recommendations for this species.
woolly-headed Lessingia <i>Lessingia hololeuca</i>	Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland/clay, serpentine. Elevation ranges from 50 to 1000 feet. Blooms Jun-Oct.	No Potential. The Study Area lacks serpentine soils known to support this species.	No further recommendations for this species.
Pitkin Marsh lily <i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	FE, SE, Rank 1B.1	Cismontane woodland, meadows and seeps, marshes and swamps (freshwater)/mesic, sandy. Elevation ranges from 110 to 210 feet. Blooms Jun-Jul.	No Potential. The Study Area lacks large intact marsh habitat and sandy soils associated with this species.	No further recommendations for this species.
redwood lily <i>Lilium rubescens</i>	Rank 4.2	Broadleafed upland forest, chaparral, lower montane coniferous forest, north coast coniferous forest, upper montane coniferous forest/sometimes serpentine, sometimes roadsides. Elevation ranges from 100 to 6270 feet. Blooms Apr-Aug (Sep).	No Potential. The Study Area lacks the vegetation communities associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Sebastopol meadowfoam <i>Limnanthes vinculans</i>	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools/vernally mesic. Elevation ranges from 50 to 1000 feet. Blooms Apr-May.	Unlikely. The Study Area lacks vernal pools associated with this species. Seasonal wetlands within the Study Area are constructed mitigation wetlands. The Study Area is located in area assessed by the Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007) as “no listed plants in the area”.	No further recommendations for this species.
Napa Lomatium <i>Lomatium repostum</i>	Rank 4.3	Chaparral, cismontane woodland/serpentine. Elevation ranges from 300 to 2720 feet. Blooms Mar-Jun.	No Potential. The Study Area lacks the vegetation communities and serpentine substrate known to support this species.	No further recommendations for this species.
Cobb Mountain lupine <i>Lupinus sericatus</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 900 to 5000 feet. Blooms Mar-Jun.	No Potential. The Study Area lacks the associated vegetation communities and is well below the documented elevation range of the species.	No further recommendations for this species.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland/rocky. Elevation ranges from 150 to 2710 feet. Blooms Mar-May.	Unlikely. The Study Area lacks rocky substrates known to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
marsh microseris <i>Microseris paludosa</i>	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 20 to 1160 feet (5 to 355 meters). Blooms Apr-Jun (Jul).	Unlikely. Despite potentially suitable grassland habitat, grasslands in the Study Area have been previously disturbed and they are dominated by non-native annual grasses and forbs with dense thatch accumulation, likely outcompeting many native forbs such as this species.	No further recommendations for this species.
green monardella <i>Monardella viridis</i>	Rank 4.3	Broadleafed upland forest, chaparral, cismontane woodland. Elevation ranges from 330 to 3310 feet. Blooms Jun-Sep.	No Potential. The Study Area lacks the vegetation communities associated with this species.	No further recommendations for this species.
cotula navarretia <i>Navarretia cotulifolia</i>	Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland/adobe. Elevation ranges from 10 to 6000 feet. Blooms May-Jun.	Unlikely. Despite potentially suitable grassland habitat and clay soils, the disturbance regime within the Study Area and dense thatch accumulation from non-native annual grasses likely precludes this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 20 to 5710 feet. Blooms Apr-Jul.	No Potential. The Study Area lacks vernal pools and alkaline soils associated with this species (CDFW 2018).	No further recommendations for this species.
many-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	FE, SE, Rank 1B.2	Vernal pools (volcanic ash flow). Elevation ranges from 100 to 3120 feet (30 to 950 meters). Blooms May-Jun.	No Potential. The Study Area lacks vernal pools and volcanic ash flow substrates associated with this species.	No further recommendations for this species.
Sonoma beardtongue <i>Penstemon newberryi</i> var. <i>sonomensis</i>	Rank 1B.3	Chaparral (rocky). Elevation ranges from 2300 to 4490 feet. Blooms Apr-Aug.	No Potential. The Study Area lacks chaparral and is well below the documented elevation range of this species	No further recommendations for this species.
Gairdner's yampah <i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Rank 4.2	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools/vernally mesic. Elevation ranges from 0 to 2000 feet (0 to 610 meters). Blooms Jun-Oct.	Unlikely. The Study Area lacks seasonal wetland habitat that could support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Calistoga popcornflower <i>Plagiobothrys strictus</i>	FE, ST, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools/alkaline areas near thermal springs. Elevation ranges from 300 to 520 feet. Blooms Mar-Jun.	No Potential. This species is known from only two extant occurrences near Calistoga, where it is associated with hot springs (CNPS 2018)	No further recommendations for this species.
North Coast semaphore grass <i>Pleuropogon hooverianus</i>	ST, Rank 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest/open areas, mesic. Elevation ranges from 30 to 2200 feet. Blooms Apr-Jun.	No Potential. The Study Area lacks forested wetland habitats known to support this species.	No further recommendations for this species.
