CalVTP PSA ID 2023-22

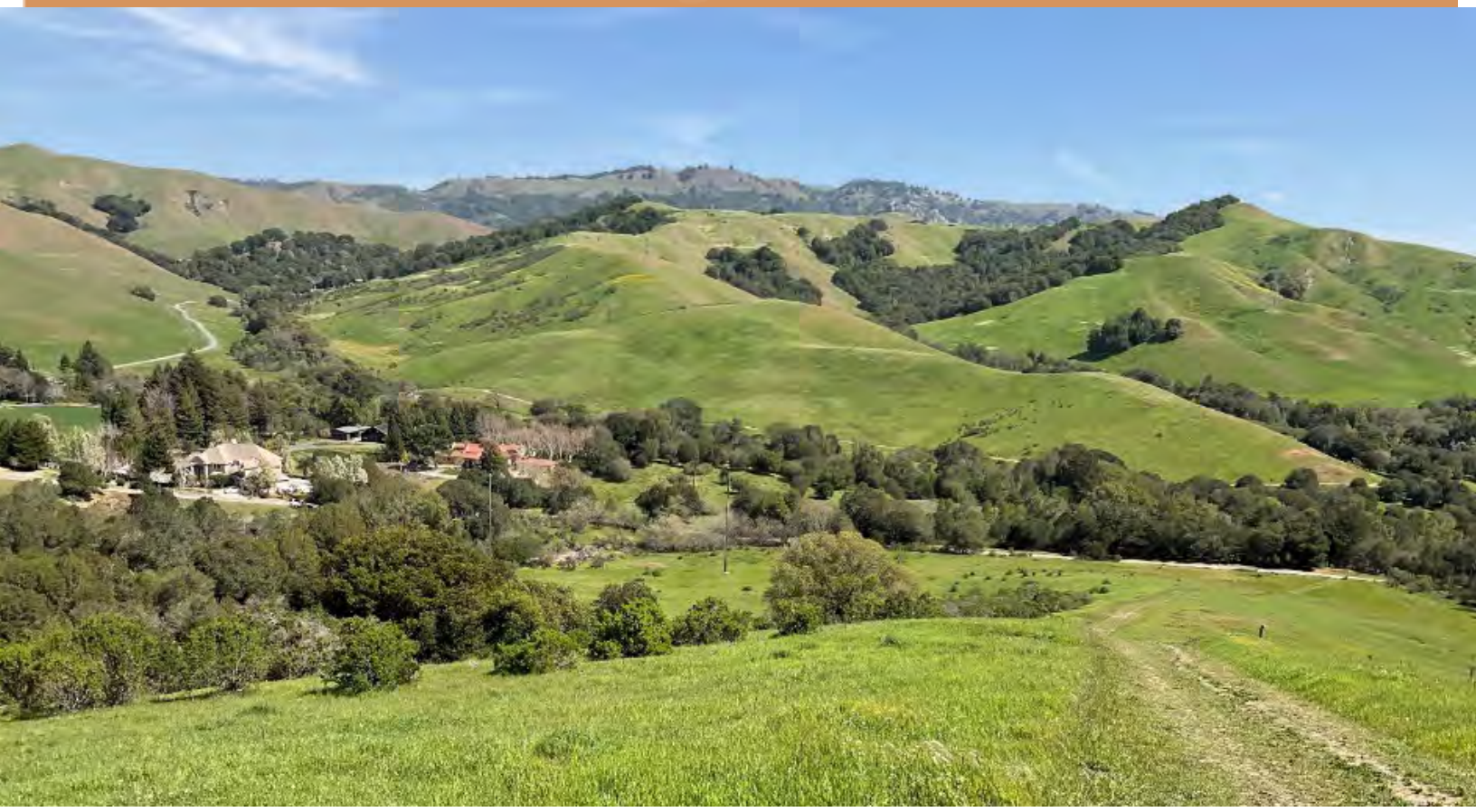
Attachment B

Biological Resources Report

Biological Resources Report

July 2023

Tunnel East Bay Hills Shaded Fuel Break Project
Contra Costa County, California



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1.0 INTRODUCTION

Sequoia Ecological Consulting, Inc. (Sequoia) has prepared this Biological Resources Report for the proposed Tunnel East Bay Hills Shaded Fuel Break Project (Project) site, located in Contra Costa County, California (Figures 1 and 2). Our analysis provides a description of existing biological resources on the Project site and identifies potentially significant impacts that could occur to sensitive biological resources from the proposed Project. The purpose of this analysis is to determine potential impacts on biological resources resulting from Project implementation.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the US Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations, including the California Native Plant Society (CNPS). Biological resources also include waters of the United States and State of California as regulated by the US Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW. Please note that this analysis assesses the potential for impacts to regulated waters but does not provide the level of detail required for a formal delineation suitable for submittal to the USACE, the regulatory agency that defines "waters of the United States."

The California Vegetation Treatment Program (CalVTP) Program Environmental Impact Report (PEIR; Ascent Environmental 2019) evaluated the potential environmental effects of implementing qualifying vegetation treatments to reduce the risk of wildfire within the California Department of Forestry and Fire Protection's (CAL FIRE's) State Responsibility Area (SRA). Serving as the lead agency under the California Environmental Quality Act (CEQA), the Moraga-Orinda Fire District (MOFD) proposes to implement vegetation treatments on 1,223 acres of land within Contra Costa County. The proposed treatment types include shaded fuel breaks and fuel reduction at the wildland-urban interface (WUI). The treatment activities and methods include manual vegetation management, mechanical treatment, prescribed herbivory treatment, herbicide application, and prescribed burning.

Traditional fuel reduction methods adopt treatment activities which are typically determined by fuel type. Vegetation types for proposed treatment within the Project footprint are a mosaic of coastal oak woodland, coastal scrub, and annual grasslands. These vegetation types are broadly categorized into three fuel types, consistent with CalVTP PEIR:

- Grass fuel type includes California Wildlife Habitat Relationship (CWHR) habitat type: Annual grassland;
- Shrub fuel type includes CWHR habitat type: Coastal scrub; and
- Tree fuel type includes CWHR habitat type: Coastal oak woodland.

