

**BIOLOGICAL AND REGULATORY CONSTRAINTS ASSESSMENT
4825 BODEGA AVENUE
SONOMA COUNTY, CALIFORNIA**



Prepared for:

Sonoma-Marin Construction

Contact: Rick Young

121 Lakeville St.

Petaluma, CA 94952

Telephone: 415.760.1936

Email: rick@sonomamarin.com

Prepared by:

HUFFMAN-BROADWAY GROUP, INC.

523 4th St., Suite 224

San Rafael, CA 94901

Contact: Greg Huffman

Telephone: (415) 925-2000

June 2024

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Location	1
1.2	Description.....	1
1.3	Purpose of this Biological Constraints Assessment.....	1
2.0	REGULATORY SETTING	2
2.1	Federal Regulations	2
2.2	State Regulations	6
2.3	Local Regulations	9
2.4	Other	11
3.0	Methods	12
3.1	Definitions.....	12
3.1.1	Special Status Species	12
3.1.2	Sensitive Natural Communities.....	12
3.2	Desktop Review	13
3.3	Field Surveys	13
3.4	Potential Special Status Species Presence Assessment.....	14
4.0	RESULTS.....	16
4.1	Land Use	16
4.2	Climate.....	16
4.3	Topography and Soils	16
4.4	Hydrology.....	16
4.5	Plant Communities	17
4.6	Animal Populations	19
4.7	Wetlands.....	21
4.8	Special Status Species.....	21
4.8.1	Special Status Plants	22
4.8.2	Special Status Animals	22
4.8.3	Sensitive Natural Communities.....	27
4.9	Wildlife Movement/Corridors	27
4.10	Critical Habitat	28
5.0	RECOMMENDATIONS TO RESOLVE BIOLOGICAL CONSTRAINTS.....	29
5.1	Sensitive Natural Communities.....	29
5.2	Special Status Species.....	30
5.3	Animal Populations	32

LIST OF APPENDICES

APPENDIX A. FIGURES

- Figure 1. Review Area Location
- Figure 2. USGS Topographic Map of the Review Area
- Figure 3. Aerial Image of the Review Area
- Figure 4. Vegetation Map
- Figure 5. NRCS Soils Map
- Figure 6. FEMA Mapping
- Figure 7. Potential Biological and Regulatory Constraints Map

APPENDIX B. BIOLOGICAL SPECIES TABLES

- Table 1. Vascular Plant Species Observed on the Study Site During 2024 Plant Surveys
- Table 2. Special Status Plants with Potential to Occur in the Vicinity of the Review Area, Sonoma County, California
- Table 3. Special Status Animal Species that Have Been Reported in the Vicinity of the Review Area, Sonoma County, California

APPENDIX C. IPaC INFORMATION

APPENDIX D. NRCS SOILS INFORMATION

This report should be cited as: Huffman-Broadway Group, Inc. 2024. *Biological and Regulatory Constraints Assessment, 4825 Bodega Avenue, Sonoma County, California*. San Rafael, California. 38 pp. plus appendices. Prepared for Sonoma-Marin Construction. June 2024.

1.0 INTRODUCTION

At the request of Sonoma-Marin Construction, Huffman-Broadway Group, Inc. (HBG) conducted a Biological and Regulatory Constraints Assessment (BRCA) related to the potential planned land division of a 17.86-acre property (Review Area) near Petaluma in Sonoma County that consists of a minor subdivision of four parcels and a remainder parcel. The specific objective of the report is to evaluate biological constraints pertaining to the potential presence of sensitive habitats or special status species to determine a future development could significantly impact biological resources or trigger either environmental review or regulatory permitting from the County of Sonoma, state, and/or federal agencies.

1.1 Location

The Review Area is at 4825 Bodega Avenue in Sonoma County, California which is west of the City of Petaluma (Appendix A, Figures 1 - 3). The approximate center point of the Review Area is at Latitude 38.25568° north and Longitude 122.709589° west and is within Assessor's Parcel Number (APN) 021-110-070. The regional location of the Review Area is shown in Appendix A, Figure 1. Appendix A, Figure 2 shows the location of the site on 7.5-minute USGS quadrangle mapping. Appendix A, Figure 3 shows an aerial photo of the Review Area and the surrounding area.

1.2 Description

Owners of the 17.86-acre property at 4825 Bodega Avenue near the City of Petaluma in Sonoma County have proposed a land division consisting of a minor subdivision of four parcels and a remainder parcel.

1.3 Purpose of this Biological Constraints Assessment

The purpose of this BRCA is to: (1) assess within the Review Area the potential for the occurrence of special-status plant and animal species and their habitats and sensitive natural communities, (2) analyze the potential for substantial adverse Project effects to special-status species and sensitive natural communities following the *California Environmental Quality Act (CEQA) Check List* questions regarding biological resources, and (3) provide mitigation recommendations based on a review of existing literature, the results of the site reconnaissance, a preliminary review of the boundaries of potentially regulated aquatic resources, pedestrian wildlife and botanical surveys, and an evaluation of the impacts of establishing a development in the Review Area.

2.0 REGULATORY SETTING

The following is a description of relevant federal, state, and local environmental regulations and policies designed to protect sensitive plants and animals, their habitats, and sensitive natural communities that may impact development planning and ultimate Project approval.

2.1 Federal Regulations

Clean Water Act - Section 404. The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). “Discharge of fill material” is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the U.S. Environmental Protection Agency (USEPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into Waters of the United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, known as the Section 404(b)(1) Guidelines. Specifically, Section 404(b)(1) guidelines require that the Corps only authorize the “least environmentally damaging practicable alternative” (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and “other Waters of the U.S.” Wetlands and other Waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands as “...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (US EPA regulations at 40 CFR § 230.3(t); Corps’ regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps’ 1987 Wetlands Delineation Manual (1987 Manual); the Corps’ 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other Waters of the U.S.

is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the high tide line... “or, when adjacent non-tidal Waters of the United States are present, to the limits of jurisdiction for such non-tidal waters” (33 C.F.R. §328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R. §328.3(d)).

Clean Water Act - NPDES Requirements. In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to Waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related stormwater discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board has developed a general construction stormwater permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering stormwater and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that site design provides no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development (“LID”) design features. The Construction General Permit is implemented and enforced by California’s nine Regional Water Quality Control Boards (Water Boards).

The Water Boards have also adopted requirements for NPDES stormwater permits for medium and large municipalities, and the State Water Resources Control Board (Water Board) has adopted a General Permit for the discharge of stormwater from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan (SWMP) to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act. The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

The FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term “harm” in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Additionally, FESA prohibits the destruction or adverse modification of designated critical habitat. In the Service’s regulations at 50 CFR 402.2, destruction or adverse modification is defined as a “direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

Critical Habitat is defined in Section 3 of ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features essential to the conservation of the species (16 USC 1533). Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

1. Space for individual and population growth and for normal behavior
2. Food, water, air, light, minerals, or other nutritional or physiological requirements
3. Cover or shelter
4. Sites for breeding, reproduction, or rearing (or development) of offspring
5. Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. If listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species,

establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

U.S. Fish and Wildlife Service Birds of Conservation Concern. The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA.” To meet this requirement, USFWS published a list of Birds of Conservation Concern (BCC) (USFWS 2008) for the United States. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS’ highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior’s Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or “incidental” taking or killing of migratory birds. In response to the Trump Administration’s attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court, and the elimination of protections pursuant to the MBTA went into effect in January of 2021. On his first day in office, new President Joe Biden placed the Trump Administration’s changes to the MBTA on hold, pending further review. The Biden Administration announced the repeal of the January 2021 changes and the reinstatement of protections for migratory birds in December of 2021.

Fish and Wildlife Coordination Act. The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state’s wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

2.2 State Regulations

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Control Act. Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the Water Board and its nine Regional Water Quality Control Boards (Water Boards). A water quality certification from a Water Board must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "Waters of the United States"; all surface waters that are not "Waters of the United States, e.g., non-jurisdictional wetlands; groundwater; and the territorial seas.

The Water Board's State Wetland Definition and Procedures for Discharges of Dredge or Fill Material to Waters of the State adopted April 2, 2019 (the Procedures) along with the Implementation Guidance for the Procedures dated April 2020 (the Implementation Guidance) defines a wetland as an area that under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, states that the permitting authority (e.g. State Water Quality Control Board or Regional Water Quality Control Boards) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters to Water Board staff during application review.

The Procedures, along with the Interim Guidance, also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acres. The Procedures require an Alternatives Analysis to be completed in accordance with a three-tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction stormwater permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a Water Board must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

California Endangered Species Act. The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that “overriding considerations” exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires that such projects implement an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy. CDFW requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

California Department of Fish and Wildlife - Lake and Streambed Alteration Agreement. Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically defined by the Fish and Game Code but CDFW takes jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Fish and Game Code Special Protections for Birds. In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a number of sections that specifically protect certain birds.

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.
- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.
- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.
- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

California Department of Fish and Wildlife - Fish and Game Code Section 4150. Bats and other non-game mammals are protected in California. Section 4150 of the Fish and Game Code states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the Fish and Game Commission. Thus, destruction of an occupied, nonbreeding, bat roost, resulting in the death of bats, or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), is prohibited.

California Department of Fish and Wildlife Sensitive Plant Communities. CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very

threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities and special status species (including species of special concern), is kept by CDFW as part of the California Natural Diversity Data Base (CNDDDB). All known occurrences of sensitive habitats are mapped onto 7.5-minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDDB. Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife - Species of Special Concern. CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of “Species of Special Concern” developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife - Fully Protected Animal Species. The classification of Fully Protected was an effort by the State of California in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Species classified as Fully Protected Species by the CDFW may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

Native Plant Protection Act. The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to “preserve, protect and enhance rare and endangered plants in this state.” The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as “endangered” or “rare”. The NPPA prohibits the take of plants listed under the NPPA, but the NPPA contains exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.3 Local Regulations

Sonoma County

The Sonoma County General Plan includes the following biological resources protections:

Stream Setbacks for Structures (SCC §7-14.5) - All structures requiring a building permit or an agricultural exemption shall be set back from streams, as measured from the toe of the stream bank outward, a distance of 2.5 times the height of the stream bank plus 30 feet, or 30 feet outward from the top of the stream bank, whichever distance is greater, unless a greater distance is established in the General Plan, Local Coastal Plan, and/or Zoning Code. If the top of the stream bank cannot be

determined by visual analysis, it shall be determined by hydraulic analysis as the water surface elevation for the 100-year storm event plus 1.5 feet. Stream bank height is the change in elevation from the top of bank and the lowest toe of bank.

Stream Setbacks for Riparian Corridors (SCC §26.65.030) - The Riparian Corridor (RC) combining zone includes the stream bed, bank, and adjacent streamside conservation area on each side of a designated stream as measured from the top of the higher bank. Land uses and development, including grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots, is prohibited within the Riparian Corridor, except as allowed by SCC §26.65.030 and 26.65.040. The minimum setback for development and agricultural cultivation is indicated by the zoning for each property. For example, a parcel zoned “RC 100/50” indicates that there is a 100 feet setback for development and a 50 feet setback for agricultural cultivation.

Stream Setbacks for Septic Systems and Water Wells:

1. **Stream Setbacks for Septic Systems (Sonoma County Onsite Wastewater Treatment Systems Regulations and Technical Standards).** Septic systems shall be set back 50 feet from the top of ephemeral stream banks and 100 feet from the top of perennial stream banks.
2. **Stream Setbacks for Water Wells (SSC §25B-6.b).** Wells shall be set back 30 feet from the top of stream banks.

Stream and Water Feature Setbacks for Grading Work:

1. **Stream Setbacks for Grading Work (SCC §11.14.100).** Grading work and land disturbance shall be set back 25 feet from top of stream banks, unless a greater setback is required by general plan, local coastal plan, or zoning code.
2. **Setbacks for Grading Work near Lakes, Ponds, and Reservoirs (SCC §11.14.090).** Grading work and land disturbance shall be set back 50 feet from the high water mark of lakes, ponds, and reservoirs, unless a greater setback is required by general plan, local coastal plan, or zoning code.
3. **Setbacks for Grading Work near Wetlands (SCC §11.14.110).** Grading work and land disturbance shall be set back from wetlands in compliance with the county’s requirements, unless a greater setback is required by general plan, local coastal plan, or zoning code. These setback requirements shall not apply where all necessary state and federal permits, approvals, authorizations to fill wetlands have been obtained.
 - Wetlands designated in zoning code, a setback totaling 100 feet from the delineated wetland boundary is required.

- All other wetlands, a setback totaling 50 feet from the assessed wetland boundary is required, unless the wetland assessment recommends a greater or lesser setback.

Existing vegetation shall be retained in setback areas to filter soil and other pollutants carried in stormwater. Vegetative filter strips may be installed in setback areas in compliance with Sonoma County's best management practices guide to enhance filtration.

Sec. 26-88-010 (m) Tree Protection Ordinance: The purpose of this ordinance is to ensure that all projects shall be designed to minimize the destruction of protected trees. See Appendix 3 for General Provisions and Construction Standards relevant to the Tree Protection Ordinance.

Valley Oak Habitat (VOH) Combining District: Purpose is to protect and enhance valley oaks and valley oak woodlands and to implement the provisions of Section 5.1 of the general plan resource conservation element.

Heritage or Landmark Trees: The purpose of the Sonoma County Heritage or Landmark Tree Ordinance is to ensure that no person, including county agencies, shall remove a heritage or landmark tree without obtaining a tree permit as outlined in Section 26D-5 and as exempted under Section 26D-6.

2.4 Other

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS 2024: <https://www.cnps.org/cnps/rareplants/inventory/>).

Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review, especially for those plant species included in California Rare Plant Ranks 1 and 2 (see below).

CNPS Rank	Status
California Rare Plant Rank 1A	Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B	Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A	Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B	Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3	Plants about which more information is needed – a review list.
California Rare Plant Rank 4	Plants of limited distribution – a watch list.
<i>Threat Code Extensions</i>	
.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

The following link identifies the definitions of the CNPS listings:

<https://www.cnps.org/cnps/rareplants/ranking.php>

3.0 Methods

Both desktop and field surveys were conducted. The following describes how special status species and sensitive natural communities are defined, and methods used to assess their potential to be present on the Review Area.

3.1 Definitions

3.1.1 Special Status Species

CEQA requires that impacts to special status species be considered and evaluated under CEQA. Special status species include plants or animals that:

1. are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA).
2. are listed or are candidates for future listing as threatened or endangered under the California ESA.
3. meet the definitions of endangered or rare under § 15380 of the CEQA Guidelines.
4. are plants listed as rare under the California Native Plant Protection Act (NPPA) (California Fish and Game Code, § 1900 et seq.).
5. are considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California", "plants about which more information is needed", or "plants of limited distribution – a watch list" (i.e., species with a California Rare Plant Rank [CRPR] of 1B, 2, 3, or 4).
6. are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).
7. are identified as a species of special concern (SSC) by the California Department of Fish and Wildlife (CDFW).
8. are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS).