nodding semaphore grass <i>Pleuropogon refractus</i>	Rank 4.2	Lower montane coniferous forest, meadows and seeps, north coast coniferous forest, riparian forest/mesic. Elevation ranges from 0 to 5250 feet. Blooms (Mar), Apr-Aug.	No Potential. The Study Area lacks forested wetland habitats known to support this species.	No further recommendations for this species.
Cunningham Marsh cinquefoil <i>Potentilla uliginosa</i>	Rank 1A	Marshes and swamps/freshwater, permanent oligotrophic wetlands. Elevation ranges from 100 to 130. Blooms May-Aug.	No Potential. The Study Area lacks permanent oligotrophic wetlands. This species is presumed extinct.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
California alkali grass <i>Puccinellia simplex</i>	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools/alkaline, vernal mesic; sinks, flats, and lake margins. Elevation ranges from 10 to 3050 feet (2 to 930 meters). Blooms Mar-May.	No Potential. The Study Area lacks alkaline substrates associated with this species.	No further recommendations for this species.
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	Rank 4.2	Cismontane woodland, north coast coniferous forest, valley and foothill grassland, vernal pools/mesic. Elevation ranges from 50 to 1540 feet. Blooms Feb-May.	Unlikely. The Study Area lacks large seasonally ponded areas with standing water depths of 6 inches or greater necessary to support this species.	No further recommendations for this species.
white beaked-rush <i>Rhynchospora alba</i>	Rank 2B.2	Bogs and fens, meadows and seeps, marshes and swamps (freshwater). Elevation ranges from 200 to 6690 feet. Blooms Jul-Aug.	No Potential. The Study Area lacks large intact bogs, marshes and swamps associated with this species.	No further recommendations for this species.
California beaked-rush <i>Rhynchospora californica</i>	Rank 1B.1	Bogs and fens, lower montane coniferous forest, meadows and seeps (seeps), marshes and swamps (freshwater). Elevation ranges from 150 to 3310 feet. Blooms May-Jul.	No Potential. The Study Area lacks large intact bogs, marshes and swamps associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
brownish beaked-rush <i>Rhynchospora capitellata</i>	Rank 2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest/mesic. Elevation ranges from 150 to 6560 feet. Blooms Jul-Aug.	No Potential. The Study Area lacks large intact bogs, marshes and swamps associated with this species.	No further recommendations for this species.
round-headed beaked-rush <i>Rhynchospora globularis</i>	Rank 2B.1	Marshes and swamps (freshwater). Elevation ranges from 150 to 200 feet. Blooms Jul-Aug.	No Potential. The Study Area lacks large intact bogs, marshes and swamps associated with this species.	No further recommendations for this species.
Napa checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>napensis</i>	Rank 1B.1	Chaparral/rhyolitic. Elevation ranges from 1360 to 2000 feet. Blooms Apr-Jun.	No Potential. The Study Area lacks chaparral and rhyolitic substrates known to support this species.	No further recommendations for this species.
Kenwood Marsh checkerbloom <i>Sidalcea oregana</i> ssp. <i>valida</i>	FE, SE, Rank 1B.1	Marshes and swamps (freshwater). Elevation ranges from 380 to 490 feet. Blooms Jun-Sep.	No Potential. The Study Area lacks large intact marshes and swamps associated with this species.	No further recommendations for this species.
two-fork clover <i>Trifolium amoenum</i>	FE, Rank 1B.1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentine). Elevation ranges from 20 to 1360 feet. Blooms Apr-Jun.	Unlikely. Despite potentially suitable grassland habitat present within the Study Area, grasslands within the Study Area are heavily disturbed. This species is only known from one natural extant occurrence in Marin County (CNPS 2018,	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS***
Plants				
Santa Cruz clover <i>Trifolium buckwestiorum</i>	Rank 1B.1	Broadleaved upland forest, cismontane woodland, coastal prairie/gravelly, margins. Elevation ranges from 340 to 2000 feet. Blooms Apr-Oct.	No Potential. The Study Area lacks gravelly substrates known to support this species.	No further recommendations for this species.
saline clover <i>Trifolium hydrophilum</i>	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 980 feet. Blooms Apr-Jun.	No Potential. The Study Area lacks alkaline marshes and swamps known to support this species.	No further recommendations for this species.
coastal triquetrella <i>Triquetrella californica</i>	Rank 1B.2	Coastal bluff scrub, coastal scrub/soil. Elevation ranges from 30 to 330 feet.	No Potential. The Study Area lacks coastal scrub habitats.	No further recommendations for this species.
oval-leaved viburnum <i>Viburnum ellipticum</i>	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 600 to 4200 feet. Blooms May-June.	No Potential. The Study Area lacks the vegetation communities associated with this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Mammals				
American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. The Study Area is bordered to the north and west by residential development, and is not contiguous with typical open grassland inhabited by this species for dens and foraging. This species has no nearby occurrences documented (CDFW 2018).	No further recommendations for this species.