Multiple treatment activity strategies will be utilized on each parcel to achieve the shaded fuel break and WUI fuel reduction. Other CWHR vegetation types classified for the Project site include freshwater emergent wetland and lacustrine, which will be avoided with a minimum 50-foot buffer; and barren and urban, which correspond primarily to access roads.

MOFD has evaluated the proposed treatments for CEQA compliance as later activities covered by the CalVTP PEIR using the Project-Specific Analysis (PSA) checklist. These treatment types and treatment activities are consistent with those covered in the CalVTP PEIR. Ongoing maintenance of the proposed vegetation treatments would involve the same activities as the original treatments (i.e., manual, mechanical, prescribed herbivory, herbicide, and prescribed burning treatments).

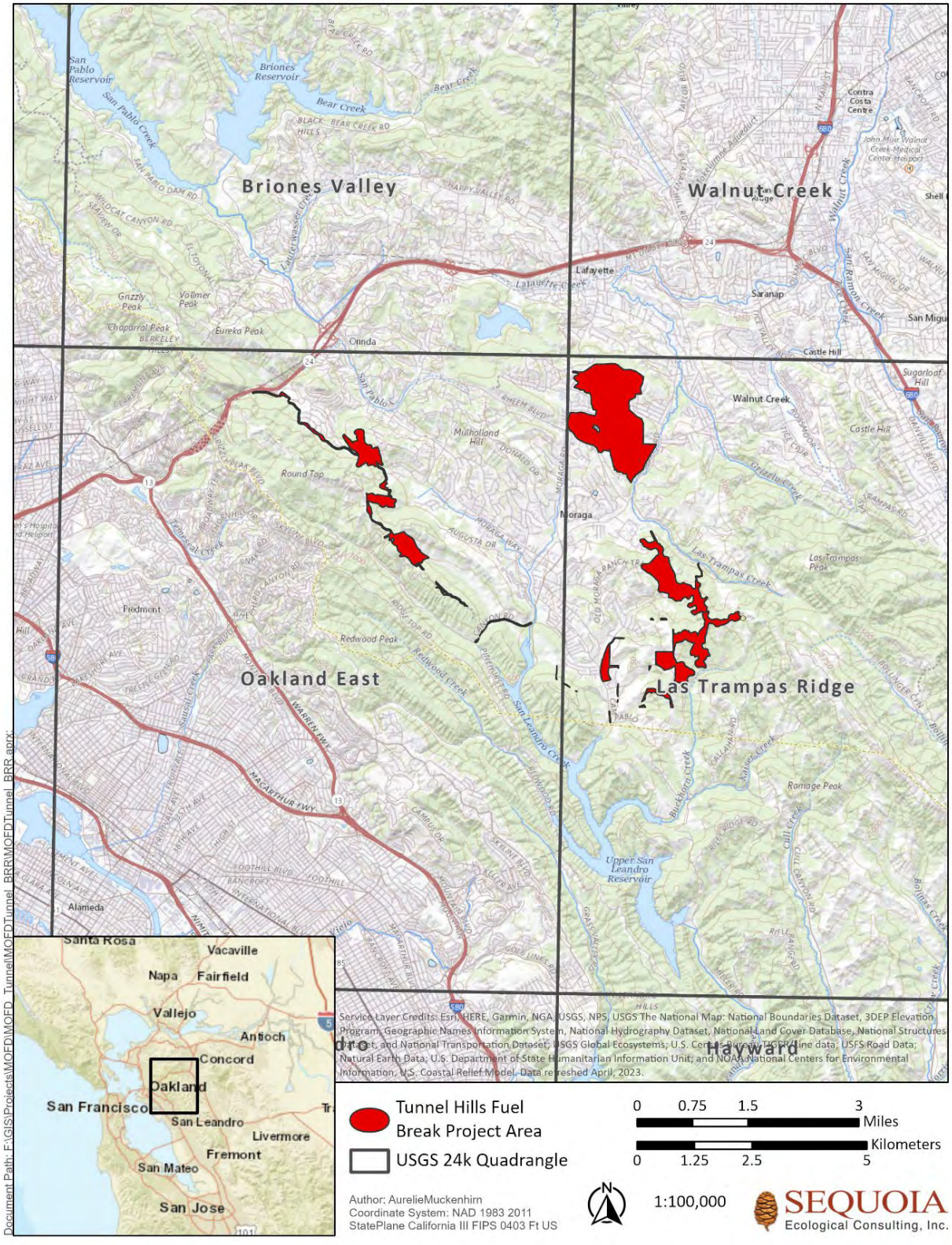

Figure 1. Regional Map of the Tunnel East Bay Hills Shaded Fuel Break Project Site