3.1.2 Sensitive Natural Communities

CEQA requires that impacts to sensitive natural communities be considered and evaluated under CEQA. Sensitive natural communities are plant communities which CDFW designates as sensitive which are either considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities also include those plant communities identified in local or regional plans, policies, ordinances, regulations, or by CDFW as those communities that provide special functions or values. CDFW identifies sensitive plant communities on their *List of California Natural Communities* and records their mapped presence as part of the information documented within the CNDDDB. The mapped information in the CNDDDB provides a general location of sensitive plant communities and sensitive natural community types.

3.2 Desktop Review

The following information sources were reviewed to develop relevant environmental and biological information for determining if special status species, critical habitat, and sensitive natural communities that had been previously documented on or within a 10-mile vicinity of the Review Area:

- Aerial imagery available online from Google Earth Pro
- Watershed mapping National Hydrography Dataset (NHD) HUC 8 and HUC 12 available online from the US Geological Survey (USGS)
- National Wetlands Inventory mapping available online from the US Fish and Wildlife Service (USFWS)
- Custom Soil Resources Report available online from Natural Resources Conservation Service (NRCS)
- Flood Insurance Rate Map available online from the Federal Emergency Management Agency (FEMA)
- 1:24,000 scale topographic mapping available online from the USGS
- LIDAR data based topographic mapping for the Review Area available online from Sonoma County
- Vegetation Mapping available online from Sonoma County
- California Wildlife Habitat Relationship System (CHWR)
- Precipitation and temperature data from NRCS *Climate Analysis for Wetlands Tables* based on the nearest NRCS WETS Station
- California Natural Diversity Database (CNDDDB) search for the Review Area 7.5-minute quadrangle and the eight surrounding USGS quadrangles available online from the California Department of Fish and Wildlife (CDFW)
- Information for Planning and Consultation (IPaC) data base available online from the USFWS
- National Marine Fisheries Service (NMFS) list of species and other resources under NMFS jurisdiction that are known or expected to be on or near the Review Area
- Electronic Inventory of Rare and Endangered Plants of California for the Review Area 7.5-minute quadrangle and the eight surrounding USGS quadrangles available online from the CNPS.

3.3 Field Surveys

The Review Area was visited on several occasions by professional biologists to develop information regarding general ecological conditions and potential presence/absence of special status plant and animal species and sensitive natural communities to include aquatic resources. These studies/biological surveys are summarized below.

Plant and Wildlife Surveys. Plant and wildlife species and habitat surveys were conducted in the Review Area by HBG biologist MaryAnne Flett on April 16 and 18, 2024 and by HBG Senior Environmental Scientist Gary Deghi on May 23, 2024. To determine if sensitive natural communities occur within the Review Area, a detailed floristic inventory was prepared based on CNPS relevé plot sampling. Wildlife observations in the Review Area were based on visual sightings as well as observations of tracks, dens, and scat.

Aquatic Resources Survey. Wetland Scientist Greg Huffman conducted a preliminary aquatic resources field investigation on April 18, 2024, to identify areas potentially meeting the USACE/USEPA August 29, 2023, Water of the United States (WOTUS) Rule (including streams and wetlands) following the most recent USACE/USEPA guidance. The field investigation also reviewed the potential aquatic resources under the Water Board's definitions of wetland and Waters of the State (WOTS) subject to regulation under the Porter-Cologne Water Quality Control Act. The Water Boards also potentially regulate the above aquatic resources under their CWA Section 401 Program. The stream area which runs adjacent to the property is also potentially subject to CDFW's Lake and Streambed Alteration Agreement Program under Fish and Game Code Section 1602.

3.4 Potential Special Status Species Presence Assessment

Special Status Species Presence Assessment

Based on species occurrence information provided by the CNDDDB and IPaC databases, special status plant and animal species were summarized in table format (Appendix B) with listing status information together with descriptions of macro and micro habitat requirements. Using the criteria listed below, each plant and animal species and community listed was then evaluated as to its potential for being present on the Review Area (Section 4.8). The evaluation was based on an assessment of information obtained relevant to the Review Area and vicinity which included: (1) general ecological information regarding land use, climate, topographic, soils, hydrology, and vegetation type and animal species typically associated with the existing Review Area; and (2) specific technical information regarding listed plant and animal species distribution range, habitat, and known threats together with onsite general level plant, wildlife, and aquatic resource surveys (Section 4.5, 4.6 and 4.7).

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.

If determined potentially present, the plant species, animal species, and/or sensitive natural community was evaluated to determine if the Project would have a substantial adverse effect, either

directly or through habitat modifications and, if necessary, recommend action(s) either before or after proposed project approval, but prior to ground-disturbing activities (provided in Section 5.0).

4.0 RESULTS

4.1 Land Use

Agricultural and dispersed residential land uses are present on all sides of the Review Area, as seen in the aerial photograph of the site in Appendix A, Figure 3. A detailed review of Google Earth Pro aerial photography and imagery from December 1985 to April 2022 shows that land use on the Review Area is residential and agricultural.

4.2 Climate

Based on WETS Station “PETALUMA AIRPORT, CA” precipitation and temperature data for the period of record (1971 – 2022), the average annual precipitation amount received approximately 6.5 miles from the site is 24.67 inches received as rainfall and 0.00 inch received as snow. The average minimum and maximum precipitation amount ranges between 0.03 and 4.68 inches. The wettest months, in which average monthly rainfall exceeds 3.00 inches, are January, February, March, November, and December (4.67, 4.60, 3.51, 3.08, and 4.68 inches) with the lowest average amount occurring in July and August (0.03 and 0.05 inches). Record data also indicates that the annual average daily temperature is 58.2° F. Average high and low temperatures range between 70.8° F and 45.6° F with the coldest months typically including January and December where temperatures are in the upper 40s and the hottest months being July and August where temperatures are in the upper 60s. The annual growing season with a 50% probability of having days above 32° F is 269 days (March 2 to November 26), and, with a 70% probability of having days above 32° F, is 291 days (February 19 to December 7).

4.3 Topography and Soils

The Review Area consists of gently rolling landscapes that surround the intermediate area outside the Review Area. The topography, which varies at elevations between approximately 71 to 191 feet MSL, is shown in the Cotati USGS 7.5-minute quadrangle topographic map in Appendix A, Figure 2.

Soil survey information for the Review Area was obtained from the National Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024) (Appendix D). Two (2) different soil types (Steinbeck loam, 2 to 9 percent slopes and Steinbeck loam, 9 to 15 percent slopes, eroded) are mapped by NRCS within the Review Area as described in Appendix D, Table 1. The table summarizes the soil units and soil associations, together with their physical and hydrologic characteristics that were identified as being present based on a Natural Resources Conservation Service Custom Soil Resources Report prepared for the Review Area.

4.4 Hydrology

Watersheds. A review of the US Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) data shows that the Review Area lies within the 8-digit HUC (18050002) “San Pablo Bay n” subbasin and the 12-digit HUC (180500020601) “Petaluma River” subwatershed.

Direction of Surface Water Flow. Surface water that flows within the Review Area is the direct result of precipitation and associated stormwater runoff. Drainage from the Review Area travels west towards and into an unnamed stream that flows from south to north beyond the western edge of the Review Area. This creek eventually flows into the Petaluma River and ultimately into San Pablo Bay.

FEMA. FEMA Flood Insurance Rate Map for “Sonoma County” 06097C0889F (Effective Date: 2/19/2014) indicates that the Review Area is outside of FEMA Insurance Zoning (Appendix A, Figure 6).

4.5 Plant Communities

General Classification. Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation communities and habitats at the Review Area were identified based on the currently accepted List of Natural Communities (CDFW 2010). The list is based on A Manual of California Vegetation, Second Edition (Sawyer et al 2009), which is the National Vegetation Classification applied to California. Vegetation communities and habitats at the Review Area were also identified using the California Wildlife Habitat Relationships (CWHR) classification (Mayer and Laudenslayer 1988), which defines aquatic as well as terrestrial habitats including urban areas. The CWHR habitat classification scheme was developed to provide a systematic method for describing how habitats and structures support California's regularly occurring birds, mammals, reptiles and amphibians. At present, there are 59 wildlife habitats in the CWHR System: 27 tree, 12 shrub, 6 herbaceous, 4 aquatic, 8 agricultural, 1 developed, and 1 non-vegetated.

Wetland habitats potentially subject to federal or state jurisdiction were further classified using the U.S. Fish and Wildlife’s Service’s (USFWS) Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979, see wetland delineation discussion in Section 4.7).

Based on Sonoma County vegetation mapping (Appendix A, Figure 4) and results of field surveys conducted by HBG, the Review Area contains four plant communities or habitat types: (1) Non-native Annual Grassland, (2) Coastal Oak Woodland, (3) Eucalyptus, and (4) Urban. Summary descriptions of these plant communities/habitat types in the Review Area follows. A list of plant species observed in the Review Area during field reviews conducted by HBG in May of 2024 is included as Appendix B Table 1.

Non-native Annual Grassland

Annual Grassland habitat occurs mostly on flat plains to gently rolling foothills. Annual Grassland habitats are open grasslands composed primarily of annual plant species. Many of these species also occur as understory plants in woodlands and other habitats. Structure in Annual Grassland depends largely on weather patterns and livestock grazing. Dramatic differences in physiognomy, both between seasons and between years, are characteristic of this habitat. Fall rains cause germination of annual plant seeds. Plants grow slowly during the cool winter months, remaining low in stature until spring, when temperatures increase and stimulate more rapid growth. Large amounts of standing dead plant material can be found during summer in years of abundant rainfall and light to moderate grazing pressure. Heavy spring grazing favors the growth of summer-annual forbs and reduces the amount of standing dead material. Grasslands, in general, are of conservation concern nationwide due to the loss of these habitats with conversion to agriculture and urban development.

Much of the Review Area is vegetated with Annual Grassland consisting almost entirely of non-native grasses and herbaceous species. At the time of the site May 2024 field review, growth of non-native grasses and herbaceous plants several feet in height covered much of the area. The dominant grass species found in the grasslands included non-native wild oat (*Avena fatua*), wall barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordaceus*), and perennial ryegrass

(*Festuca perennis*), and non-native herbaceous plants included Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), wild radish (*Raphanus sativa*), bur clover (*Medicago polymorpha*), and rough cat's ear (*Hypochaeris radicata*). Other non-native species in the fields include hedge mustard (*Sysymbrium officinale*), bull mallow (*Malva nicaeensis*), poison hemlock (*Conium maculatum*), common vetch (*Vicia sativa*), and curly dock (*Rumex crispus*), among others. About a half dozen pear trees (*Pyrus communis*) were found in the southern portion of the grassland.

Coastal Oak and Eucalyptus Woodland

The overstory of Coastal Oak Woodlands consists of deciduous and evergreen hardwoods (mostly oaks), sometimes mixed with scattered conifers. In mesic sites, the trees are dense and form a closed canopy. In drier sites, the trees are widely spaced, forming an open woodland or savannah. The understory can vary between dense and almost impenetrable in areas of closed canopy to scattered under and between trees where the canopy is open. The interrelationships of slope, soil, precipitation, moisture availability, and air temperature cause variations in the structure of Coastal Oak Woodlands. These factors vary along the latitudinal, longitudinal, and elevational gradients over which Coastal Oak Woodlands are found. Eucalyptus woodland consists of a canopy of non-native eucalyptus, introduced from Australia, that were planted as windrows in rangeland and agricultural areas and are present in many riparian situations along creeks.

An unnamed stream flows from south to north beyond the western boundary of the Review Area. A continuous line of trees along the property boundary traces the edge of this intermittent drainage. The canopy along the stream adjacent to the Review Area is categorized as Eucalyptus Woodland, consisting mostly of blue gum eucalyptus (*Eucalyptus globulus*) along the northern half of the Review Area, and Coast Live Oak Woodland, consisting mostly of Coast live oak (*Quercus agrifolia*), along the southern half of the review area. Some of the eucalyptus and Coast live oak trees are rooted within the Review Area. Other trees are present along the east bank of the creek, within and adjacent to the Review Area, including planted Monterey cypress (*Hesperocyparis macrocarpa*) and Coast redwood (*Sequoia sempervirens*). The understory of these woodlands along the banks of the stream is not well-developed, but understory vegetation includes species such as California blackberry (*Rubus ursinus*), common bedstraw (*Gallium aparine*), and great stinging nettle (*Urtica dioica*). An additional wind row of planted eucalyptus with accompanying Monterey cypress bisects the Review Area in an east-west direction.

Urban

The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves, common in city parks, green belts, and cemeteries, vary in height, tree spacing, crown shape, and understory conditions, depending upon the species planted and the planting design. The juxtaposition of urban vegetation types within cities produces a rich mosaic with considerable edge areas. The overall mosaic may be more valuable as wildlife habitat than the individual units in that mosaic.

The Urban habitat in the Review Area is found around the existing house and ancillary structures and consists of a variety of planted trees, shrubs planted around buildings for purposes of landscaping, and mostly non-native grasses and herbaceous plants. Trees around the existing house include native Coast

live oak in addition to planted walnut (*Juglans* sp.), a small pine (*Pinus* sp.), a southern magnolia (*Magnolia grandifolia*), and several fruit trees including peach (*Prunus persica*), lemon (*Citrus lemon*), wild cherry (*Prunus cerasifera*), and apple (*Malus* sp.). Other vegetation around the house includes roses (*Rosa* sp.), common box (*Buxus sempervirens*), Japanese camelia (*Camellia japonica*), and other shrubs; herbaceous plants such as sea fig (*Carpobrotus edulis*), wild radish, bull mallow, common vetch, bur clover, rough cat's ear, common sowthistle (*Sonchus oleraceus*), white stonecrop (*Sedum album*), and redstem filaree (*Erodium cicutarium*); and non-native grasses such as perennial ryegrass, ripgut brome, soft chess, wall barley, wild oat, little quaking grass (*Briza minor*), and toad rush (*Juncus bufonius*).

4.6 Animal Populations

General Characteristics of Onsite Habitats. The habitats on site and in the surrounding area support wildlife species associated with grassland, grazed pastureland, native live oak woodland, and non-native eucalyptus and cypress wooded habitats typical of Sonoma County.

Trees like those found in the Review Area and riparian canopy like that found along the stream on the adjacent property generally provides shelter and cover for a variety of amphibians, reptiles, birds, and mammals and provides foraging and breeding habitat for a variety of aquatic and terrestrial wildlife species. Riparian habitats provide food and water sources, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. They also provide breeding sites for amphibians and feeding areas for larger mammals such as deer. Canopy riparian trees and other vegetation provide nesting substrates for many bird species and foraging areas for both migratory and resident species. Well-developed riparian canopies also provide significant habitat in support of neotropical migrant land birds during spring and fall migration. The canopy vegetation provides shading and inputs of leaves and woody material to stream channels that provides suitable conditions for many aquatic organisms, including fish, that in Sonoma County can include species of anadromous salmonids.