fringed myotis <i>Myotis thysanodes</i>	WBWG: High Priority	Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Roosts in caves, mines, buildings, and crevices. Separate day and night roosts may be used.	Unlikely. The Study Area does not contain caves, mines, buildings, or other likely roost sites. This species may occasionally forage within the Study Area.	No further recommendations for this species.
hoary bat <i>Lasiurus cinereus</i>	WBWG: Medium Priority	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Moderate Potential. The Study Area contains trees with sufficient foliage for cover and potential roosting structure for this species. In addition, Kawana Springs Creek may provide adequate water for this species.	See Section 5.2 for recommended measures.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
long-legged myotis <i>Myotis volans</i>	WBWG: High Priority	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	Moderate Potential. The Study Area contains riparian habitat with potential for hollow trees suitable for roosting by this species.	See Section 5.2 for recommended measures.
pallid bat <i>Antrozous pallidus</i>	SSC, WBWG: High Priority	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential. The Study Area contains trees of sufficient size to potentially provide roosting structure for this species. In addition, Kawana Springs Creek may provide adequate water for this species.	See Section 5.2 for recommended measures.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC, WBWG: High Priority	Associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	Unlikely. The Study Area does not contain the caves, mines, buildings, or other likely roost sites. This species may occasionally forage within the Study Area.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
western red bat <i>Lasiurus blossevillii</i>	SSC, WBWG: High Priority	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	Unlikely. The Study Area does not contain tree species and types to support maternity roosts.	No further recommendations for this species.
Birds				
American peregrine falcon <i>Falco peregrinus anatum</i>	FD, SD, CFP, BCC	Winters throughout Central Valley. Requires protected cliffs and ledges for cover. Feeds on a variety of birds, and some mammals, insects, and fish.	Unlikely. This species may occasionally forage within the Study Area, however the Study Area does not contain nesting habitat for this species. No cliff, ledge, or high-rise buildings are present.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
bank swallow <i>Riparia riparia</i>	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	No Potential. The Study Area does not contain the riparian cliff habitat necessary for this species.	No further recommendations for this species.
burrowing owl <i>Athene cunicularia</i>	SSC, BCC	Frequents open grasslands and shrublands with perches and burrows. Preys upon insects, small mammals, reptiles, birds, and carrion. Nests and roosts in old burrows of small mammals.	Unlikely. This species may occasionally forage in the Study Area, but the Study Area lacks small mammal burrows essential for nesting and common in foraging habitat. This species is extremely rare in Sonoma County (Madrone Audubon Society 1995).	No further recommendations for this species.
ferruginous hawk <i>Buteo regalis</i>	BCC	Winter visitor to open habitats, including grasslands, sagebrush flats, scrub, and low foothills surrounding valleys. Preys on mammals. Does not breed in California.	Unlikely. The Study Area is outside of the breeding range of this species; however, this species may occasionally forage within the Study Area during the winter.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
golden eagle <i>Aquila chrysaetos</i>	CFP, BCC	Found in rolling foothills with open grasslands, scattered trees, and cliff-walled canyons.	Unlikely. Typical nesting trees and wide-open foraging grasslands are not present within the Study Area or vicinity. The Study Area is bordered to the north and west by residential development. This species may be seen flying over the Study Area.	No further recommendations for this species.
grasshopper sparrow <i>Ammodramus savannarum</i>	SSC	Frequents dense tall, dry or well-drained grasslands, especially native grasslands with mixed grasses and forbs for foraging and nesting. Nests on ground at base of overhanging clumps of vegetation.	Unlikely. The Study Area does not provide well-drained and open grasslands typical of this species. This species is more common in the coastal hills and dry interior hills.	No further recommendations for this species.
great blue heron <i>Ardea herodias</i>	none (breeding sites protected by CDFW); CDF sensitive	Year-round resident. Nests colonially or semi-colonially in tall trees and on cliffs, also sequestered terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	Unlikely. The Study Area does not contain typical foraging habitat and is unlikely to support colonial breeding by this species.	No further recommendations for this species.