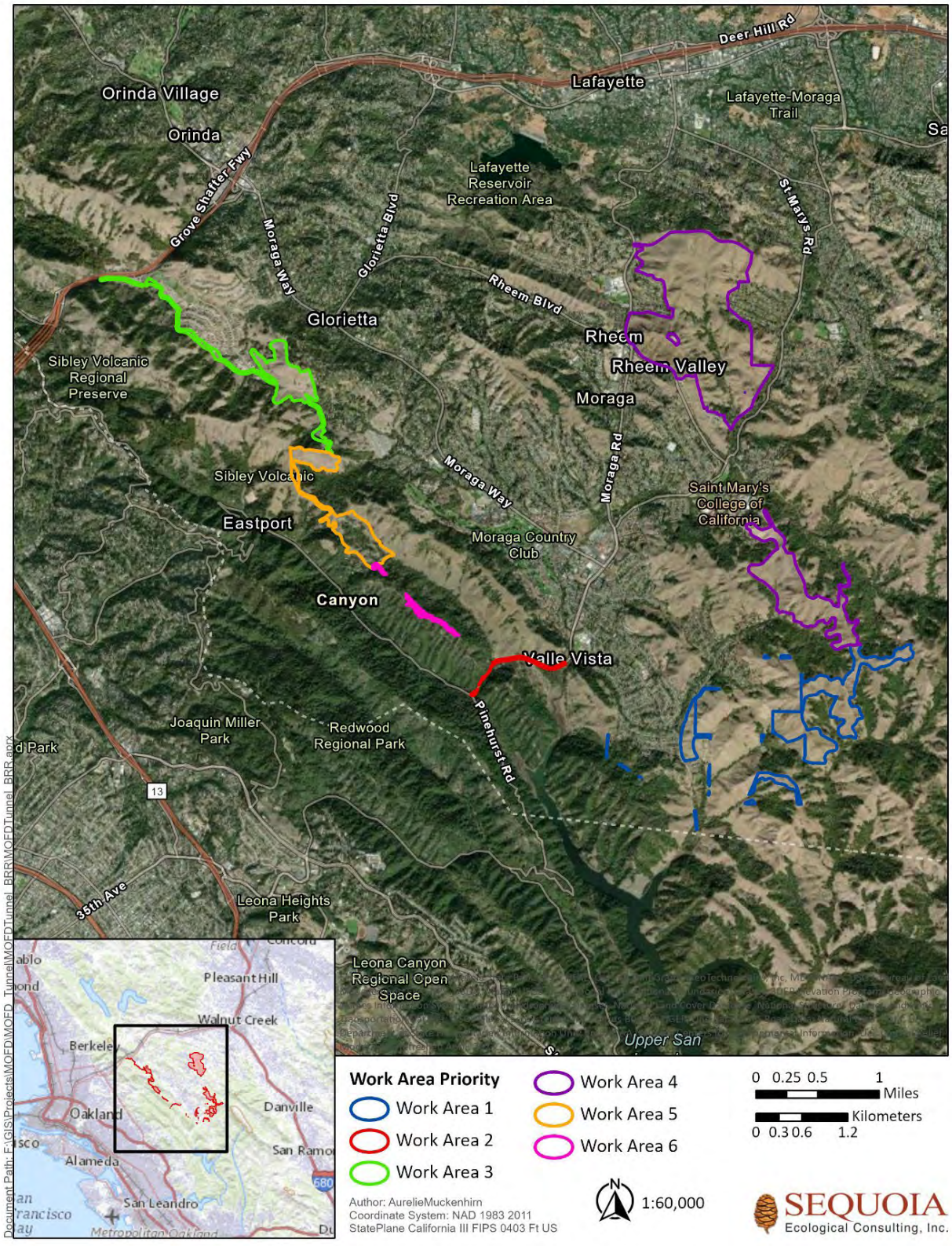

Figure 2. Location Map of the Tunnel East Bay Hills Shaded Fuel Break Project Site

The currently proposed MOFD Project does include one revision to/change in the Project compared with the CalVTP PEIR, which is the inclusion of areas outside of the CalVTP Treatable Landscape. Treatable landscape is considered within the current Biological Resources Report. The PSA checklist (refer to Section 3 of the PSA and Addendum) includes the criteria to support an addendum to the CalVTP PEIR for the inclusion of proposed treatment areas outside the CalVTP Treatable Landscape. The checklist evaluates each resource in terms of whether the later treatment Project, including the minor revision or change to the Project of additional geographic area, would result in significant impacts that would be substantially more severe than those covered in the CalVTP PEIR and/or would result in any new impacts that were not covered in the PEIR. Instructions for Project-specific implementation of certain standard project requirements (SPRs) and mitigation measures (MMs) have been added to tailor the specific impact avoidance and minimization actions relevant to the proposed treatments, agency standard practices, and the conditions and resources present within each treatment site. In all cases, the additional project-specific implementation instruction and clarifying edits to MMs maintain the SPRs and MMs as equivalent or more effective than those presented in the PEIR.

This report characterizes habitat within the Project footprint and habitat within and outside CalVTP-designated Treatable Landscape (per CalVTP PEIR Section 2.4 “Geographic Scope of the CalVTP – “Treatable Landscape”) and evaluates the potential for special-status biological resources to occur within the Project footprint. Evaluation of potential Project impacts to species are analyzed in the PSA and Addendum Section 4, “Project-Specific Analysis and Addendum.”

2.0 LOCATION AND SETTING

The Project is located within Moraga-Orinda Fire District in Contra Costa County, in Township 1S Range 2W and Township 1S Range 3W of the US Geological Survey (USGS) Oakland East and Las Trampas Ridge, California 7.5-minute topographic quadrangles (Figure 1). The Project borders Grove Shafter Freeway (Highway 24) to the north and is distributed patchily to the southeast for approximately 7 miles, running roughly 4 miles from Flicker Ridge on the west to St. Mary’s College of California on the east.

The Project area is within the California North Coast Ranges, with elevations between 470 and 1,280 feet above sea level. The regional climate is Mediterranean (i.e., dry-summer subtropical) with warm, dry summers with an average temperature range of 55-75 degrees Fahrenheit (12.8-23.9^{o}C), and cool, wet winters with an average temperature range of approximately 45-70 degrees Fahrenheit (7.2-21.1^{o}C). The average annual precipitation is approximately 23.96 inches, falling primarily between November and March (US Climate Data 2023 for Oakland, California).

The Project includes land owned and/or managed by state jurisdictions and private landowners. Communities included within the MOFD’s southern shaded fuel break are the Cities of Orinda, Town of Moraga, and Unincorporated Communities of Canyon, Eastport, and Valle Vista. Non-residential areas include undeveloped rolling hills and open space managed by public and private entities; the Upper San Leandro Reservoir; and areas of scattered vineyards and infrastructure such as transmission lines and power stations.

Most of the Project area watershed is critical for domestic water supply reservoirs, provides habitat for numerous special-status species, and is very popular recreational land. The more urbanized portions transition into rural residential neighborhoods with well established native and non-native vegetation. Several major PG&E transmission lines and substations are located in and around the Project vicinity to supply electrical power for the local communities. Numerous commercial and public safety telecommunications facilities that serve the entire San Francisco Bay Area are located on the ridgeline west of Orinda.