Grasslands are suitable to support amphibians, reptiles, and mammals adapted to this habitat. Grasslands provide nesting habitat for many passerine species (songbirds); foraging habitat for passerines, owls, and other raptors (birds of prey); habitat for ground-nesting birds; and habitat for small mammals with burrows that provide essential refugia for reptiles and amphibians that may disperse to uplands during terrestrial portions of their life cycle. Many species of reptiles, birds, and mammals are restricted to grasslands for specific life stages, including breeding. Special features within grasslands and woodlands such as shrubs and downed wood are also of value to wildlife. Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Many species of reptiles, birds and mammals are restricted to grasslands for their breeding habitat.

Animal Populations in the Review Area. The stream beyond the western boundary of the Review Area provides wildlife habitat that includes a water source and that serves as a movement/migration corridor and foraging and breeding habitat for a variety of aquatic and terrestrial wildlife species. The stream serves as a wildlife corridor extending along the western boundary of the Review Area. The trees along the stream at the border of the Review Area and that bisect the Review Area provide

wildlife habitat in the form of foraging, cover, and nesting substrates for birds, in addition to elevated perch sites for hunting raptors. In addition, many of the trees along the stream and within the Review Area are old enough to have significant cavities that could support cavity-nesting birds or could serve as either winter or maternity roosts for various species of bat. For instance, several holes suitable for cavity-nesting birds or use as a bat roost were observed in a dead Monterey cypress snag along the stream beyond the Review Area boundary.

The riparian environment along the west edge of the property provides suitable breeding habitat for various species of amphibian that would be expected to include species such as Pacific chorus frog (*Pseudacris regilla*), California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), and western toad (*Anaxyrus boreas*), among others. These species could wander into the Review Area during portions of their life cycle. Reptiles were not observed during the field survey, but likely species, especially in the grasslands, would include western fence lizard (*Scoloperus occidentalis*), southern alligator lizard (*Elgaria multicarinatus*), Pacific gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis elegans*).

Mammals observed at the site during the May 23, 2024, field review included California vole (*Microtus californicus*) in the non-native grassland area. Many dens of Botta's pocket gopher (*Thomomys bottae*) and several that could possibly support California ground squirrel (*Otospermophilus beecheyi*) were also observed in the grasslands during the field review. Other mammals expected at the site, especially around human habitation, would include Virginia opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*).

HBG's wildlife biologist observed 31 avian species at the site during the May 23, 2024, field review. The greatest diversity of native avian species was noted in the forested areas along the stream bordering the Review Area to the west and in the wind row of trees bisecting the area. Native bird species observed in these areas included California quail (*Callipepla californica*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Dryobates nuttallii*), chestnut-backed chickadee (*Poecile hudsonicus*), oak titmouse (*Baeolophus inornatus*), blue-gray gnatcatcher (*Polioptila melanura*), Bewick's wren (*Thryomanes beweckii*), western flycatcher (*Empidonax difficilis*), black phoebe (*Sayornis nigricans*), California scrub-jay (*Aphelocoma californica*), American robin (*Turdus migratorius*), and dark-eyed junco (*Junco hyemalis*), along with raptors including turkey vulture (*Cathartes aura*) and both red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*). Other avian species observed in the Urban habitat around the structures and within the grasslands included Eurasian collared-dove (*Streptopelia decaocto*), Anna's hummingbird (*Calypte anna*), western bluebird (*Sialia mexicana*), lesser goldfinch (*Spinus psaltria*), California towhee (*Melazone crissalis*), Bullock's oriole (*Icterus bullockii*), and great-tailed grackle (*Quiscalus mexicanus*). Barn swallows (*Hirundo rustica*), tree swallows (*Tachycineta bicolor*) and violet-green swallow (*Tachycineta thalassina*) were observed foraging for insects over the onsite grasslands. Non-native house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and wild turkey (*Meleagris gallopavo*) were also observed.

The April and May 2024 surveys were scheduled during the bird nesting season, so any of the birds observed could have been nesting either within the Review Area or in the general vicinity. Evidence of nesting (observation of nests, adult birds carrying nesting material or food, aggressive or territorial behaviors, etc.) was observed during field reviews for Bewick's wren, oak titmouse, western bluebird, European starling, and possibly red-tailed hawk. A large nest structure was observed in a eucalyptus tree along the creek during the April field review by one biologist, and two red-tailed hawks were on territory in the same area and suspected of nesting by a different biologist during the May field review. Active nests of most native bird species are protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Nests of European starling observed in the eaves of the existing house would not be protected.

4.7 Wetlands

On April 18, 2024, Greg Huffman of HBG conducted an initial reconnaissance investigation of the Review Area for the presence of wetlands and other Waters of the U.S. potentially subject to federal jurisdiction under the Clean Water Act or state or local jurisdiction under the Porter-Cologne Act or the Section 1602 Fish and Game Code jurisdiction of CDFW. The review included an investigation of existing landforms, vegetation, hydrology, and soil conditions, but consisted of a preliminary review of the area for wetland habitats. No areas were found within the Review Area that would be considered wetlands or sensitive habitat pursuant to state or federal wetland criteria.

A stream was found adjacent to the western boundary of the Review Area. This stream was observed to have intermittent flow in a northward direction crossing through a culvert under Bodega Avenue. The wetted portion of this stream (area below Ordinary High Water) may be regulated by the Corps of Engineers as a water of the U.S. under Section 404 of the Clean Water Act. The creek and its banks would likely be regulated by the SFBRWQCB as a water of the state of California under the Porter-Cologne Act. The creek would also be considered a stream course subject to the jurisdiction of the CDFW pursuant to Section 1602 of the California Fish and Game Code. The Review Area is outside of these agencies' landward geographical reach of jurisdiction. However, the stream is subject to the County's stream setback requirements that require a 25-foot setback from the top of the stream bank from the limit of grading (Stream Setbacks for Grading Work, SCC §11.14.100). Grading work and land disturbance shall be set back 25 feet from top of stream banks, unless a greater setback is required by general plan, local coastal plan, or zoning code. The 25-foot setback from the top of bank of the stream on the adjacent property extends into the Review Area as shown in Appendix A, Figure 7.

4.8 Special Status Species

Based on species occurrence information from the literature review and field observations, and USFWS IPaC database review (see result in Appendix C), a list of special-status and CNDDDB-tracked plant and animal species considered to have the potential of occurring within the Review Area was generated and is summarized in Tables 2 and 3¹ of Appendix B. Each species considered potentially occurring at

¹It should be noted that the USFWS IPaC also included the federal listed threatened Northern Spotted Owl (*Strix occidentalis caurina*), threatened Green Sea Turtle (*Chelonia mydas*), candidate Monarch Butterfly (*Danaus plexippus*), endangered Showy Indian Clover (*Trifolium amoenum*), and endangered Sonoma Alopecurus (*Alopecurus aequalis* var.). It was determined the Review Area lacks suitable habitat for these species and there is no potential for occurrence.

the Review Area or in the vicinity was then evaluated based on the occurrence criteria provided in Section 3.4, above.

Based on a CNDDDB search there are no special status species documented within the Review Area boundaries, however 39 special status species of plants, 39 special status animals, and 2 sensitive natural communities are known to occur within the vicinity of the Review Area. Appendix B, Tables 2 and 3 provide lists of the special status plant and animal species identified. Tables 2 and 3 also provide listing status, general and micro habitat descriptions, an evaluation of the species potential for occurring within the Review Area based on the criteria listed in Section 3.4, above, and recommended further actions, if necessary. An evaluation of the presence of the two sensitive natural communities is included in Section 4.8.3.

4.8.1 Special Status Plants

Based on the database search, literature review and habitat types found on the Review Area, none of 39 special-status plant species listed in Appendix B, Table 2 were identified as having a potential to occur within the Review Area. Although some of these species have been known to occur in the general vicinity of the Review Area, suitable habitat for these species was not found on the property. None of the species listed in Table 2 were observed in the Review Area during surveys conducted during the flowering period of most of the species by three separate HBG biologists on April 16 and 18 and May 23, 2024.

As can be discerned from Table 2, special status plant species found in this part of Sonoma County require habitat conditions not found in the Review Area. The non-native landscaping vegetation and weedy/ruderal vegetation at the property does not provide suitable habitat for any of the special status plant species noted in Table 2. Plant species known from the area listed in Table 2 require specialized habitats such as salt, brackish, or freshwater marsh, cismontane woodland, valley and foothill grassland, coastal scrub or coastal prairie, chaparral, coniferous or broadleaf evergreen forest, or are species that are found in serpentine or other specialized soils. Due to the extensive non-native vegetation found in the Review Area, this site is a poor candidate for supporting special status plant species. The Review Area does not contain habitat suitable for native plant species and is not expected to support special status species of plant.

4.8.2 Special Status Animals

Six special status animal species (one invertebrate, one amphibian, one reptile, two birds, and one mammal) with at least a Moderate Potential for occurrence on the Review Area are discussed below.

INVERTEBRATES

One special status invertebrate was identified as potentially occurring at the Review Area.

Western bumble bee (*Bombus occidentalis*):

Range. This species has undergone severe declines in area of occupancy, number of occurrences, and relative abundance since the mid-20th century; previously, it was one of the most abundant bumble bees in the western United States and Canada.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.916920/Bombus_occidentalis

Listing Status. CESA Candidate Endangered.

Habitat. Found in a range of habitats, including mixed woodlands, farmlands, urban areas, montane meadows and into the western edge of the prairie grasslands (COSEWIC 2014b). Food plants include: *Ceanothus*, *Centaurea*, *Chrysothamnus*, *Cirsium*, *Geranium*, *Grindellia*, *Lupinus*, *Melilotus*, *Monardella*, *Rubus*, *Solidago*, and *Trifolium* (Williams et al. 2014b).

Threats. Ongoing threats to the species, particularly within the southern portions of its range, include pathogen spillover from commercially managed bumble bee colonies, increasingly intensive agricultural and livestock grazing and other land use practices, pesticide use, including neonicotinoid compounds), and habitat change.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.916920/Bombus_occidentalis

Review Area Occurrence. Moderate Potential. Not observed to be present. The Review Area has Moderate Potential to be used for episodic foraging as several nectar producing plant species are present which are known to be used by the western bumble bee. These include *Geranium* (*Geranium dissectum*), Bristly ox-tongue (*Helminthotheca echioides*), and *Trifolium* (*Trifolium hirtum*).

FISH

No special-status fish species were identified as potentially occurring in the Review Area.

AMPHIBIANS

One special-status amphibian species was identified as potentially occurring in the Review Area.

California red-legged frog (*Rana draytonii*):

Range. Native historical range extended from southern Mendocino County in northwestern California south (primarily west of the Cascade-Sierra crest) to northwestern Baja California (Shaffer et al. 2004).
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105364/Rana_draytonii

Special-Status Listing. Federally listed as threatened, CDFW Species of Special Concern (CDFW 2024).

Habitat. California red-legged frogs (CRLF) have been observed in aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, CRLF are expected to thrive in permanent deep-water pools with dense stands of overhanging willows and emergent vegetation, and suitable sites for basking. However, they have been observed in various aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs usually are observed near water but can move long distances over land between water sources during the rainy season.

The life cycle and patterns of movement of the CRLF have evolved along with the local California climate of wet, cool winters and dry, warm summers. With the onset of the winter rains, CRLF move from dry-season refuges to ponds and streams that can support breeding and successful tadpole development. Tadpoles generally take until late summer or early fall to complete metamorphosis, and then the maturing young frogs (metamorphs) move to aquatic areas to take cover from predators.

Adult frogs often remain year-round at perennial ponds with deep water, but some depart for dry season refuges once breeding is over. Juveniles (frogs that are older than metamorphs but not yet sexually mature) disperse widely over the landscape during the first winter and will take residence in almost any water source. During the dry months of summer and fall, CRLF seek suitable dry season refuge sites that may include deep water holes in drying streams, springs and spring boxes, seeps, and small mammal burrows (especially in or near vegetation). However, CRLF must hydrate at least every couple of days to survive. Thus, such small mammal refuge sites must be close to a permanent water source for frogs to rehydrate. To find these refuges, frogs will travel several hundred yards where suitable refuges are abundant and up to three miles in moist coastal areas. Often, long distance movements are in a relatively straight line over hills and drainages between the beginning and end points.

Threats. Factors contributing to local declines include wetland destruction and degradation or fragmentation, urbanization, residential development, reservoir construction, stream channelization, livestock grazing of riparian vegetation, off-road vehicle activity, drought, overharvesting, and exotic fishes (bass, mosquitofish) and possibly bullfrogs. Conversion of habitat to more permanent ponds is an important threat (as this allows breeding waters to be invaded by non-native predators). Habitat characteristics and good leaping ability may render these frogs vulnerable to bullfrog predation, although in many areas red-legged frogs coexist with bullfrogs.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105364/Rana_draytonii

Review Area Occurrence. Moderate Potential. CRLF is known to occur in the general vicinity of the Review Area as the nearest known location for CRLF in the CNDDDB is from a location just over 0.4 mile to the east. This record was of three tadpoles caught and released in May of 2017 in a marshy area of Wiggins Creek about 0.2 miles northeast of Skillman Road at Liberty Road northwest of Petaluma. Although streamside vegetation is not well-developed within the intermittent stream adjacent to the Review Area, some water was present in this stream adjacent to the Review Area at the time of the last HBG field review (May 23). Although the extensive and tall growth of non-native weedy species with a large amount of thatch throughout the onsite grasslands is generally not conducive in terms of movement of CRLF across the site, the extent of this vegetation changes seasonally and would be subject to change should the grazing regimen on the property be changed. Many dens of Botta's pocket gopher were found throughout the Review Area, and these could provide suitable refugial sites by CRLF during their seasonal movements from the stream to nearby uplands. Habitat for CRLF within the Review Area is not optimal, but use of the site by CRLF cannot be ruled out.

REPTILES

One special-status reptile species was identified as potentially occurring in the Review Area.

Western pond turtle (*Emys marmorata*):

Range. Range extends from Washington or British Columbia to central California.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103571/Actinemys_marmorata

Special-Status Listing. CDFW Species of Special Concern (CDFW 2024). Note. that CNDDDB uses the species scientific name *Emys marmorata* is synonymous with *Actinemys marmorata*.

Habitat. Western pond turtles occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. The turtles also rely on suitable upland areas of scrub and woodlands for aestival refugia and may use upland habitats up to 0.5 km from water for activities such as egg-laying. Pond turtles living in streams may vacate flood-prone areas during the rainy season. Western pond turtles occur broadly in suitable habitats throughout the state of California.