tricolored blackbird <i>Agelaius tricolor</i>	SSC, BCC, SC	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs.	Unlikely. The Study Area is primarily oak woodland and does not contain dense riparian habitat such as cattails or tules typical for nesting by this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT, SE, BCC	Nests in riparian jungles of willow often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. Species requires an average of 17 hectares per pair for foraging and nesting.	Unlikely. The Study Area does not contain contiguous habitat of sufficient size to support this species' nesting and foraging. Additionally, documented occurrences in the vicinity are from 1975 and 1923 (CDFW 2018).	No further recommendations for this species.
white-tailed kite <i>Elanus leucurus</i>	CFP	Year-long resident of coastal and valley lowlands, including agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	Moderate Potential. The Study Area provides trees of suitable size for nesting as well as nearby foraging habitat.	See Section 5.2 for recommended measures.
yellow rail <i>Coturnicops noveboracensis</i>	BCC, SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	No potential. The Study Area does not contain freshwater marsh or wet meadows suitable for breeding by this species.	No further recommendations for this species.
bald eagle <i>Haliaeetus leucocephalus</i>	FD, SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	Unlikely. The Study Area does not contain large trees in close association with large bodies of water. Bald eagles may occasionally forage within the Study Area.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
northern spotted owl <i>Strix occidentalis caurina</i>	FT, ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with old-growth conifers. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	No Potential. The Study Area does not contain old growth conifer forests or managed second growth forests of sufficient size that are required by this species for foraging and nesting. There are no activity centers or observations recorded within 6 miles of the Study Area (CDFW 2018).	No further recommendations for this species.
black swift <i>Cyseloides niger</i>	SSC, BCC	Nesting sites are associated with sheer cliffs and waterfalls, either near the coast or in the mountains. Does not winter in California.	No Potential. The Study Area and vicinity lack cliff or waterfall habitat that are required for this species' nesting.	No further recommendations for this species.
Vaux's swift <i>Chaetura vauxi</i>	SSC	Forages high in the air over most terrain and habitats but prefers rivers/lakes. Requires large hollow trees for nesting.	Unlikely. Although the Study Area contains potentially suitable riparian habitat and mature trees which may be suitable for nesting by this species, this species typically requires large, hollow trees for nesting which are not present in the Study Area.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Allen's hummingbird <i>Selasphorus sasin</i>	BCC	Found in a wide variety of habitats that provide nectar-producing flowers. A common migrant and uncommon summer resident of California.	Moderate Potential. The Study Area is within the breeding range of this species and contains suitable nesting trees. This species has been documented in the vicinity of the Study Area (eBird 2018).	See Section 5.2 for recommended measures.
olive-sided flycatcher <i>Contopus cooperi</i>	SSC, BCC	Most often found in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	Unlikely. The Study Area does not contain sufficient forested or open lake/meadow habitat necessary for this species. This species prefers mountainous conifer habitat not present within the Study Area.	No further recommendations for this species.
yellow warbler <i>Setophaga petechia</i>	SSC, BCC	Nests in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open conifer forests.	Moderate Potential. The Study Area contains riparian habitat which may be suitable for nesting or foraging by this species.	See Section 5.2 for recommended measures.
yellow-breasted chat <i>Icteria virens</i>	SSC	Breeds in riparian thickets and woodlands, particularly those dominated by willows and cottonwoods.	Unlikely. Although the Study Area contains mature valley oak riparian woodland, this species typically requires expansive willow-dominated riparian thickets which are not present in the Study Area.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
oak titmouse <i>Baeolophus inornatus</i>	BCC	Occurs year-round in woodland and savannah habitats where oaks are present, as well as riparian areas. Nests in tree cavities.	High Potential. Suitable oak trees are present within the Study Area, providing year-round habitat for this species. This species is locally common (eBird 2018).	See Section 5.2 for recommended measures.
Lawrence's goldfinch <i>Carduelis lawrencei</i>	BCC	Inhabits oak woodlands, chaparral, pinyon-juniper associations, and weedy areas near water during the breeding season; highly erratic and localized in occurrence.	Moderate Potential. The Study Area contains oak woodland suitable for nesting and foraging by this species.	See Section 5.2 for recommended measures
Nuttall's woodpecker <i>Picoides nuttalli</i>	BCC	Year-round resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks; also occurs in riparian woodland. Nests in tree cavities.	High Potential. The Study Area contains oak woodland suitable for nesting and foraging by this species. This species has been observed near the Study Area (CDFW 2018).	See Section 5.2 for recommended measures.
Reptiles and Amphibians				