The Project is part of a larger regional effort to create a contiguous shaded fuel break, but only parcels associated with this Project are considered here. The Project is separated into six Work Areas distributed in a "horseshoe" type arrangement (Figure 2). Of the approximate 1,320-acre Project footprint, approximately 437 acres are mapped as part of CalVTP's Treatable Landscape and 883 acres are outside of the defined Treatable Landscape (Figures 3a, 3b, 3c, and 3d). For example, one large portion outside the Treatable Landscape is the Rheem Valley, which is in the northern portion of Work Area 4. It does not heavily overlap the Treatable Landscape and portions of it are located over 1 mile from the nearest Treatable Landscape (Figures 3a, 3b, 3c, and 3d). The southern portion of the Rheem Valley Work Area is located immediately adjacent to the Treatable Landscape. As part of this Biological Resources Report, habitat in Project areas outside the Treatable Landscape will be compared to habitat within for its consistency and applicability to the CalVTP.

Work Area 1 encompasses 224 acres and is divided into ten separate portions over different landownership. These areas are generally spread throughout open space around Larch and Rancho Laguna Parks. A total of 6.4 acres of Work Area 1 is managed under the Roberts Ranch Preserve Conservation Easement. Within Work Area 1, 220 acres are inside the Treatable Landscape, and 44 acres are outside the Treatable Landscape.

Work Area 2 comprises 8 acres and extends for approximately 1 mile along Canyon Road from the intersection of Pinehurst Road and continues along Canyon Road to where the road turns north, next to Moraga Creek. It connects to Work Area 1 on the east. No conservation easements are associated with this Work Area. Within Work Area 2, 6 acres are inside the Treatable Landscape and 2 acres are outside the Treatable Landscape.

Work Area 3 encompasses 114 acres. It is bounded by Grove Shafter Freeway on the north, extends along the western edge of Wilder, including Wilder Road, includes some open space of Lost Valley, and abuts Work Area 5 on the south. A total of 84 acres of Work Area 3 are managed under three separate conservation easements (Montanera Project: Eastern Hills Open Space Area, Quarry Hill Open Space Area, Development Buffer Area; Montanera: Moraga Creek Open Space Area/Indian Valley Preserve Area; Montanera: Western Hills Open Space Area). Within Work Area 3, 6 acres are inside the Treatable Landscape and 108 acres are outside the Treatable Landscape.

Work Area 4 comprises 851 acres and is split into two main sections. The northern part of Work Area 4 is bounded by Moraga Road to the west, Rheem Boulevard on the south, St. Mary's Road on the east, and

Sky High Drive and Woodview Drive approximately 300 feet to the north. The southern part of Work Area 4 starts on the southern border of St. Mary's College and extends southeast for approximately 1.25 miles. Approximately 58 acres of Work Area 4 are managed under Roberts Ranch Preserve Conservation Easement, and the southern portion of Work Area 4 includes the Roberts Ranch Preserve's 4-acre Leona Heights Mitigation Area. Within Work Area 4, 88 acres are inside the Treatable Landscape and 763 acres are outside the Treatable Landscape.