Threats. Distribution and abundance have declined as a result commercial exploitation for the pet trade, habitat loss and degradation, introduced species, and (locally) disease.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103571/Actinemys_marmorata

Review Area Occurrence. Moderate Potential. Although streamside vegetation is not well-developed within the intermittent stream adjacent to the Review Area, some water was present in this stream adjacent to the Review Area at the time of the last HBG field review (May 23). The ephemeral stream on the property adjacent to the Review Area contains marginally suitable habitat for western pond turtle. Although the extensive and tall growth of non-native weedy species with a large amount of thatch throughout the onsite grasslands is generally not conducive in terms of movement of western pond turtle across the site, the extent of this vegetation changes seasonally and would be subject to change should the grazing regimen on the property be changed. Upland habitat for western pond turtles within the Review Area is not optimal, but use of the site by the turtle as refugial habitat or even nesting cannot be ruled out. If western pond turtle were present in the stream on the adjacent property, a turtle could wander into the Review Area to use the onsite uplands.

BIRDS

Two special-status avian species were identified as potentially occurring at the Review Area.

White-tailed Kite (*Elanus hudsonius*):

Range. From southwestern Washington south to northwestern Baja California (mainly in Central Valley of California). [https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105756/Elanus leucurus](https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105756/Elanus_leucurus)

Special-Status Listing. CDFW Fully Protected Species (CDFW 2024).

Habitat. The white-tailed kite occurs in grasslands, agricultural fields, wetlands, oak woodland and oak savannah habitats in coastal foothills and valleys and throughout the Central Valley into the Sierra Foothills. They nest in a variety of trees and shrubs and prefer rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Winter foraging areas consist of open grasslands, meadows, or marshes close to isolated, dense-topped trees for nesting and perching. The main source of food consists of voles.

Threats. The species was extirpated throughout much of its range in the early 1900s due to habitat loss and hunting, but conservation efforts allowed a recovery by the 1980s. Habitat alteration / fragmentation of breeding and foraging habitats caused by urban and agricultural land conversions, and water diversions remain as threats.

Review Area Occurrence. Moderate Potential. Not observed to be present, however, trees on and adjacent to the Review Area are suitable for nesting and suitable foraging areas are present in the area.

Burrowing Owl (*Athene cunicularia*):

Range. Widespread distribution in North America.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106553/Athene_cunicularia

Special-Status Listing. CDFW Species of Special Concern (CDFW 2024). CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012, Staff Report (CDFW 2012).

Habitat. Burrowing owls are small terrestrial owls commonly found in open grassland ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Burrowing owls are a subterranean nester, and in California, burrowing owls most commonly use burrows of California ground squirrel, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. While foraging, owls will perch on raised burrow mounds or other topographic relief such as rocks, tall plants, fence posts, and debris piles to attain better visibility. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, presence of "decoration" at or near a burrow entrance which can include molted feathers, cast pellets, prey remains, eggshell fragments, or excrement.

Threats. Habitat alteration is causing population declines. The loss of grassland habitat and suitable burrows has been compounded by a reduction in prey populations, and concurrent increases in predation, vehicle collisions, expansion of renewable energy, and severe weather events.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106553/Athene_cunicularia

Review Area Occurrence. Moderate Potential. No burrowing owls were observed during field reviews conducted by two separate HBG wildlife biologists on April 16 and 18 and May 23, 2024. Although the grasslands in Review Area are highly disturbed, there is some evidence of ground squirrel burrows within the grassland portion of the site. The tall grasses found on much of the site during the spring 2024 surveys is generally not conducive as habitat for nesting or foraging for burrowing, but as explained above, the nature of the grasslands can change based on season and upon the grazing regimen. Future presence of burrowing owls cannot be ruled out, especially if future colonies of California ground squirrels locate to the Review Area. There is a Moderate Potential for occupation of the site by California ground squirrels in the future and for the site to be used for episodic foraging or even nesting by burrowing owls.

MAMMALS

One special-status mammal species was identified as potentially occurring in the Review Area.

American Badger (*Taxidea taxus*):

Range. Large range in the western and central U.S., southern Canada, and northern and central Mexico; relatively common over much of range.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.101705/Taxidea_taxus

Special-Status Listing. CDFW Species of Special Concern (CDFW 2024).

Habitat. The CNDDDB indicates that suitable habitat for American badger includes the drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. American badgers need sufficient food, friable soils, and open uncultivated ground. American badgers dig their own burrows and prey on burrowing rodents. American badger can create a burrow over the course of a day and can, therefore, inhabit a site quickly.

Threats. American badger has declined substantially in areas converted from grassland to intensive agriculture and where colonial rodents such as ground squirrels have been reduced or eliminated. The species is also threatened by collisions with vehicles and by direct persecution.

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.101705/Taxidea_taxus

Review Area Occurrence. Moderate Potential. Not observed to be present, however, suitable habitat for American badger occurs within the grassland habitat in the Review Area.

4.8.3 Sensitive Natural Communities

Two sensitive natural communities occur within the 10-mile CNDDDB database search radius: Northern Vernal Pool and Coastal Brackish Marsh. Neither of these communities occur within the Review Area or in the immediate vicinity. The unnamed creek on the adjacent property that extends along the western boundary of the Review Area is potentially subject to regulation by the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act and by the San Francisco Bay Regional Water Quality Control Board under the Porter-Cologne Water Pollution Control Act. The stream corridor would also likely be subject to CDFW jurisdiction under Section 1602 of the California Fish and Game Code.

The stream zone beyond the western edge of the Review Area is subject to the County's stream setback requirements that require a 25-foot setback from the top of the stream bank from the limit of grading (Stream Setbacks for Grading Work, SCC §11.14.100). Grading work and land disturbance shall be set back 25 feet from top of stream banks, unless a greater setback is required by general plan, local coastal plan, or zoning code. The 25-foot setback from the top of bank of the stream on the adjacent property extends into the Review Area as shown in Appendix A, Figure 7.

4.9 Wildlife Movement/Corridors

The Review Area does not contain a wildlife corridor or area important for the movement of wildlife from one location to another. However, the stream corridor just beyond the western border of the site

provides a valuable movement corridor for local wildlife (insect, amphibian, reptile, bird, and mammal species).

4.10 Critical Habitat

No Critical Habitat for species listed as threatened or endangered under the federal Endangered Species Act has been designated within the Review Area.

5.0 RECOMMENDATIONS TO RESOLVE BIOLOGICAL CONSTRAINTS

Owners of the 17.86-acre property at 4825 Bodega Avenue near the City of Petaluma in Sonoma County commissioned the preparation of this environmental constraints analysis in preparation for a land division for the site (Review Area) consisting of a minor subdivision of four parcels and a remainder parcel. No plans for the site have been developed to date. Clearly, it is the intent of the landowners to plan development on portions of the site that are not constrained by sensitive biological resources that may occur on the property such as sensitive habitats or habitat that may be used by special status species, thus avoiding either significant impacts to biological resources or expensive and time-consuming environmental review by local agencies (including the County) or permitting by state or federal agencies.

The discussion in Section 4 reviews the biological constraints present within the Review Area. This section includes an evaluation of whether site development could adversely impact the integrity of these biological resources and provides recommendations for the landowners to avoid or mitigate biological impacts to eliminate or reduce the need for biological mitigation or regulatory permitting from state and federal agencies. The only constraint identified in Section 4 and evaluated below is the presence of a stream running beyond the western edge of the property and the need for possible setbacks of no development from the top of the bank of the stream pursuant to the Sonoma County Riparian Ordinance that may extend into the Review Area. Section 4 also recognizes the potential presence of several special status animal species, protected bat populations, and nesting birds protected by the Migratory Bird Treaty Act and the California Fish and Game Code.

Section 5.1, 5.2 and 5.3 below provides recommendations to avoid or minimize potential impacts to biological resources that may result from establishment of a development within the Review Area. Any recommendations suggested below may be revised based on County environmental review prior to project authorization.

5.1 Sensitive Natural Communities

Sonoma County's Zoning and Parcel Report shows the zoning for 4825 Bodega Avenue as "AR B6 3, SR" which is not within a Riparian Corridor combining district. However, the stream is subject to the County's stream setback requirements that require a 25-foot setback from the top of the stream bank from the limit of grading (Stream Setbacks for Grading Work, SCC §11.14.100). Grading work and land disturbance shall be set back 25 feet from top of stream banks, unless a greater setback is required by general plan, local coastal plan, or zoning code. The 25-foot setback from the top of bank of the stream on the adjacent property extends into the Review Area as shown in Appendix A, Figure 7. This setback requirement constitutes an environmental constraint to development within the eastern edge of the Review Area. The area not so constrained would be the portion of the property that could be subject to future development without causing significant biological impacts to sensitive habitats and that could be developed in compliance with County habitat protection policies without triggering environmental or regulatory review by local, state or federal agencies.

Recommendation #1. Avoid Riparian Setback. Any future development plan for the site must show the top of the east bank of the unnamed stream adjacent to the west edge

of the property and the 25-foot setback from the top of bank of the stream extending into the Review Area where no ground disturbance or vegetation removal would be allowed. Development plans should not propose any work within the protected stream zone.

5.2 Special Status Species

Western Bumble Bee. Several nectar producing plant species known to be used by the Western bumble bee for episodic foraging occur in the Review Area. Removal of plant species used by Western bumble bee could impact the species, if found to be present, by eliminating nectar sites.

Recommendation #2 Western Bumble Bee Survey. A qualified biologist should conduct a clearance survey for Western bumble bee within 48 hours of the start of any ground disturbing activities related to initiation of construction. The qualified biologist shall also be present during vegetation mowing and/or removal activities associated with commencement of construction. If Western bumble bee is observed, the bee or bees shall be allowed to disperse out of the construction area before continuing construction.

California Red-legged Frog. Marginally suitable aquatic habitat for CRLF can be found within the stream on the property adjacent to and just west of the Review Area, and potentially suitable upland habitat for the species occurs within the onsite grasslands. As CRLF are known to occur within 0.4 miles from the site, CRLF presence on the site is possible. Implementation of a development project within the Review Area could impact CRLF if they were present on the property at the time. Therefore, prior to any future construction, a survey of upland portions of the Review Area for CRLF is warranted.

Recommendation #3 California Red-legged Frog. Prior to construction of any future development project, a qualified biologist should conduct a preconstruction survey of areas slated for development to search for any CRLF that may be using upland areas of the site. The qualified biologist will remain onsite at the commencement of construction to monitor any ground disturbing work associated with initial grading activities to ensure that CRLFs are not harmed. If a CRLF is found within a construction area, the work will be halted until the frog has left the area of its own volition.

Western Pond Turtle. Marginally suitable aquatic habitat for western pond turtle is found within the stream adjacent to the Review Area on the adjacent property, and the uplands on the site could be used by individuals of this species as refugial or even nesting habitat. Construction associated with development within the onsite uplands could have a direct impact on any western pond turtles if they were present within the Review Area at the time. Therefore, prior to ground disturbances associated with construction, a survey of uplands portions of the site for western pond turtle is warranted.

Recommendation #4. Western Pond Turtle Survey: A qualified biologist shall conduct a survey of all areas proposed for development for the western pond turtles and their nests within 48 hours of the commencement of agricultural activities. If western pond turtles or their nests are detected at any time, CDFW shall be notified immediately, and

the Qualified Biologist shall relocate the turtle to appropriate habitat within the Review Area. Any turtle nests discovered shall be avoided.

White-tailed Kite. Eucalyptus and other trees either on or in the vicinity of the Review Area are of suitable stature to serve as nesting trees for California Fully Protected white-tailed kite. Direct impacts to nests of white-tailed kite would be possible if white-tailed kites were nesting in trees to be removed and indirect impacts could result to a white-tailed kite nest if construction activities were to take place in close proximity to a nest of this species.

Recommendation #5. Preconstruction Survey for White-tailed Kite. If construction is proposed during the nesting season, a qualified biologist will conduct a bird nesting survey of the Review Area and adjacent areas that will include a search for raptor nests within the Review Area and areas adjacent. The preconstruction survey will be conducted within 5 days prior to ground disturbance and will include a search for nests of white-tailed kite. If an active white-tailed kite nest is detected during the survey, the nest site shall be protected by implementing a minimum 500-foot buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Review Area, the buffer shall be extended onto the Review Area and demarcated with orange construction fencing where it intersects the Review Area. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity, physical barriers between the construction site and the active nest, behavioral factors, and the extent the white-tailed kite may have acclimated to disturbance. No construction or earthmoving activity shall occur within the established buffer zone until it is determined by a qualified biologist that the young have fledged or that the nesting cycle is otherwise determined to complete based on monitoring of the active nest.

Burrowing Owl. Grassland habitat that could be used by burrowing owl is present at the site and a small number of ground squirrel burrows are present that could support burrowing owl. Although burrowing owls are currently not present, future occupation of burrows at the site by the species cannot be ruled out, especially if the property were to be occupied by more California ground squirrels in the future. If the species is present at the time development activities are initiated, disturbances to either nesting or wintering burrowing owl are possible. Surveys for this species are warranted.

Recommendation #6. Burrowing Owl Survey. Prior to initiation of any development activities, surveys for burrowing owl shall be conducted within the Review Area and a minimum of 150 meters from the Review Area to the extent properties are accessible. Surveys shall be conducted by a qualified biologist following the CDFW staff report (CDFW 2012) to establish the status of burrowing owl on the site. If no burrowing owls are detected, no further action is necessary.

If burrowing owl is found to occupy the Review Area during the nonbreeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone marked by orange construction fencing a minimum of 100 feet

around the burrow. If the qualified Biologist determines that the location of an occupied burrow(s) may be impacted even with a 100-foot buffer, or the burrow(s) are in a location(s) on the Review Area where a buffer cannot be established without preventing the proposed project from moving forward, then a passive relocation effort may be instituted to relocate the individual(s) out of harm's way pursuant to a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW 2012 staff report. The applicant will coordinate the Burrowing Owl Exclusion Plan with CDFW and provide habitat mitigation consistent with the 2012 CDFW Staff Report.

If burrowing owl is found to be present during the breeding season (February 1 to August 31), any ground-disturbing activities shall follow the CDFW 2012 staff report recommended avoidance protocol whereby occupied burrows shall be avoided with a no-disturbance buffer of between 50 meters and 500 meters depending on time of year and disturbance level. This breeding season buffer zone shall remain until the young have fledged or an unsuccessful nesting attempt is documented.

American Badger. Although American badger has not been observed on the property during field reviews conducted by HBG, the grassland habitat found on the property may be suitable to support American badger. If American badger were to occupy a grassland area proposed for development, potential impacts to this species could occur during construction of the project. A preconstruction survey for American badger is warranted to ensure that a potential development project does not result in impacts to individuals of this species.