California giant salamander <i>Dicamptodon ensatus</i>	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	Moderate Potential. The Study Area contains woodland and aquatic habitat suitable for this species. The Study Area is surrounded by development to the north and west, but is contiguous with potentially suitable habitat to the east and south.	See Section 5.2 for recommended measures.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
California red-legged frog <i>Rana draytonii</i>	FT, SSC	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	Moderate Potential. Kawana Springs Creek may be suitable non-breeding aquatic habitat. Suitable aquatic breeding habitat exists within 1-mile of the Study Area. This species was observed as recently as 2016 approximately 1-mile from the Study Area (CDFW 2018). This species may utilize grassland and woodland within the Study Area as upland or dispersal habitat.	See Section 5.2 for recommended measures
California tiger salamander <i>Ambystoma californiense</i>	FE, ST	Inhabits annual grassland habitat and mammal burrows. Seasonal ponds and vernal pools crucial to breeding. Federal Endangered status limited to populations in Sonoma and Santa Barbara counties.	Unlikely. Nearby recorded occurrences are associated with the Santa Rosa Plain. The nearest recorded adult occurrence is over 1.5 miles from the Project Area (CDFW 2018). Work within the Project Area is not likely to impact CTS.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
foothill yellow-legged frog <i>Rana boylei</i>	SSC	Found in or near rocky streams in a variety of habitats. Feed on both aquatic and terrestrial invertebrates.	Moderate Potential. The Study Area contains a small, low gradient, intermittent stream that could support metamorphosed FYLF during part of the year. Connectivity to more suitable downstream habitats that may support breeding is compromised by dense urban surroundings. However, because some habitat exists for the species and several recent records for the species are present in the City of Santa Rosa (iNaturalist.org 2018), there is potential for FYLF to be present in the Study Area.	See Section 5.2 for recommended measures
red-bellied newt <i>Taricha rivularis</i>	SSC	Inhabits coastal redwood forests and occasionally other forest types. Adults remain in breeding stream drainages in the non-breeding season. Breeding habitats are often fast-moving streams. Stagnant water sources are often avoided.	Unlikely. The Study Area does not contain the forested habitat typical for this species. Additionally, this nearest recorded occurrence is over 12 miles from the Study Area (CDFW 2018).	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
western pond turtle <i>Actinemys marmorata</i>	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and shelter.	Moderate Potential. The Study Area contains an intermittent stream which could support this species through part of the year. There are multiple recorded occurrences of this species within 5-miles of the Study Area (CDFW, 2018).	See Section 5.2 for recommended measures
Fish				
Coho salmon - southern Oregon/northern California ESU <i>Oncorhynchus kisutch</i>	FT, ST, SSC	Occurs in inland and in coastal marine waters from the Cape Blanco, Oregon, through Punta Gorda, California. Adult coho salmon enter fresh water from September through January to spawn. Requires beds of medium to small gravel substrate and sufficient dissolved oxygen for spawning. Rearing habitat consists of riparian cover, cool water and sufficient dissolved oxygen.	No Potential. The Study Area does not contain suitable streams, rivers or other perennial waters to support this species.	No further recommendations for this species.
Navarro roach <i>Lavinia symmetricus navarroensis</i>	SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	No Potential. The Study Area does not contain suitable streams, rivers or other perennial waters to support this species.	No further recommendations for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Russian River tule perch <i>Hysterocarpus traski pomu</i>	SSC	Found in clear, flowing freshwater with abundant vegetation and overhanging cover. Confined to the Russian River and tributaries.	No Potential. The Study Area does not contain suitable streams, rivers or other perennial waters to support this species.	No further recommendations for this species.
steelhead - Central California Coast ESU <i>Oncorhynchus mykiss irideus</i>	FT	From Russian River south to Soquel Creek and Pajaro River. Also San Francisco and San Pablo Bay Basins.	No Potential. The Study Area does not contain suitable streams, rivers or other perennial waters to support this species.	No further recommendations for this species.
Invertebrates				
California freshwater shrimp <i>Syncaris pacifica</i>	FE, SE, SSI	Endemic to Marin, Napa, and Sonoma Counties. Found in shallow pools away from streamflow in low gradient streams where riparian cover is moderate to heavy.	Unlikely. The Study Area does not contain perennial stream habitat with suitable shallow pools to support this species.	No further recommendations for this species.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FD	Federal Delisted
SE	State Endangered
SD	State Delisted
ST	State Threatened
SSC	Species of Special Concern
BCC	Bird of Conservation Concern
CFP	CDFW Fully Protected Species
California Rare Plant Rank (CRPR)	
Rank 1A	CRPR 1A: Plants presumed extinct in California
Rank 1B	CRPR 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2A	CRPR 2A: Plants presumed extirpated in California, but more common elsewhere