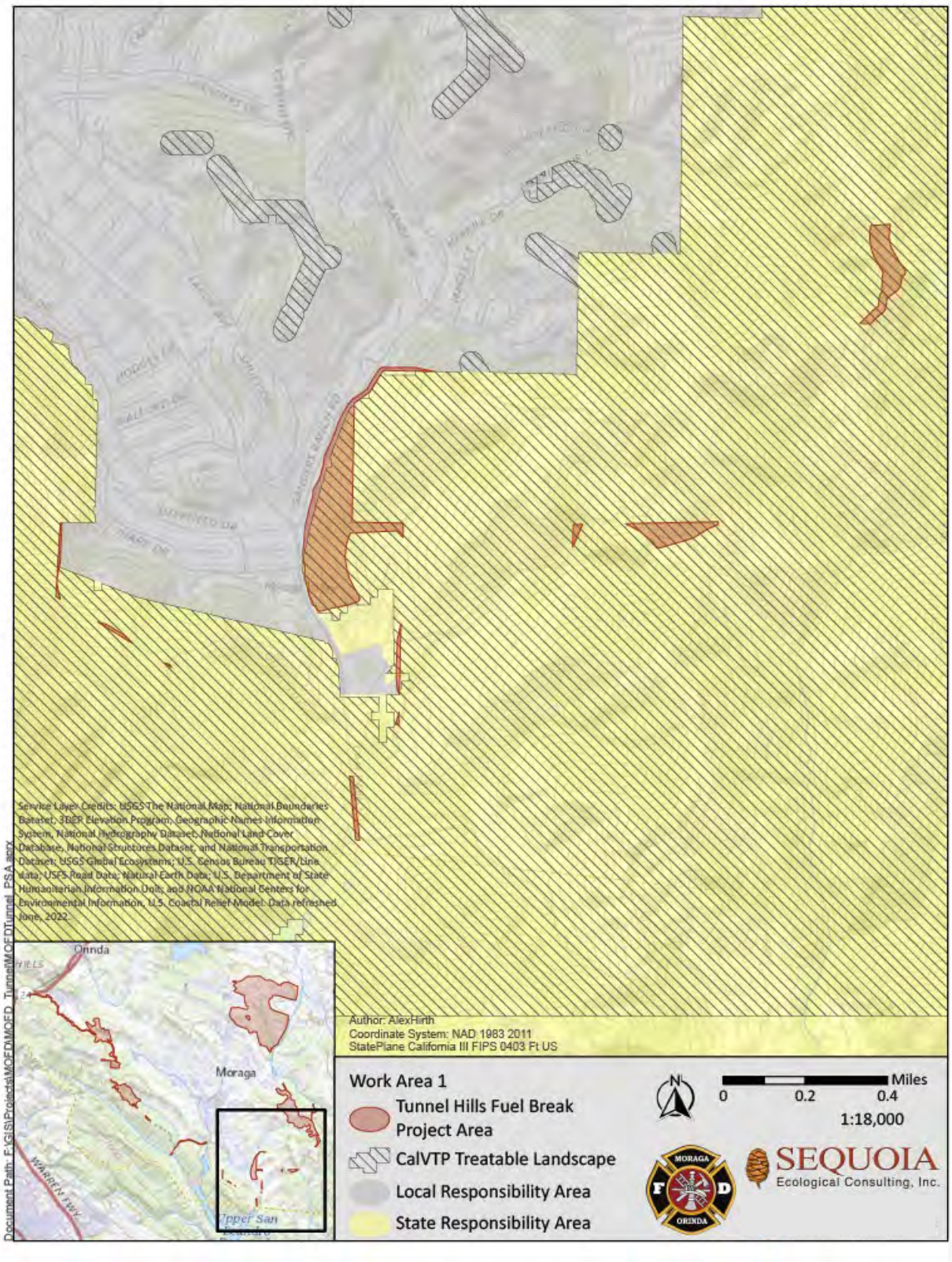

Figure 3a. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 1

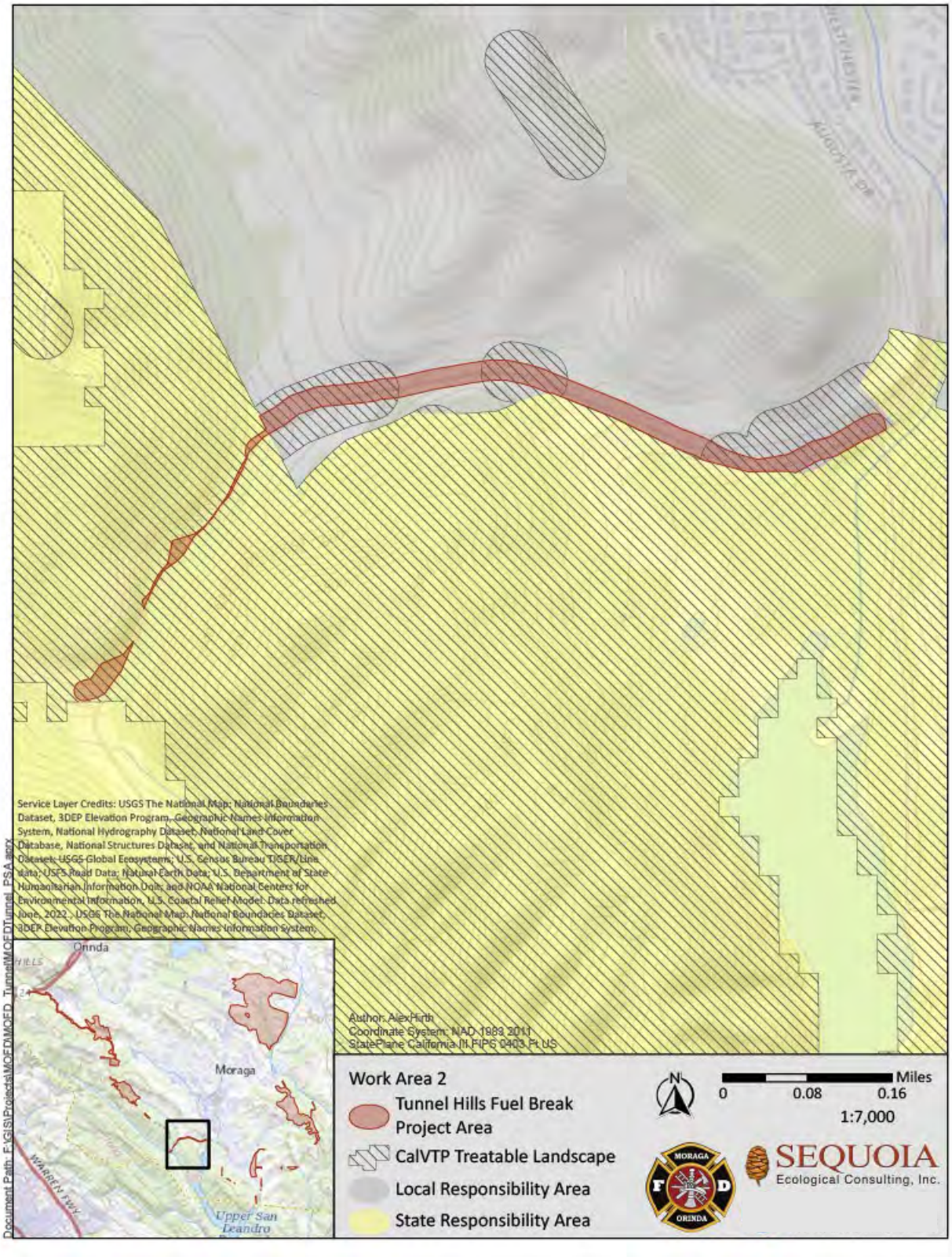

Figure 3b. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 2

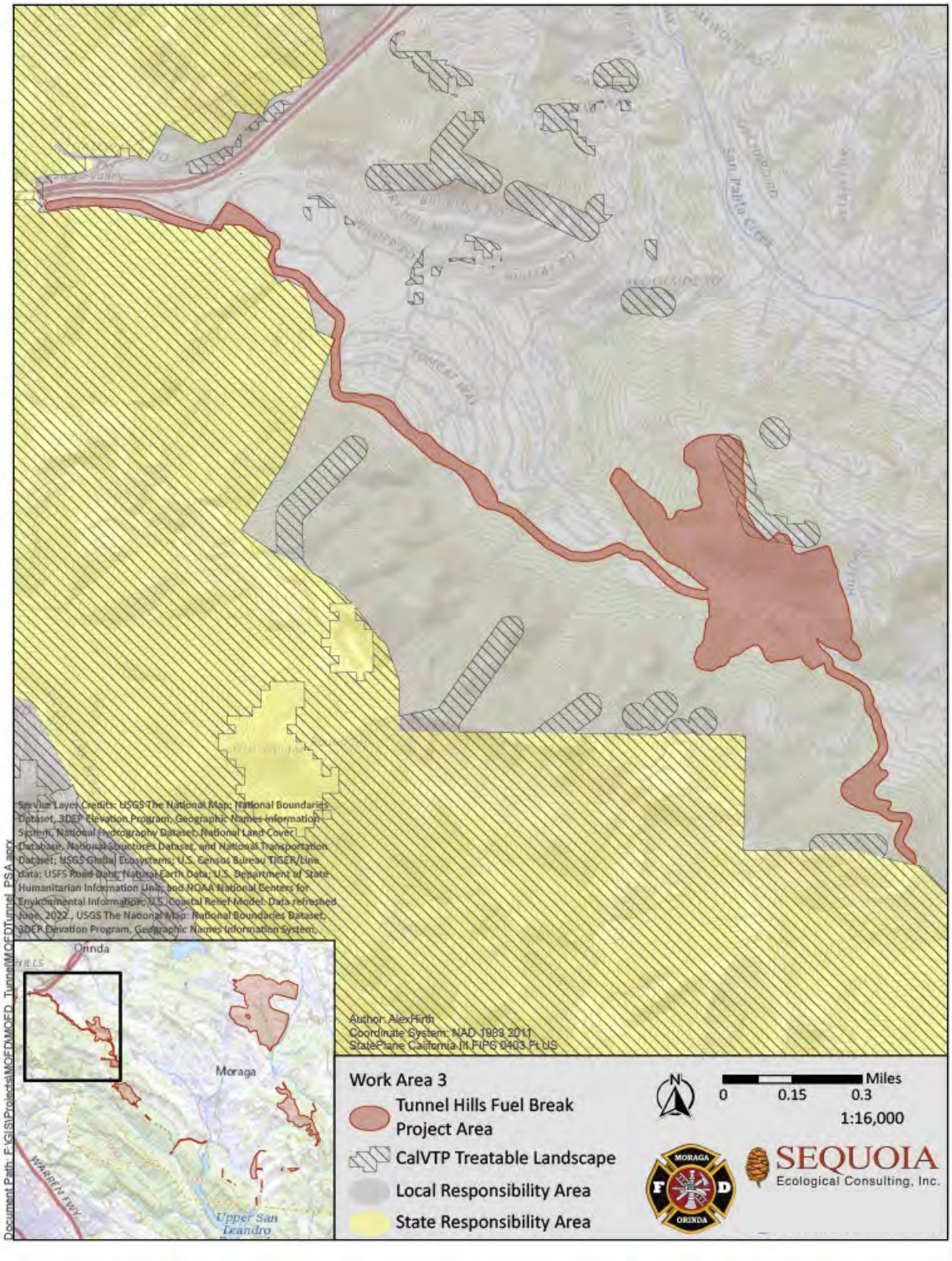

Figure 3c. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 3

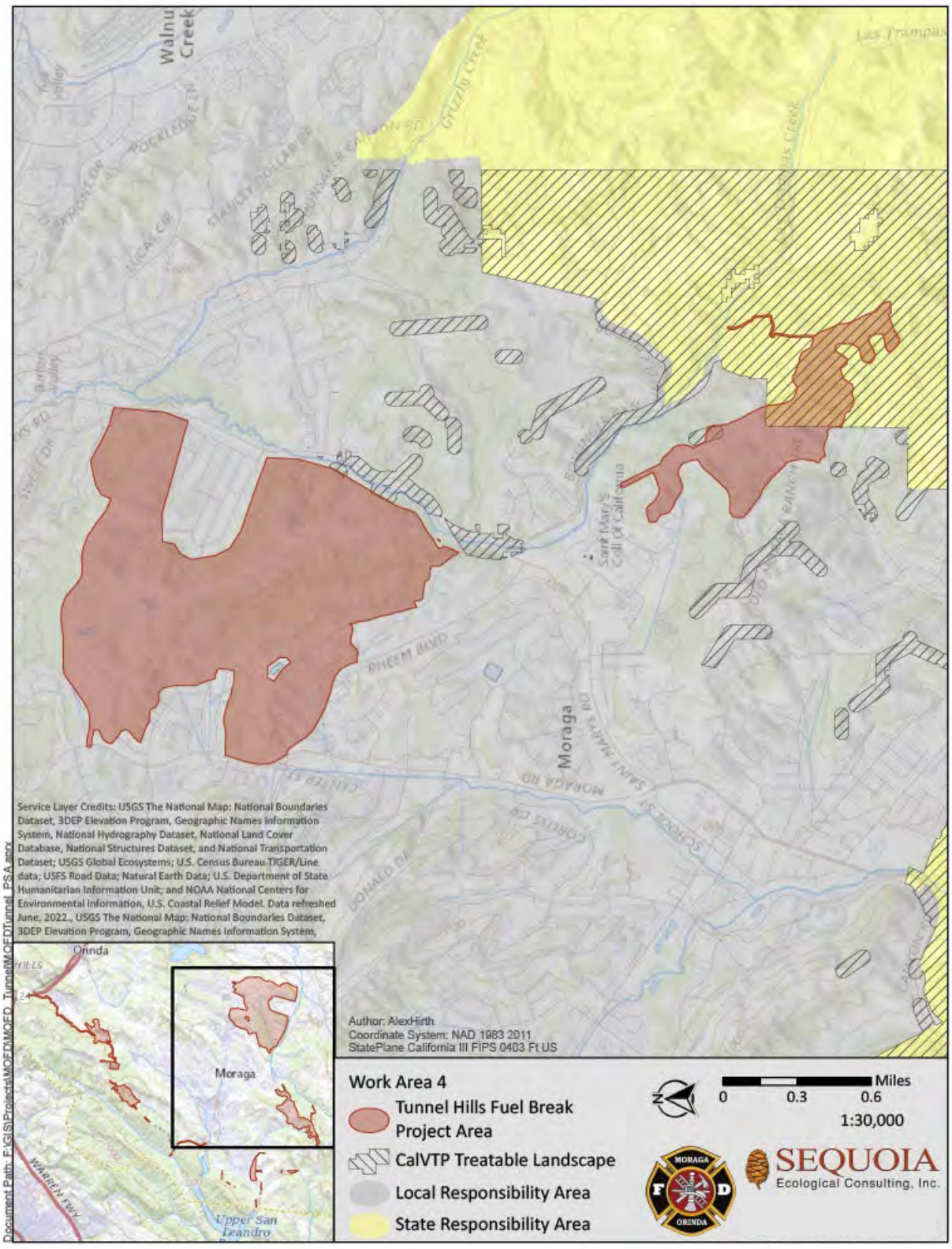

Figure 3d. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 4

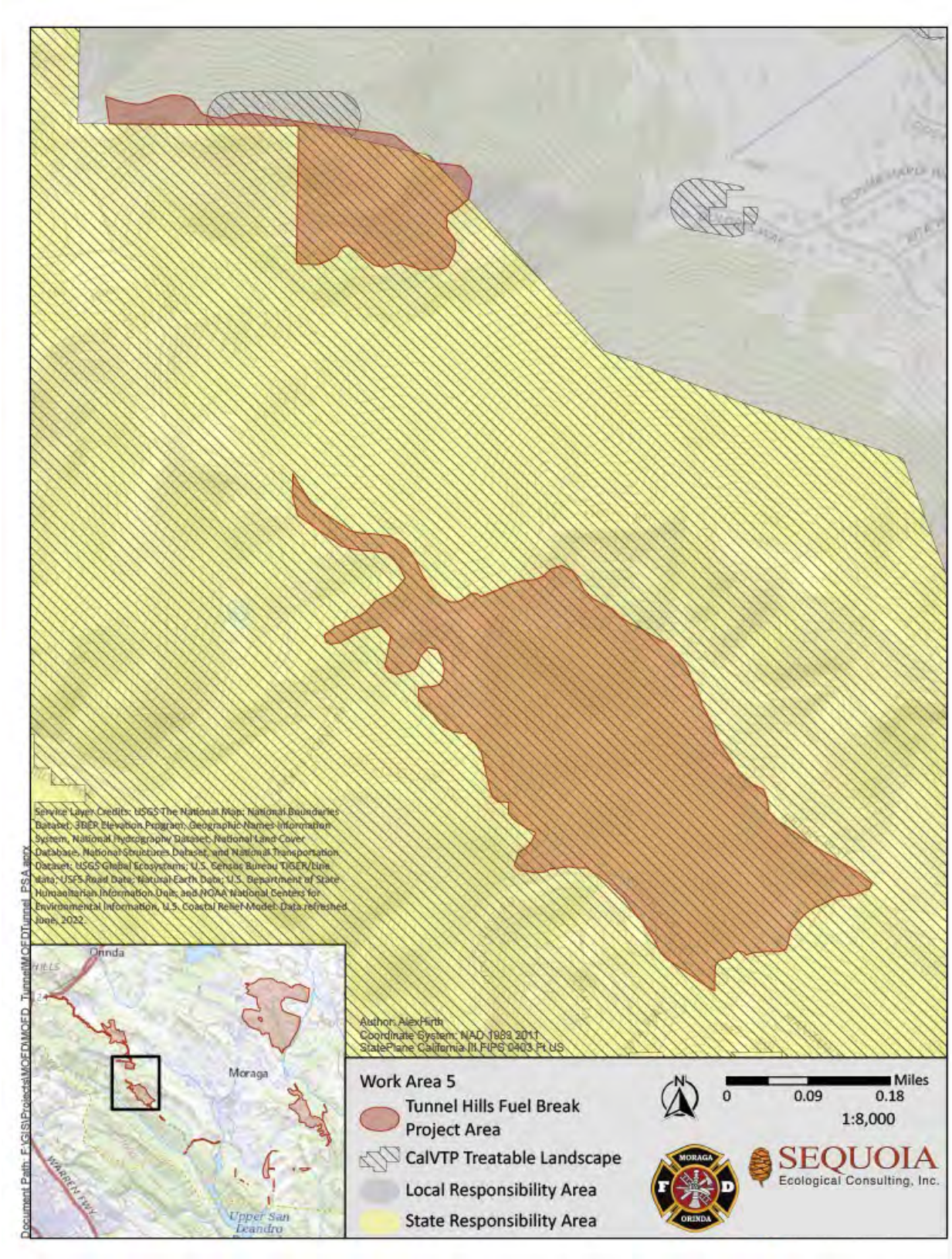

Figure 3e. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 5

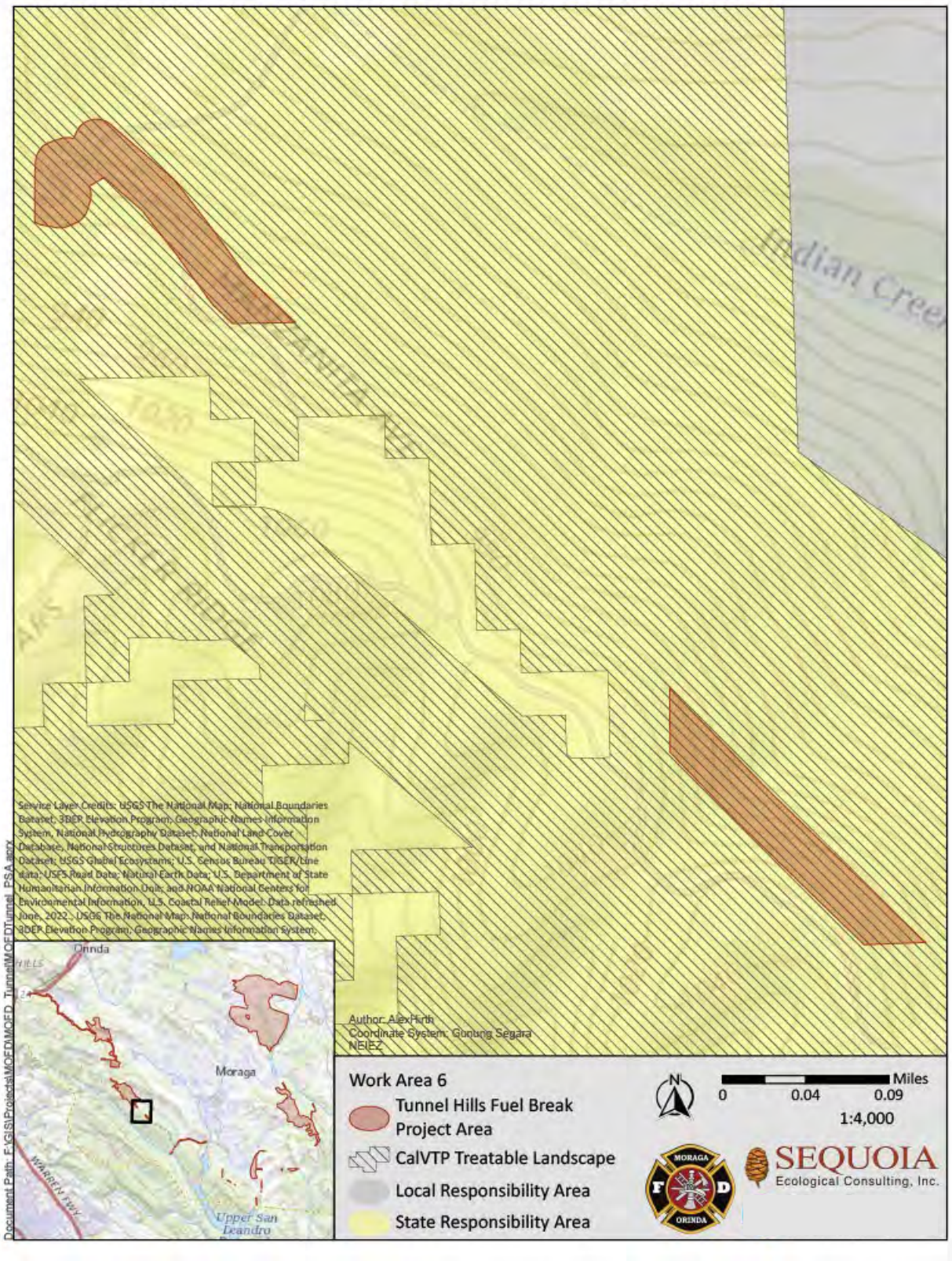

Figure 3f. CalVTP Treatable Landscape and State/Local Responsibility Areas: Work Area 6

Work Area 5 encompasses 112 acres and is split into two main portions. The northern portion includes an open space that is approximately 0.5 mile northeast of the East Bay Regional Park District (EBRPD) Wilcox Station Staging Area, with a linear extension from the northwest corner to the west. The southern portion is approximately 0.3 mile from the northern portion, and it is approximately 0.25 mile east-northeast from Pinehurst Road. It includes open space extending southeast along Ridgecrest and abuts Work Area 6. Approximately 75 acres of Work Area 5 are managed under three separate conservation easements (Montanera: Moraga Creek Open Space Area/Indian Valley Preserve Area, Moraga Creek Open Space Extension Area, Upper San Leandro Watershed Open Space Area). Within Work Area 5, 109 acres are inside the Treatable Landscape and 3 acres are outside the Treatable Landscape.