Recommendation #7. American Badger Survey: Prior to initiation of agricultural activities, a qualified biologist shall conduct a survey to determine the locations of any active winter or natal American badger dens within the Review Area. Potential badger dens located during the survey shall be evaluated (typically with remote cameras) to determine activity status. Any natal dens determined to be used by American badger shall be avoided and a 100-foot buffer marked with orange construction fencing shall be established around the dens until it is determined by the qualified biologist that the den is no longer active, and the young are no longer dependent upon the den for survival. If an individual badger is determined to be using a non-natal den (from June through February), the den shall be protected with construction fencing until the badger has left the den on its own accord, as determined by the biologist through monitoring of the den and/or the use of motion-detection cameras. Once it is determined that the den is vacant, the den can be excavated and upon confirmation that the den is not occupied, the den can be collapsed and construction can commence.

5.3 Animal Populations

Birds Protected by the MBTA and California Fish and Game Code. Habitats within the Review Area were shown to support a number of bird species during field surveys conducted by HBG, any of which could be nesting. If active nests were present in vegetation or other areas of the site during construction operations for any future project, direct or indirect impacts could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of

construction activity. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Work-related to construction, especially involving the removal of vegetation during the February 1 to August 31 breeding season of birds, could result in the mortality of nesting avian species if they are present. Many species of raptors (birds of prey) are sensitive to human incursion and construction activities, and it is necessary to ensure that nesting raptor species are not present near construction sites.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. Required setbacks to protect active nests from construction activity are usually about 500 feet for large raptors such as buteos, 250 feet for small raptors such as accipiters, and 100 feet for passerines (songbirds) and other bird species.

Recommendation #8: Preconstruction Nesting Bird Survey A preconstruction nesting bird survey shall be conducted by a qualified biologist if construction occurs during the bird nesting season (February 1-August 31). The survey should be conducted within 5 days prior to the start of work. The survey should include the entire project footprint and areas immediately adjacent to the project work area. The survey should include the trees and shrubs on and immediately adjacent to the project work area. If the survey indicates the presence of nesting birds, a buffer should be placed around the nest and marked with orange construction fencing within which no work will be allowed until the young have successfully fledged or the nest has otherwise become inactive. The size of the nest buffer will be determined by the qualified biologist and will be based on the nesting species, its sensitivity to disturbance, and the context of the nest location. In general, typical buffer widths range from 500 feet for large raptors such as buteos, 250 feet for small raptors such as accipiters, and 100 feet for passerines (songbirds) and other bird species. Buffers may be increased or decreased, as appropriate, with approval from CDFW. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Potential Bat Populations. A future proposed project can affect bat populations during either the removal of trees or demolition of existing structures. Bats have the potential to roost in existing vacant or underutilized buildings, other man-made structures, and could be present within structures. Mature trees may show evidence of cavities and/or exfoliating bark that could serve as roost sites for populations of bats or could harbor solitary bats. Trees along the west edge of the Review Area would be protected within the stream zone and the associated setback, but the eucalyptus and other mature trees bisecting the site could possibly be scheduled for removal. A future project could also require removal of the existing house, barn, or other ancillary structures.

Significant impacts to bats prohibited under the Fish and Game Code could result from disruption of an occupied non-breeding bat roost or the loss of a maternity colony of bats. This may occur through direct disturbance from destruction of a roost site during removal or pruning of trees or an indirect

disturbance causing behavioral alterations due to construction noise or vibration, or by increased human activity in the area. A bat habitat assessment conducted by a bat biologist prior to construction could determine if suitable habitat for bats is found in trees to be removed or trimmed and allow development of mitigation strategies to achieve humane removal of bat populations if present.

Recommendation #9: Preconstruction Bat Measures. To reduce to impacts to bat populations, the following mitigation measures are recommended:

Structure Removal:

A qualified bat biologist shall conduct a habitat assessment and surveys for special status species of bats prior to any structure removal. The survey methodology shall include an initial habitat assessment and survey several months before project construction, to facilitate sufficient time to implement the exclusion plan described below, and the types of equipment used for detection.

A bat exclusion plan shall be submitted to CDFW for approval if bats are detected within structures during the above survey. The plan shall be implemented prior to project construction and allow bats to leave the structures unharmed. The plan shall: (1) recognize that both the maternity and winter roosting seasons are vulnerable times for bats and require exclusion outside of these times, generally between March 1 and April 15 or September 1 and October 15 when temperatures are sufficiently warm, and (2) identify suitable areas for excluded bats to disperse or require installation of appropriate dispersal habitat, such as artificial bat houses, prior to project construction, and include an associated management and monitoring plan with implementation funding.

Tree Removal. Prior to any tree removal, a qualified bat biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 days prior to tree removal and shall include a visual inspection of potential roosting features (e.g., cavities, crevices in wood and bark, or exfoliating bark for colonial species, and suitable canopy for foliage-roosting species). Trees without suitable habitat for bats can be removed. If suitable habitat trees are found, they shall be flagged or otherwise clearly marked, CDFW shall be notified immediately, and tree trimming or removal shall not proceed without approval in writing from CDFW. Trees with suitable bat habitat may be removed only if: a) presence of bats is presumed, or documented during the surveys described below and removal using the two-step removal process detailed below occurs during seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15, or b) after a qualified bat biologist, under prior written approval of the proposed survey methods by CDFW, conducts night emergence surveys or complete visual examination of roost features that establish absence of roosting bats.

If a two-step removal is used, two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under direct supervision and instruction by a qualified bat biologist with experience conducting a two-step

methodology, tree removal limbs and branches shall be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed. If construction occurs during the non-breeding period (typically from June through February).

6.0 REFERENCES

16 USC 703-712 Migratory Bird Treaty Act. <https://www.fws.gov/law/migratory-bird-treaty-act-1918>

33 U.S.C. 403. *Rivers and Harbors Appropriation Act of 1899.*

33 U.S.C. 1344. *Permits for Dredged or Fill Material.*

33 CFR, Title 33, Part 328. *Definition of Waters of the United States.*
<https://www.ecfr.gov/current/title-33/chapter-II/part-328>

33 CFR Part 329. *Definition of Navigable Waters of the United States.*
<https://www.ecfr.gov/current/title-33/chapter-II/part-329>

40 CFR Part 230. *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material.* http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr230_main_02.tpl

Calflora. 2021. Calflora, the on-line gateway to information about native and introduced wild plants in California. Internet database available at <http://calflora.org/>.

California Department of Fish and Game. 1994. *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607 California Fish and Game Code.* Environmental Services Division.

California Department of Fish and Wildlife. 2010. *List of Vegetation Alliances and Associations.* Vegetation Classification and Mapping Program. September. <https://wildlife.ca.gov/Data/VegCAMP>

California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owl Mitigation. Dated March 7, 2012.

California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.* March 20.
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>

California Department of Fish and Wildlife, Biogeographic Data Branch, 2024. California Wildlife Habitat Relationship System, Version 10.1.29. Sacramento, CA. access date: April. 2024.

California Department of Fish and Wildlife. 2024. *List of California terrestrial natural communities recognized by the Natural Diversity Data Base.* <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities>

California Department of Fish and Wildlife. 2024. *California Natural Diversity Database (CNDDB). State and Federally Listed Endangered, Threatened, and Rare Plants of California.* California Department of Fish and Wildlife. Sacramento, CA. Accessed April 2024.

California Department of Fish and Wildlife. 2024. *Special Animals List for State of California.* Produced by Biogeographic Data Branch, California Natural Diversity Database, California Department of Fish and Wildlife. Sacramento, CA. Accessed January 2024.

California Native Plant Society, Rare Plant Program. 2024. *Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39)*. Website <http://www.rareplants.cnps.org>

California State Water Resources Control Board. 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Adopted April 2, 2019.

Jepson Flora Project (eds.) 2023. Jepson eFlora, <https://ucjeps.berkeley.edu/eflora/> [accessed on Dec 30, 2023].

Lichvar, Robert and Shawn M. McColley. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual*. (2008).

Mayer, E. Kenneth and William F. Laudenslayer, Jr., (Eds.) 1988. *A Guide to Wildlife Habitats of California*.

National Geographic Society. 2017. *Field Guide to the Birds of North America*. Seventh edition. National Geographic Society. Washington, D.C.

Sawyer, J. O., T. Keeler-Wolf and J.M. Evens. 2009. *A Manual of California Vegetation. Second Edition*. In cooperation with The Nature Conservancy and the California Department of Fish and Game. California Native Plant Society. Sacramento, California.

Sibley, David A. 2014. *The Sibley Guide to Birds. Second Edition*. National Audubon Society. Chanticleer Press, Inc. New York, N.Y. 624 pp.

State Water Resources Control Board. 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. April 2, 2019.
https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf

Stebbins, R.C. 2003. *Western Reptiles and Amphibians*. Peterson Field Guides. Houghton Mifflin Co., Boston. Third edition.

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*, Technical Report Y-87-1. Prepared by the Environmental Laboratory, Department of the Army, Waterways Experiment Station, Vicksburg, Miss.

U.S. Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

US Department of Agriculture, Natural Resources Conservation Service. 2024. *Custom Soil Resource Report*. Web Soil Survey Staff, Natural Resources Conservation Service,
<http://websoilsurvey.nrcs.usda.gov>. Accessed April 2024.

U.S. Fish and Wildlife Service. 2015. *Listings and occurrences for California. Federally listed threatened and endangered plant and animal species in California*. <https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=CA&stateName=California&statusCategory=Listed>

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990. *California's Wildlife, Volume II: Birds*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California

Appendix A

FIGURES

Project Data: Huffman Broadway Group; Basemap: Historical Topographic Map Collection courtesy of the U.S. Geological Survey, Esri
Project Data: Huffman Broadway Group; Basemap: Historical Topographic Map Collection courtesy of the U.S. Geological Survey, Esri

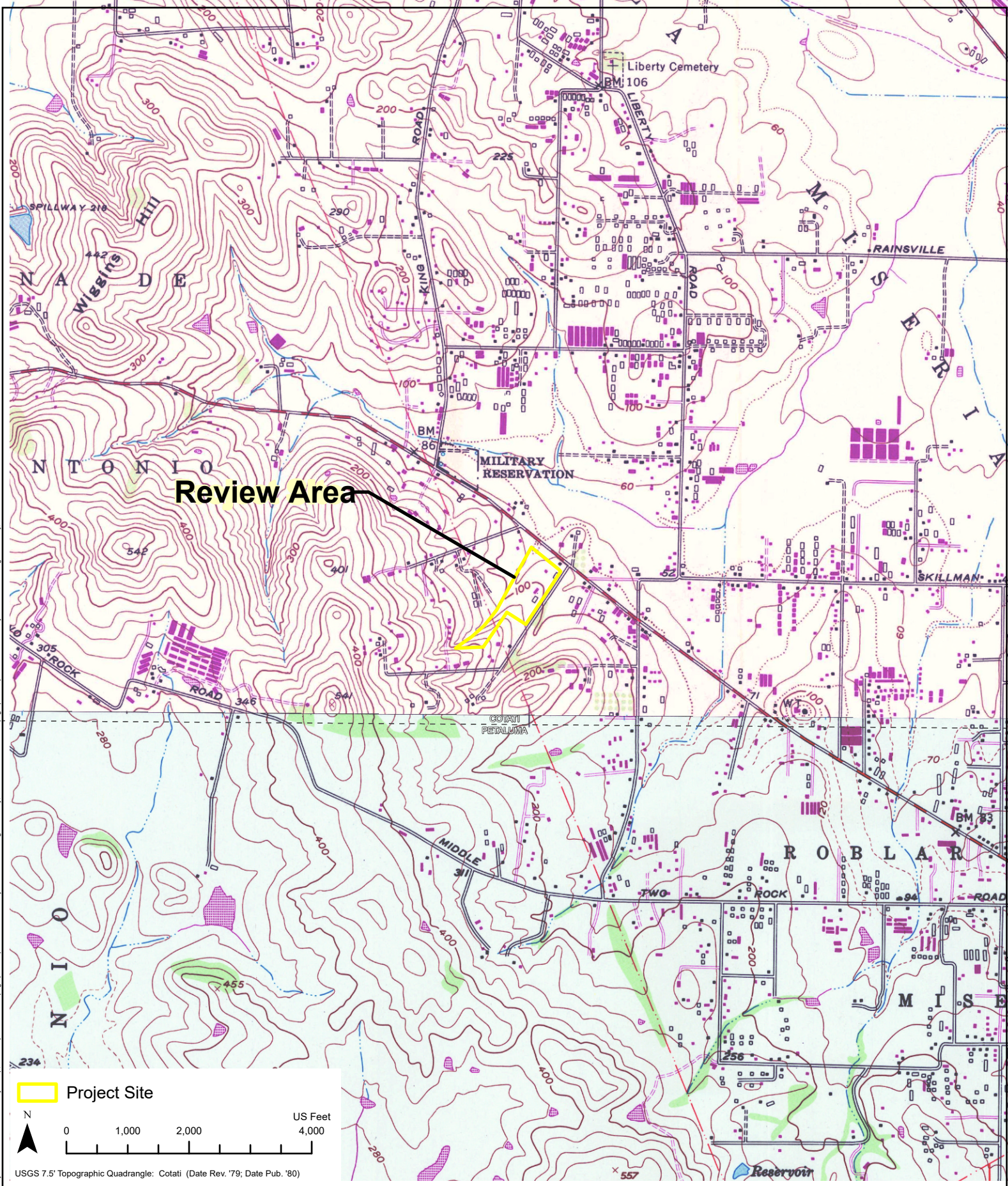


Figure 2. USGS Topographic Map of the Review Area

4825 Bodega Avenue Project
Petaluma, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:24,000
Date Map Created: 5/3/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Project Data: Huffman Broadway Group, Basemap: OpenStreetMap (and) contributors, CC-BY-SA, Esri Community Maps Contributors, County of Marin, Sonoma County, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, MET/INASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Aerial Imagery Date: 05/2023



Figure 3. Aerial Image of the Review Area

4825 Bodega Avenue Project
Petaluma, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:3,000
Date Map Created: 5/3/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