Rank 2B	CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CRPR 3: Plants about which CNPS needs more information (a review list)
Rank 4	CRPR 4: Plants of limited distribution (a watch list)
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

****Potential to Occur:**

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

*****Results and Recommendations:**

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Assumed Present. Species has a high likelihood of occurring and actions to avoid/mitigate impacts are recommended; surveys not conducted.

Assumed Absent. Species is assumed to not be present or utilize the site due to a lack of key habitat components.

Not Observed. Species was not observed during protocol-level surveys.

APPENDIX D
SITE PHOTOGRAPHS

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Photograph 1. Photograph depicting previously disturbed ruderal herbaceous grassland in the southern portion of the Study Area, south of Kawana Springs Creek. Photo facing west



Photograph 2. Photograph depicting valley oak riparian woodland along Kawana Springs Creek in the western portion of the Study Area. Photo facing south.



Photograph 3. Photograph depicting Kawana Springs Creek, an intermittent, USGS 'blue-line' stream within the eastern portion of the Study Area. Photo facing west (downstream).



Photograph 4. Photograph depicting non-jurisdictional stormwater retention bioswales in the northeastern portion of the Study Area. Photo facing west.



Photograph 5. Photo depicting mitigation seasonal wetland in the northeastern portion of the Study Area.



Photograph 6. Photograph depicting confluence of ephemeral stream and intermittent stream (Kawana Springs Creek), at the site of the proposed bridge crossing.

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APPENDIX E
TREE SURVEY TABLE

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Appendix E- Kawana Springs Community Park Tree Survey

Tag ID	Scientific Name	Common Name	Multistem	Total Circumference (inches)	Total DBH (inches)	Heritage Tree (Y/N)
1	<i>Quercus agrifolia</i>	coast live oak	Yes	93.81	29.88	Yes
2	<i>Quercus agrifolia</i>	coast live oak	Yes	163.88	52.19	Yes
3	<i>Quercus agrifolia</i>	coast live oak	No	40.97	13.05	No
4	<i>Quercus agrifolia</i>	coast live oak	No	27.91	8.89	No
5	<i>Quercus agrifolia</i>	coast live oak	Yes	37.41	11.91	No
6	<i>Quercus agrifolia</i>	coast live oak	Yes	76.59	24.39	Yes
7	<i>Quercus agrifolia</i>	coast live oak	No	50.24	16.00	No
8	<i>Quercus agrifolia</i>	coast live oak	No	24.94	7.94	No
9	<i>Quercus agrifolia</i>	coast live oak	No	32.66	10.40	No
10	<i>Quercus lobata</i>	valley oak	No	64.13	20.42	Yes
11	<i>Quercus agrifolia</i>	coast live oak	Yes	72.44	23.07	Yes
12	<i>Quercus agrifolia</i>	coast live oak	Yes	62.34	19.85	Yes
13	<i>Quercus agrifolia</i>	coast live oak	Yes	152.00	48.41	Yes
14	<i>Quercus agrifolia</i>	coast live oak	No	40.97	13.05	No
15	<i>Quercus agrifolia</i>	coast live oak	Yes	122.31	38.95	Yes
16	<i>Quercus agrifolia</i>	coast live oak	No	62.80	20.00	Yes
17	<i>Quercus agrifolia</i>	coast live oak	No	67.09	21.37	Yes
18	<i>Quercus agrifolia</i>	coast live oak	Yes	164.47	52.38	Yes
19	<i>Quercus agrifolia</i>	coast live oak	Yes	131.22	41.79	Yes
20	<i>Quercus agrifolia</i>	coast live oak	No	42.75	13.61	No
21	<i>Quercus agrifolia</i>	coast live oak	No	70.06	22.31	Yes
22	<i>Aesculus californica</i>	buckeye	Yes	39.78	12.67	Yes
23	<i>Quercus agrifolia</i>	coast live oak	Yes	106.88	34.04	Yes
24	<i>Quercus agrifolia</i>	coast live oak	No	0.00	36.00	Yes
25	<i>Quercus lobata</i>	valley oak	No	0.00	10.90	Yes
26	<i>Aesculus californica</i>	buckeye	Yes	77.19	24.58	Yes
27	<i>Quercus lobata</i>	valley oak	No	0.00	38.00	Yes
28	<i>Quercus agrifolia</i>	coast live oak	Yes	86.69	27.61	Yes
29	<i>Salix lasiolepis</i>	arroyo willow	Yes	39.19	12.48	No
30	<i>Quercus agrifolia</i>	coast live oak	No	12.56	4.00	No
31	<i>Quercus agrifolia</i>	coast live oak	No	13.19	4.20	No
NT	<i>Quercus lobata</i>	valley oak	No	9.42	3.00	No
32	<i>Quercus lobata</i>	valley oak	No	12.56	4.00	No
33	<i>Quercus lobata</i>	valley oak	No	0.00	12.40	Yes
34	<i>Prunus cerasifera</i>	cherry plum	Yes	18.84	6.00	No
35	<i>Quercus lobata</i>	valley oak	No	125.60	40.00	Yes
36	<i>Unknown (dead)</i>	Unknown (dead)	No	85.50	27.23	No
37	<i>Unknown (dead)</i>	Unknown (dead)	No	0.00	37.00	No
38	<i>Prunus cerasifera</i>	cherry plum	Yes	39.78	12.67	No
39	<i>Quercus agrifolia</i>	coast live oak	No	119.32	38.00	Yes
40	<i>Quercus lobata</i>	valley oak	No	78.38	24.96	Yes
41	<i>Quercus lobata</i>	valley oak	No	92.63	29.50	Yes
42	<i>Aesculus californica</i>	buckeye	Yes	163.88	52.19	Yes

43	<i>Fraxinus latifolia</i>	Oregon ash	No	0.00	18.00	No
44	<i>Quercus agrifolia</i>	coast live oak	No	40.38	12.86	No
45	<i>Quercus agrifolia</i>	coast live oak	No	94.20	30.00	Yes
No Tag	<i>Prunus cerasifera</i>	cherry plum	Yes	52.25	16.64	No