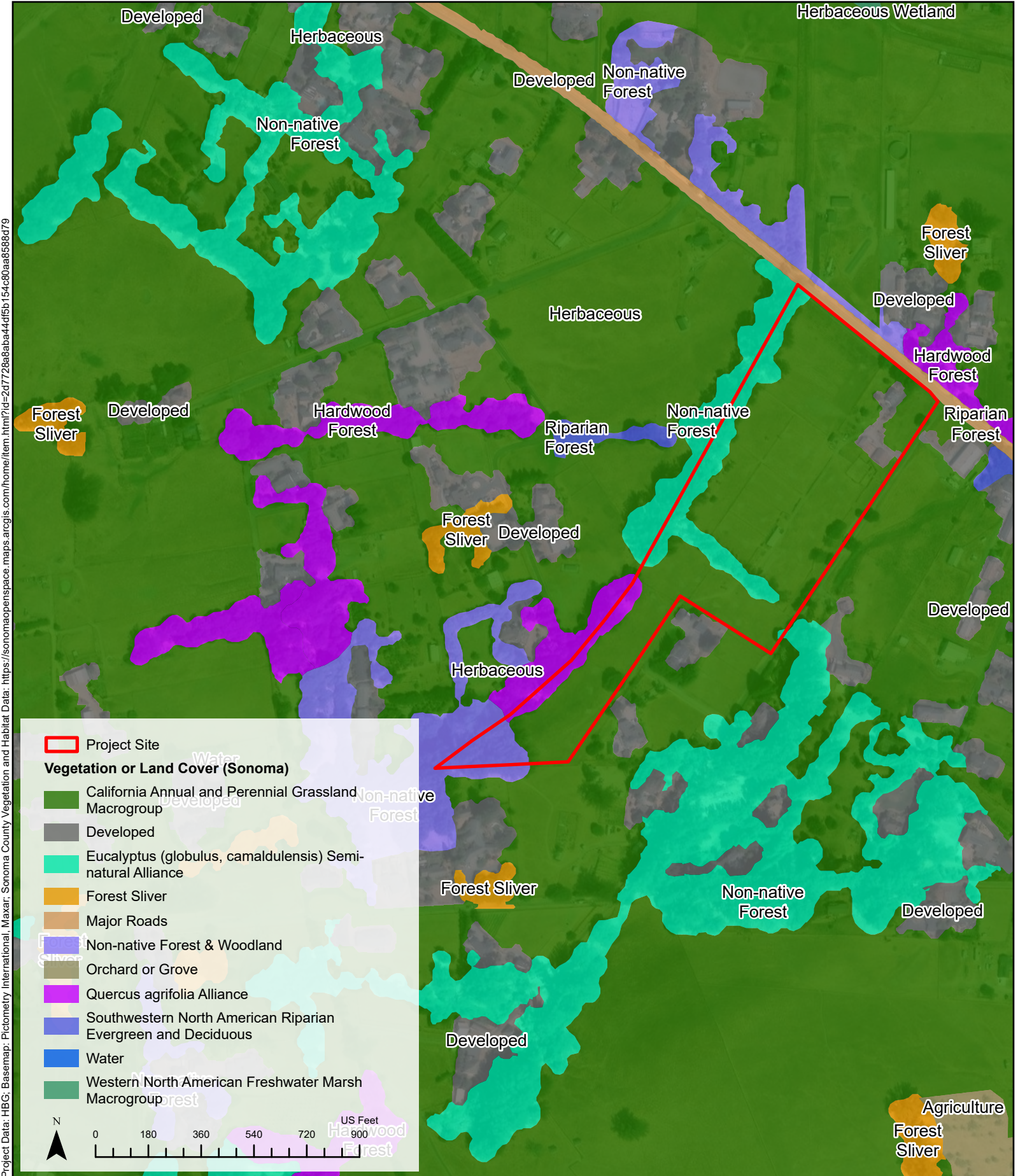


Figure 4. Vegetation Map
 4825 Bodega Avenue Project
 Petaluma, Sonoma County, California

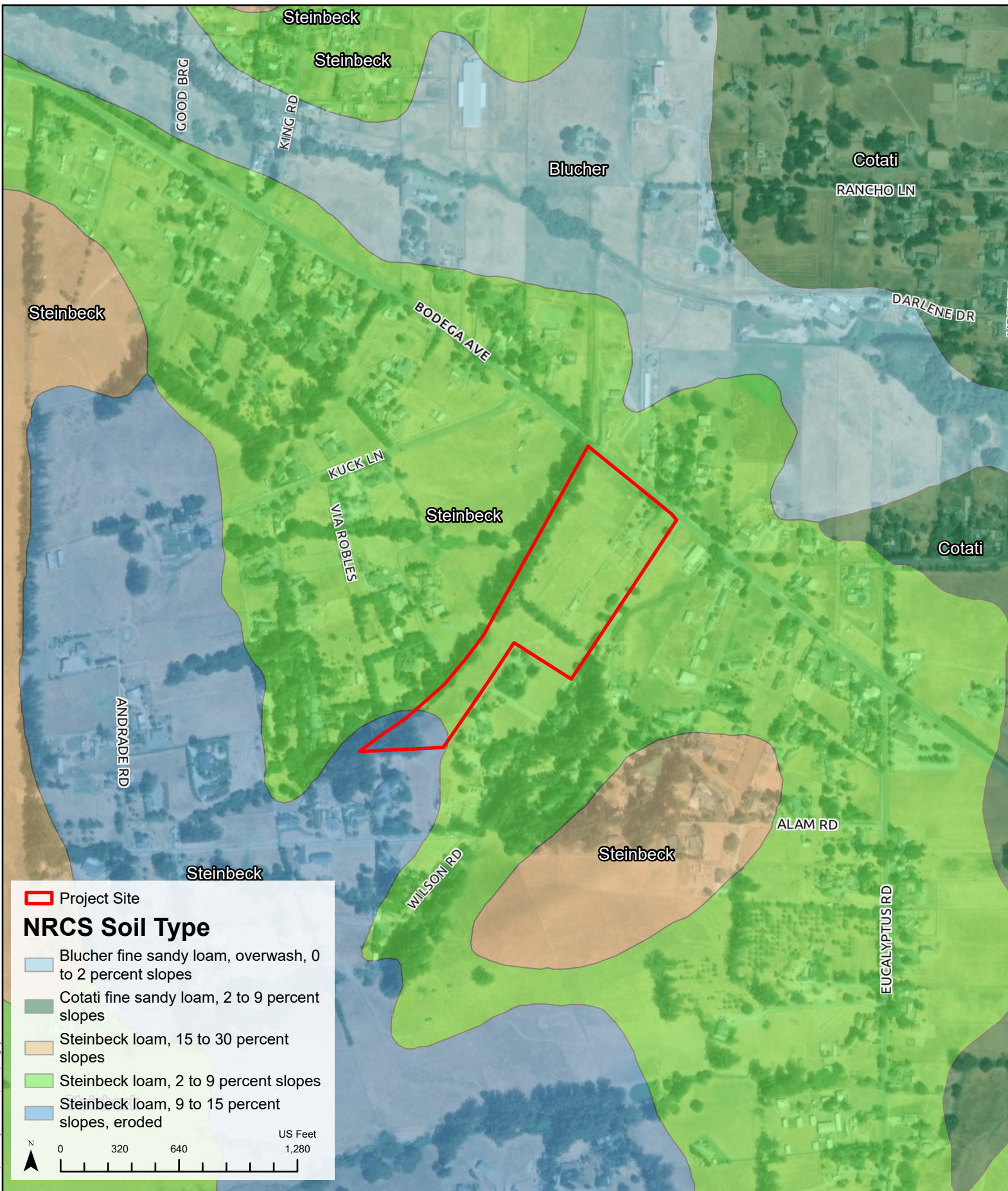


Figure 5. NRCS Soils Map

4825 Bodega Avenue Project
Petaluma, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:8,000
Date Map Created: 5/3/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

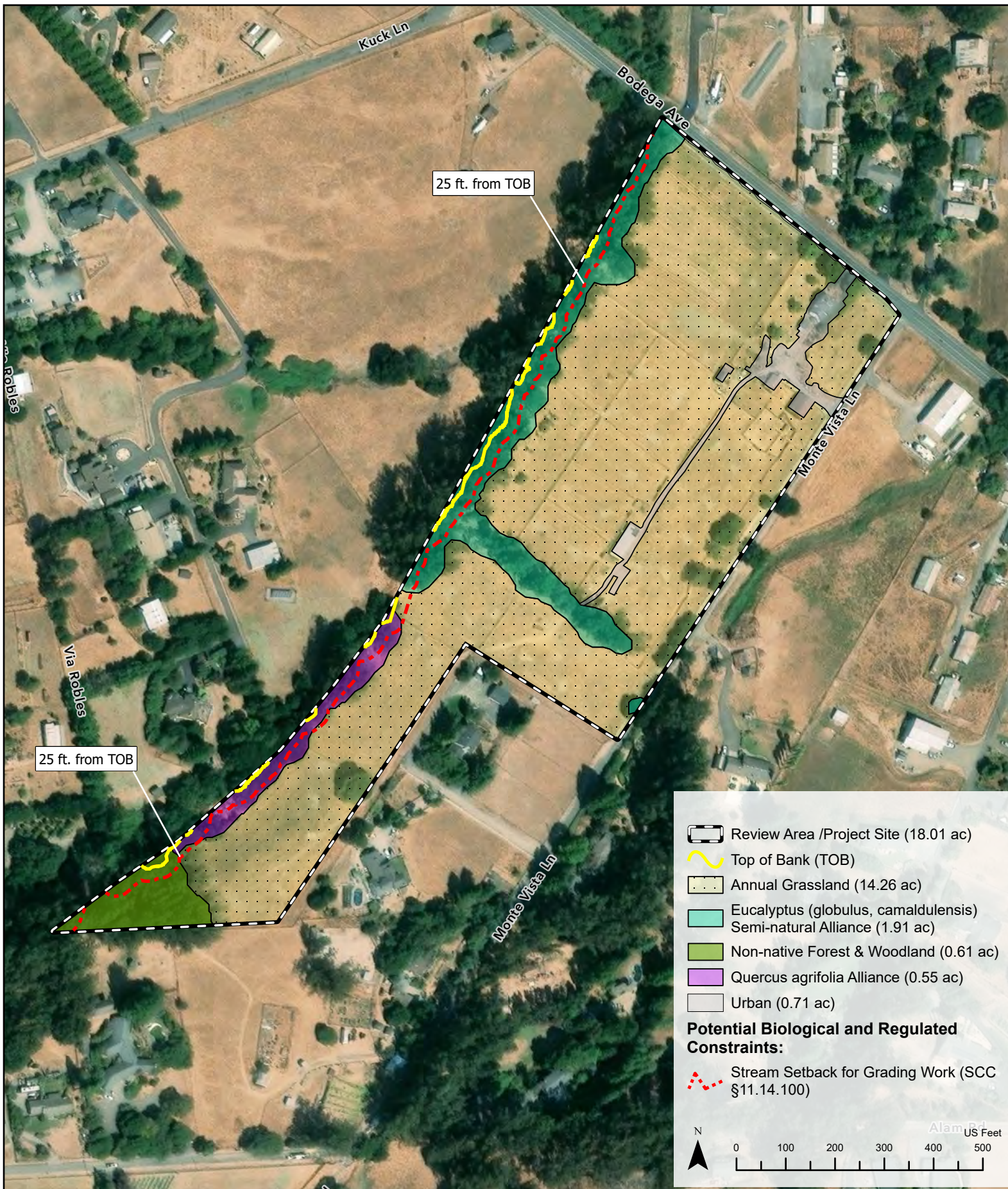


Figure 7. Potential Biological and Regulatory Constraints Map

4825 Bodega Avenue Project
Petaluma, Sonoma County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Spatial Reference:
Name: NAD 1983 2011 StatePlane California II FIPS 0402 Ft US
Scale: 1:3,000
Date Map Created: 6/7/2024
HBG GIS Analyst: Agie Gilmore & Deland Wing
HBG PM: Terry Huffman, PhD; Greg Huffman

Appendix B

BIOLOGICAL SPECIES TABLES

- | | |
|----------|--|
| Table 1. | Vascular Plant Species Observed on the Study Site During 2024 Plant Surveys |
| Table 2. | Special Status Plants with Potential to Occur in the Vicinity of the Project Site, Sonoma County, California |
| Table 3. | Special Status Animal Species that Have Been Reported in the Vicinity of the Project Site, Sonoma County, California |

TABLE 1. VASCULAR PLANT SPECIES OBSERVED AT THE PROJECT SITE DURING 2024 PLANT SURVEYS			
Scientific Name Organized by Families ¹	Common Name	Native/Not Native	California Invasive Plant Council Invasive Plant Rating ²
Aizoaceae			
<i>Carpobrotus edulis</i>	Sea fig	Not Native	High
Apiaceae			
<i>Conium maculatum</i>	Poison hemlock	Not Native	Moderate
Asteraceae			
<i>Carduus pycnocephalus</i>	Italian thistle	Not Native	Moderate
<i>Cirsium vulgare</i>	Bull thistle	Not Native	Moderate
<i>Hypochaeris radicata</i>	Rough cat's ear	Not Native	Moderate
<i>Sonchus asper</i>	Prickly sowthistle	Not Native	Not Classified
<i>Sonchus oleraceus</i>	Common sowthistle	Not Native	Not Classified
<i>Taraxacum officinale</i>	Dandelion	Not Native	Not Classified
Brassicaceae			
<i>Raphanus sativus</i>	Wild radish	Not Native	Limited
<i>Sisymbrium officinale</i>	Hedge mustard	Not Native	Not Classified
Buxaceae			
<i>Buxus sempervirens</i>	Common box	Not Native	Not Classified
Crassulaceae			
<i>Sedum album</i>	White stonecrop	Not Native	Not Classified
Cupressaceae			
<i>Hesperocyparis macrocarpa</i>	Monterey cypress	Not Native	Not Listed
<i>Sequoia sempervirens</i>	Coast redwood	Native	
Fabaceae			
<i>Medicago polymorpha</i>	Bur clover	Not Native	Limited
<i>Vicia sativa</i>	Common vetch	Not Native	Not Classified
Fagaceae			
<i>Quercus agrifolia</i>	Coast live oak	Native	
Geraniaceae			
<i>Erodium botrys</i>	Broad leaf filaree	Not Native	Not Classified
<i>Erodium cicutarium</i>	Redstem filaree	Not Native	Limited
<i>Geranium dissectum</i>	Cutleaf geranium	Not Native	Limited
Juglandaceae			
<i>Juglans sp.</i>	Walnut	Native	
Juncaceae			
<i>Juncus bufonius</i>	Common toad rush	Native	
Malvaceae			
<i>Malva nicaeensis</i>	Bull mallow	Not Native	Not Classified
Magnoliaceae			
<i>Magnolia grandiflora</i>	Southern magnolia	Not Native	Not Classified
Myrtaceae			
<i>Eucalyptus globulus</i>	Blue gum	Not Native	Limited
Pinaceae			
<i>Pinus sp.</i>	Pine	Not Native	Not Classified
Plantaginaceae			
<i>Plantago lanceolata</i>	English plantain	Not Native	Limited
Poaceae			
<i>Avena fatua</i>	Wild oat	Not Native	Moderate
<i>Briza minor</i>	Little quaking grass	Not Native	Not Classified
<i>Bromus diandrus</i>	Ripgut brome	Not Native	Moderate
<i>Bromus hordeaceus</i>	Soft brome	Not Native	Limited
<i>Festuca perennis</i>	Italian ryegrass	Not Native	Moderate
<i>Hordeum murinum</i>	Wall barley	Not Native	Moderate
Polygonaceae			
<i>Rumex crispus</i>	Curly dock	Not Native	Limited

TABLE 1. VASCULAR PLANT SPECIES OBSERVED AT THE PROJECT SITE DURING 2024 PLANT SURVEYS			
Scientific Name Organized by Families ¹	Common Name	Native/Not Native	California Invasive Plant Council Invasive Plant Rating ²
<i>Rumex acetosella</i>	Sheep sorrel	Not Native	Moderate
Rosaceae			
<i>Malus sp.</i>	Apple tree	Not Native	Not Classified
<i>Prunus cerasifera</i>	Wild cherry	Not Native	Limited
<i>Prunus persica</i>	Peach tree	Not Native	Not Classified
<i>Pyrus communis</i>	Pear tree	Not Native	Not Classified
<i>Rosa sp.</i>	Rose	Not Native	Not Classified
<i>Rubus ursinus</i>	California Blackberry	Native	
Rubiaceae			
<i>Galium aparine</i>	Common bedstraw	Native	
Rutaceae			
<i>Citrus lemon</i>	Lemon tree	Not Native	Not Classified
Theaceae			
<i>Camellia japonica</i>	Japanese camellia	Not Native	
Urticaceae			
<i>Urtica dioica</i>	Great stinging nettle	Not Native	Not Classified
<i>Urtica urens</i>	Dwarf nettle	Not Native	Not Classified
Violaceae			
<i>Viola tricolor</i>	Wild pansy	Not Native	Not Classified
¹ Taxonomic Source: https://ucjeps.berkeley.edu/eflora/eflora ; ² Cal-IPC Profile ratings: Invasive Plants – California Invasive Plant Council (cal-ipc.org) ; Cal-IPC rating categories: <ul style="list-style-type: none"> ● High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically. ● Moderate – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread. ● Limited – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic. 			

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Franciscan onion (<i>Allium peninsulare</i> var. <i>franciscanum</i>)	-- / -- / 1B.2 1B.2 G4G5T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine; sometimes on volcanics. Dry hillsides. 5-320 m.	No potential. Suitable habitat not present at the site.	None
Sonoma alopecurus (<i>Alopecurus aequalis</i> var. <i>sonomensis</i>)	Endangered / -- / 1B.1 1B.1 G5T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Freshwater marshes and swamps, riparian scrub. Wet areas, marshes, and riparian banks, with other wetland species. 3-360 m.	No potential. Suitable habitat not present at the site.	None
Napa false indigo (<i>Amorpha californica</i> var. <i>napensis</i>)	-- / -- / 1B.2 1B.2 G4T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 30-735 m	No potential. Suitable habitat not present at the site.	None
bent-flowered fiddleneck (<i>Amsinckia lunaris</i>)	-- / -- / 1B.2 1B.2 G3 / S3 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 3-795 m.	No potential. Suitable habitat not present at the site.	None
alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	-- / -- / 1B.2 1B.2 G2T1 / S1 SB_UCSC-UC Santa Cruz	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0-170 m.	No potential. Suitable habitat not present at the site.	None
big-scale balsamroot (<i>Balsamorhiza macrolepis</i>)	-- / -- / 1B.2 1B.2 G2 / S2 BLM_S-Sensitive USFS_S-Sensitive	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1465 m.	No potential. Suitable habitat not present at the site.	None
Sonoma sunshine (<i>Blennosperma bakeri</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Vernal pools, valley and foothill grassland. Vernal pools and swales. 10-290 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Mason's ceanothus (<i>Ceanothus masonii</i>)	-- / Rare / 1B.2 1B.2 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	Chaparral. Serpentine ridges or slopes in chaparral or transition zone. 180-460 m.	No potential. Suitable habitat not present at the site.	None
pappose tarplant (<i>Centromadia parryi</i> ssp. <i>parryi</i>)	-- / -- / 1B.2 1B.2 G3T2 / S2 BLM_S-Sensitive	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernaly mesic, often alkaline sites. 1-500 m.	No potential. Suitable habitat not present at the site.	None
Point Reyes salty bird's-beak (<i>Chloropyron maritimum</i> ssp. <i>palustre</i>)	-- / -- / 1B.2 1B.2 G4?T2 / S2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal salt marsh. Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.	No potential. Suitable habitat not present at the site.	None
soft salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>molle</i>)	Endangered / Rare / 1B.2 1B.2 G2T1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal salt marsh. In coastal salt marsh with Distichlis, Salicornia, Frankenia, etc. 0-5 m.	No potential. Suitable habitat not present at the site.	None
Sonoma spineflower (<i>Chorizanthe valida</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal prairie. Sandy soil. 5-50 m.	No potential. Suitable habitat not present at the site.	None
Franciscan thistle (<i>Cirsium andrewsii</i>)	-- / -- / 1B.2 1B.2 G3 / S3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, broadleaved upland forest, coastal scrub, coastal prairie. Sometimes serpentine seeps. 0-295 m.	No potential. Suitable habitat not present at the site.	None
Baker's larkspur (<i>Delphinium bakeri</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_UCBG-UC Botanical Garden at Berkeley	Broadleaved upland forest, coastal scrub, valley and foothill grassland. Only site occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. 105-205 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
golden larkspur (<i>Delphinium luteum</i>)	Endangered / Rare / 1B.1 1B.1 G1 / S1 SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, coastal prairie, coastal scrub. North-facing rocky slopes. 5-100 m.	No potential. Suitable habitat not present at the site.	None
dwarf downingia (<i>Downingia pusilla</i>)	-- / -- / 2B.2 2B.2 GU / S2	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-490 m.	No potential. Suitable habitat not present at the site.	None
Tiburon buckwheat (<i>Eriogonum luteolum</i> var. <i>caninum</i>)	-- / -- / 1B.2 1B.2 G5T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie. Serpentine soils; sandy to gravely sites. 60-640 m.	No potential. Suitable habitat not present at the site.	None
fragrant fritillary (<i>Fritillaria liliacea</i>)	-- / -- / 1B.2 1B.2 G2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 3-385 m.	No potential. Suitable habitat not present at the site.	None
woolly-headed gilia (<i>Gilia capitata</i> ssp. <i>tomentosa</i>)	-- / -- / 1B.1 1B.1 G5T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, valley and foothill grassland, riparian woodland. Rocky outcrops, sometimes serpentine. 6-290 m.	No potential. Suitable habitat not present at the site.	None
congested-headed hayfield tarplant (<i>Hemizonia congesta</i> ssp. <i>congesta</i>)	-- / -- / 1B.2 1B.2 G5T2 / S2 SB_UCBG-UC Botanical Garden at Berkeley	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5-520 m.	No potential. Suitable habitat not present at the site.	None
Marin western flax (<i>Hesperolinon congestum</i>)	Threatened / Threatened / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. 60-400 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Burke's goldfields (<i>Lasthenia burkei</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Vernal pools, meadows and seeps. Most often in vernal pools and swales. 15-580 m.	No potential. Suitable habitat not present at the site.	None
legenere (<i>Legenere limosa</i>)	-- / -- / 1B.1 1B.1 G2 / S2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley	Vernal pools. In beds of vernal pools. 1-1005 m.	No potential. Suitable habitat not present at the site.	None
Jepson's leptosiphon (<i>Leptosiphon jepsonii</i>)	-- / -- / 1B.2 1B.2 G2G3 / S2S3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	Chaparral, cismontane woodland, valley and foothill grassland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 55-855 m.	No potential. Suitable habitat not present at the site.	None
Pitkin Marsh lily (<i>Lilium pardalinum ssp. pitkinense</i>)	Endangered / Endangered / 1B.1 1B.1 G5T1 / S1 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of	Cismontane woodland, meadows and seeps, marshes and swamps. Saturated, sandy soils with grasses and shrubs. 45-65 m.	No potential. Suitable habitat not present at the site.	None
Sebastopol meadowfoam (<i>Limnanthes vinculans</i>)	Endangered / Endangered / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	Meadows and seeps, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115 m.	No potential. Suitable habitat not present at the site.	None
marsh microseris (<i>Microseris paludosa</i>)	-- / -- / 1B.2 1B.2 G2 / S2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 3-610 m.	No potential. Suitable habitat not present at the site.	None
Baker's navarretia (<i>Navarretia leucocephala ssp. bakeri</i>)	-- / -- / 1B.1 1B.1 G4T2 / S2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 3-1680 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Petaluma popcornflower (<i>Plagiobothrys mollis</i> var. <i>vestitus</i>)	-- / -- / 1A 1A G4?TX / SX	Valley and foothill grassland, marshes and swamps. Wet sites in grassland, possibly coastal marsh margins. 10-50 m.	No potential. Suitable habitat not present at the site.	None
North Coast semaphore grass (<i>Pleuropogon hooverianus</i>)	-- / Threatened / 1B.1 1B.1 G2 / S2 SB_BerrySB-Berry Seed Bank SB_CalBG/ RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 45-1160 m.	No potential. Suitable habitat not present at the site.	None
Marin knotweed (<i>Polygonum marinense</i>)	-- / -- / 3.1 3.1 G2Q / S2	Marshes and swamps. Coastal salt marshes and brackish marshes. 0-10 m.	No potential. Suitable habitat not present at the site.	None
Cunningham Marsh cinquefoil (<i>Potentilla uliginosa</i>)	-- / -- / 1A 1A GX / SX	Freshwater marshes and swamps. Found in permanent, oligotrophic wetland. 30-40 m.	No potential. Suitable habitat not present at the site.	None
California beaked-rush (<i>Rhynchospora californica</i>)	-- / -- / 1B.1 1B.1 G1 / S1 SB_UCSC-UC Santa Cruz	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-270 m.	No potential. Suitable habitat not present at the site.	None
Point Reyes checkerbloom (<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>)	-- / -- / 1B.2 1B.2 G5T2 / S2	Marshes and swamps. Freshwater marshes near the coast. 5-95 m.	No potential. Suitable habitat not present at the site.	None
Mount Burdell jewelflower (<i>Streptanthus anomalus</i>)	-- / -- / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Cismontane woodland. Grassy openings, serpentinite. 50-150 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
two-fork clover (<i>Trifolium amoenum</i>)	Endangered / -- / 1B.1 1B.1 G1 / S1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m.	No potential. Suitable habitat not present at the site.	None
Santa Cruz clover (<i>Trifolium buckwestiorum</i>)	-- / -- / 1B.1 1B.1 G2 / S2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz SB_USDA-US Dept of Agriculture	Coastal prairie, broadleafed upland forest, cismontane woodland. Moist grassland. Gravelly margins. 30-805 m.	No potential. Suitable habitat not present at the site.	None
saline clover (<i>Trifolium hydrophilum</i>)	-- / -- / 1B.2 1B.2 G2 / S2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 1-335 m.	No potential. No suitable habitat present on site	None
Pacific Grove clover (<i>Trifolium polyodon</i>)	-- / Rare / 1B.1 1B.1 G1 / S1 BLM_S-Sensitive SB_USDA-US Dept of Agriculture	Closed-cone coniferous forest, meadows and seeps, coastal prairie, valley and foothill grassland. Along small springs and seeps in grassy openings. 5-260 m.	No potential. Suitable habitat not present at the site.	None

TABLE 2. SPECIAL STATUS PLANTS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE				
SPECIES Common Name Scientific Name	STATUS Federal / State Rare Plant Rank ² Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action

Determination of Occurrence Potential. Following the desktop review and field surveys, HBG assessed the potential for the occurrence of special status species on the Project site. Biological conditions (vegetation communities, wildlife habitats, disturbances, etc.) and the habitat and life cycle requirements of special status species identified for analysis in the desktop review were considered. "Recent" occurrences are defined as observed within the past 30 years. Based on these considerations, species were assigned to the following categories:

- No Potential:** Habitat on and adjacent to the site is clearly nonpotential 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 nonpotential 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 nonpotential. 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 potential. 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.

NOTE: The potential for bird species were further distinguished into those that may: 1) nest within or near the Project site; 2) forage within or near the Project site; and/or 3) occur on or near the Project site only as transients during migratory flights or other dispersal events.

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cotati 7.5 Minute Quadrangle Map and surrounding areas, information dated April 2024.

2. California Rare Plant Ranks

- 1A - Presumed extirpated in California and either rare or extinct elsewhere
- 1B - Rare or Endangered in California and elsewhere
- 2A - Presumed extirpated in California, but more common elsewhere
- 2B - Rare or Endangered in California, but more common elsewhere
- 3 - Plants for which we need more information – Review list
- 4 - Plants of limited distribution – Watch list

3. Threat Code Extensions:

- .1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
- .3 – Not very threatened in California (under 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Insects Blennosperma vernal pool andrenid bee (<i>Andrena blennospermatis</i>)	-- / -- G2 / S1	This bee is oligolectic on vernal pool Blennosperma. Bees nest in the uplands around vernal pools.	No potential. No suitable habitat present on site.	None
Insects western bumble bee (<i>Bombus occidentalis</i>)	-- / Candidate Endangered G3 / S1 IUCN_VU-Vulnerable USFS_S-Sensitive	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Moderate potential. Suitable habitat may be present in onsite grasslands.	Conduct preconstruction survey..
Crustaceans Tomales isopod (<i>Caecidotea tomalensis</i>)	-- / -- G2 / S2S3	Inhabits localized freshwater ponds or streams with still or near-still water from San Mateo to Del Norte County.	No potential. No suitable habitat present on site.	None
Insects Ricksecker's water scavenger beetle (<i>Hydrochara rickseckeri</i>)	-- / -- G2? / S2?	Aquatic.	No potential. No suitable habitat present on site	None
Crustaceans California linderiella (<i>Linderiella occidentalis</i>)	-- / -- G2G3 / S2S3 IUCN_NT-Near Threatened	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.	No potential. No suitable habitat present on site.	None
Crustaceans California freshwater shrimp (<i>Syncaris pacifica</i>)	Endangered / Endangered G2 / S2 IUCN_EN-Endangered	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	No potential. No suitable habitat present on site.	None
Mollusks mimic tryonia (=California brackishwater snail) (<i>Tryonia imitator</i>)	-- / -- G2 / S2 IUCN_DD-Data Deficient	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	No potential. No suitable habitat present on site.	None

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Mollusks Marin hesperian (<i>Vespericola marinensis</i>)	-- / -- G2 / S2	Found in moist spots in coastal brushfield and chaparral vegetation in Marin County. Under leaves of cow-parsnip, around spring seeps, in leafmold along streams, in alder woods and mixed evergreen forest.	No potential. No suitable habitat present on site.	None
Fish tidewater goby (<i>Eucyclogobius newberryi</i>)	Endangered / -- G3 / S3 AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	No potential. No suitable habitat present on site.	None
Fish southern coastal roach (<i>Hesperoleucus venustus subditus</i>)	-- / -- GNRT2 / S2 CDFW_SSC-Species of Special Concern	Found in the drainages of Tomales Bay and northern San Francisco Bay in the north, and drainages of Monterey Bay in the south.	No potential. No suitable habitat present on site.	None
Fish steelhead - central California coast DPS (<i>Oncorhynchus mykiss irideus pop. 8</i>)	Threatened / -- G5T3Q / S3 AFS_TH-Threatened CDFW_SSC-Species of Special Concern	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	No potential. No suitable habitat present on site.	None
Fish Sacramento splittail (<i>Pogonichthys macrolepidotus</i>)	-- / -- G3 / S3 AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	No potential. No suitable habitat present on site.	None
Amphibians California tiger salamander - Sonoma County DPS (<i>Ambystoma californiense pop. 3</i>)	Endangered / Threatened G2G3T2 / S2 CDFW_WL-Watch List IUCN_VU-Vulnerable	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	No potential. No vernal pools or suitable upland aestivation or dispersal habitat present on site.	None
Amphibians California giant salamander (<i>Dicamptodon ensatus</i>)	-- / -- G2G3 / S2S3 CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	No potential. No suitable habitat present on site.	None

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Amphibians foothill yellow-legged frog - north coast DPS (<i>Rana boylei</i> pop. 1)	-- / -- G3T4 / S4 BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomas Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	No potential. No suitable habitat present on site.	None
Amphibians California red-legged frog (<i>Rana draytonii</i>)	Threatened / -- G2G3 / S2S3 CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Moderate potential. Marginally suitable habitat is present in the stream on the adjacent property and potentially suitable upland habitat is present at the site.	Conduct preconstruction survey..
Amphibians red-bellied newt (<i>Taricha rivularis</i>)	-- / -- G2 / S2 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	No potential. No suitable habitat present on site.	None
Reptiles western pond turtle (<i>Emys marmorata</i>)	Proposed Threatened / -- G3G4 / S3 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Moderate potential. Marginally suitable habitat is present in the stream on the adjacent property and potentially suitable upland habitat is present at the site.	Conduct preconstruction survey..
Birds tricolored blackbird (<i>Agelaius tricolor</i>)	-- / Threatened G1G2 / S2 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered USFWS_BCC-Birds of Conservation Concern	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	No potential. No suitable habitat present on site	None
Birds grasshopper sparrow (<i>Ammodramus savannarum</i>)	-- / -- G5 / S3 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	No potential. No suitable habitat present on site.	None
Birds golden eagle (<i>Aquila chrysaetos</i>)	-- / -- G5 / S3 BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL- Watch List IUCN_LC-Least Concern	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	No potential. No potential. No suitable habitat present on site.	None

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Birds burrowing owl (<i>Athene cunicularia</i>)	-- / -- G4 / S2 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate potential. Species could occur in onsite grasslands if ground squirrels are present.	Conduct preconstruction survey.
Birds ferruginous hawk (<i>Buteo regalis</i>)	-- / -- G4 / S3S4 CDFW_WL-Watch List IUCN_LC-Least Concern	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	No potential. No suitable nesting or wintering habitat on site.	None
Birds Swainson's hawk (<i>Buteo swainsoni</i>)	-- / Threatened G5 / S4 BLM_S-Sensitive IUCN_LC-Least Concern	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	No potential. No suitable nesting habitat on site.	None
Birds western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	Threatened / Endangered G5T2T3 / S1 BLM_S-Sensitive USFS_S-Sensitive	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No potential. No suitable habitat present on site	None
Birds white-tailed kite (<i>Elanus leucurus</i>)	-- / -- G5 / S3S4 BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate potential. Potential for nesting by this species in eucalytus trees on site or in the vicinity.	Conduct preconstruction nesting survey.
Birds California horned lark (<i>Eremophila alpestris actia</i>)	-- / -- G5T4Q / S4 CDFW_WL-Watch List IUCN_LC-Least Concern	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	No potential. No suitable habitat present on site.	None
Birds American peregrine falcon (<i>Falco peregrinus anatum</i>)	Delisted / Delisted G4T4 / S3S4 CDF_S-Sensitive	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	No potential. No suitable nesting habitat on site.	None

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE

SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Birds saltmarsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>)	-- / -- G5T3 / S3 CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No potential. No suitable habitat present on site	None
Birds California black rail (<i>Laterallus jamaicensis coturniculus</i>)	-- / Threatened G3T1 / S2 BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_EN-Endangered	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	No potential. No suitable habitat present on site.	None
Birds San Pablo song sparrow (<i>Melospiza melodia samuelis</i>)	-- / -- G5T2 / S2 CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.	No potential. No suitable habitat present on site.	None
Birds California Ridgway's rail (<i>Rallus obsoletus obsoletus</i>)	Endangered / Endangered G3T1 / S2 CDFW_FP-Fully Protected	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	No potential. No suitable habitat present on site.	None
Birds bank swallow (<i>Riparia riparia</i>)	-- / Threatened G5 / S3 BLM_S-Sensitive IUCN_LC-Least Concern	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	No potential. No suitable habitat present on site.	None
Mammals pallid bat (<i>Antrozous pallidus</i>)	-- / -- G4 / S3 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No potential. No suitable habitat present on site.	None
Mammals Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	-- / -- G4 / S2 BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	No potential. No suitable habitat present on site.	None

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE				
SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action
Mammals North American porcupine (<i>Erethizon dorsatum</i>)	-- / -- G5 / S3 IUCN_LC-Least Concern	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.	No potential. No suitable habitat present on site.	None
Mammals western red bat (<i>Lasiurus frantzii</i>)	-- / -- G4 / S3 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	No potential. Could potentially occur in riparian habitat on the adjacent property.	None
Mammals salt-marsh harvest mouse (<i>Reithrodontomys raviventris</i>)	Endangered / Endangered G1G2 / S3 CDFW_FP-Fully Protected IUCN_EN- Endangered	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	No potential. No suitable habitat present on site.	None
Mammals American badger (<i>Taxidea taxus</i>)	-- / -- G5 / S3 CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Moderate potential. Potentially suitable habitat found in the Review Area.	Conduct preconstruction survey..

Determination of Occurrence Potential. Following the desktop review and field surveys, HBG assessed the potential for the occurrence of special status species on the Project site. Biological conditions (vegetation communities, wildlife habitats, disturbances, etc.) and the habitat and life cycle requirements of special status species identified for analysis in the desktop review were considered. "Recent" occurrences are defined as observed within the past 30 years. Based on these considerations, species were assigned to the following categories:

No Potential: Habitat on and adjacent to the site is clearly nonpotential 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 nonpotential 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 nonpotential. 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 potential. 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.

NOTE: The potential for bird species were further distinguished into those that may: 1) nest within or near the Project site; 2) forage within or near the Project site; and/or 3) occur on or near the Project site only as transients during migratory flights or other dispersal events.

1. **Source:** California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Cotati 7.5 Minute Quadrangle Map and surrounding areas, information dated April 2024.

2. **Status Codes:**

TABLE 3. SPECIAL STATUS ANIMALS KNOWN TO OCCUR IN THE VICINITY OF THE PROJECT SITE				
SPECIES Taxonomic Class Common Name Scientific Name	STATUS Federal / State Global / State Rank Other State / Federal Status	Habitat/Range	Potential Site Occurrence	Recommended Action

Federal FE = Federally listed Endangered FT = Federally listed Threatened FPE = Federally Proposed Endangered FPT = Federally Proposed Threatened FC = Federal Candidate Species BCC = USFWS Bird Species of Conservation Concern	State SE = California State-listed Endangered ST = California State-listed Threatened SR = California State Rare SCE = California State Candidate Endangered SCT = California State Candidate Threatened CFP = California Fully Protected SSC = CDFW Species of Special Concern WL = CDFW Watch List Species			
--	---	--	--	--

Appendix C

IPaC INFORMATION

IPaC information is on file at Permit Sonoma
Please contact Project Planner, Mark Shurvinton, for more information.

Appendix D
NRCS SOILS INFORMATION



United States
Department of
Agriculture

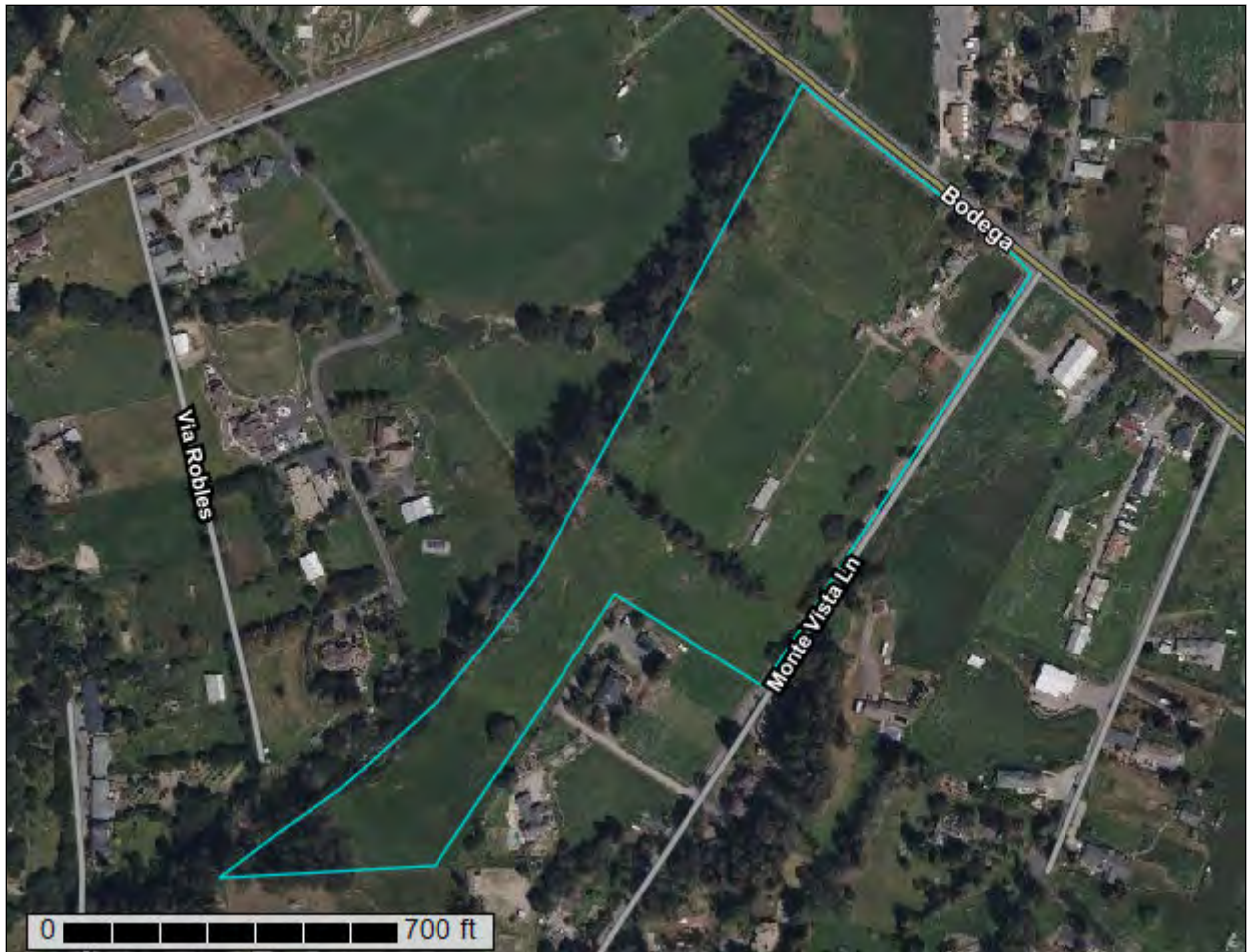
NRCS

Natural
Resources
Conservation
Service

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

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

4825 Bodega Avenue Project



April 12, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
Soil Map	5
Soil Map.....	6
Legend.....	7
Map Unit Legend.....	8
Map Unit Descriptions.....	8
Sonoma County, California.....	10
SnC—Steinbeck loam, 2 to 9 percent slopes.....	10
SnD2—Steinbeck loam, 9 to 15 percent slopes, eroded.....	11
References	13

Soil Map

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


Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout


 Borrow Pit

 Clay Spot


 Closed Depression

 Gravel Pit


 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 17, Sep 11, 2023

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

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SnC	Steinbeck loam, 2 to 9 percent slopes	16.6	92.3%
SnD2	Steinbeck loam, 9 to 15 percent slopes, eroded	1.4	7.7%
Totals for Area of Interest		18.0	100.0%

Map Unit Descriptions

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

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

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

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

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Sonoma County, California

SnC—Steinbeck loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hfjv
Elevation: 1,500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 250 to 270 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

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

Description of Steinbeck

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 35 inches: fine sandy loam
H3 - 35 to 56 inches: sandy clay loam
H4 - 56 to 60 inches: weathered bedrock

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R015XY006CA - Loamy Terrace >20"ppt
Hydric soil rating: No

Minor Components

Cotati

Percent of map unit: 4 percent

Custom Soil Resource Report

Hydric soil rating: No

Goldridge

Percent of map unit: 4 percent

Hydric soil rating: No

Pajaro

Percent of map unit: 4 percent

Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent

Landform: Swales

Hydric soil rating: Yes

SnD2—Steinbeck loam, 9 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: hfix

Elevation: 1,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 250 to 270 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Steinbeck and similar soils: 85 percent

Minor components: 15 percent

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

Description of Steinbeck

Setting

Landform: Terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 15 inches: loam

H2 - 15 to 24 inches: fine sandy loam

H3 - 24 to 38 inches: sandy clay loam

H4 - 38 to 59 inches: weathered bedrock

Properties and qualities

Slope: 9 to 15 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Moderately well drained

Runoff class: Medium

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R015XD126CA - LOAMY UPLAND

Hydric soil rating: No

Minor Components

Los osos

Percent of map unit: 4 percent

Hydric soil rating: No

Goldridge

Percent of map unit: 4 percent

Hydric soil rating: No

Cotati

Percent of map unit: 4 percent

Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent

Landform: Swales

Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Table 1. Summary of Pertinent Characteristics of Soils Mapped Onsite by NRCS

Mapunit Name	Landform	Parent Material	Typical Profile	% Slope	Drainage Class	Runoff Class	Ksat	Flooding Frequency - Dominant Condition	Ponding Frequency - Presence
Steinbeck loam, 2 to 9 percent slopes	terraces	residuum weathered from sandstone	H1 - 0 to 18 inches: Loam; H2 - 18 to 35 inches: Fine sandy loam; H3 - 35 to 56 inches: Sandy clay loam; H4 - 56 to 60 inches: Weathered bedrock	2 to 9 percent	Moderately well drained	Medium	0.2 to 0.57 in/hr	None	None
Steinbeck loam, 9 to 15 percent slopes, eroded	terraces	residuum weathered from sandstone	H1 - 0 to 15 inches: Loam; H2 - 15 to 24 inches: Fine sandy loam; H3 - 24 to 38 inches: Sandy clay loam; H4 - 38 to 59 inches: Weathered bedrock	9 to 15 percent	Moderately well drained	Medium	0.2 to 0.57 in/hr	None	None