Work Area 6 is comprised of nine (9) acres, split into two portions. The northwestern portion abuts Work Area 5 on the north and extends linearly for approximately 0.15 mile along an unnamed road to the southeast. The southeastern portion starts approximately 0.15 mile southeast of the northwestern portion and extends linearly along an unnamed road along Flicker Ridge for approximately 0.2 mile. Approximately 3.5 acres are managed under a conservation easement (Montanera: Moraga Creek Open Space Area/Indian Valley Preserve Area). Approximately 8 acres are within Treatable Landscape and 1 acre is outside.

3.0 PROJECT DESCRIPTION

Section 2 of the PSA presents a detailed project description that involves an initial treatment followed by maintenance of the treatment. In accordance with CalVTP treatments and requirements, the Project proposes clearing vegetation to create a shaded fuel break within the WUI and adjacent open space. Strategic vegetation removal will reduce fuels while simultaneously creating an approximate 10-mile linear break for firefighting resources to contain or stop a fire. If a wildfire should occur in the area, firefighters may utilize the shaded fuel break from the ground or to facilitate air resources in dropping water or retardant. Additional vegetation removal would strategically clear and maintain overhead clearance on access roads to facilitate access to the shaded fuel breaks. Proposed treatment types consist of shaded fuel breaks and WUI fuel reduction, which are consistent with CalVTP PEIR Section 2.5.1 and would occur within all Work Areas.

Vegetation removal would be achieved through tailoring a combination of CalVTP treatment activities for maximum effectiveness. Proposed treatment activities include prescribed burning (broadcast and pile), mechanical treatment, manual treatment, prescribed herbivory, and herbicide application. The overarching strategy for applying treatment activities will follow these guidelines: remove dead and dying vegetation within a typically 100-foot (up to 300 feet) wide zone, remove invasive plants and noxious weeds, remove or masticate target vegetation 6 inches diameter at breast height (DBH) or smaller, remove standing dead trees (except those on steep banks or those that would result in soil disturbance), strategically retain native tree species (e.g., oak, elderberry, manzanita) to reduce fuel load while retaining natural woodland structure, and strategically retain native scrub habitat in natural islands by removing only dead vegetation/branches and removing invasive plant species within Alameda

whipsnake (*Masticophis lateralis euryxanthus*; AWS) habitat, while still creating opportunities for emergency responders to address wildfires.

3.1 Project Schedule and Approach

The initial treatment is anticipated to start in May 2023 and will be completed by March 2025. Manual and mechanical methods would be employed on weekdays during daylight hours. Prescribed burning would occur throughout the week during daylight hours during the appropriate season. Grazing would occur around the clock wherever implemented. Maintenance of the treatments would occur according to regrowth rate (e.g., tree-dominated areas, every 3-5 years; scrub-dominated areas, every 1-5 years; grass-dominated areas, annually). The overarching vegetation removal strategy would aim to:

- Reduce/manage wildfire hazard risk, intensity, and rate of spread,
- Reduce impacts to communities and infrastructure,
- Maintain/enhance biological diversity,
- Promote conditions that favor native species,
- Enhance native, fire-resilient plant communities,
- Provide strategic locations to effectively fight wildfires, and
- Balance needs of fire season and crew availability.

4.0 REGULATORY SETTING

Regulatory authority over biological resources is shared by Federal, state, and local agencies under a variety of laws, ordinances, regulations, and statutes. Primary authority for biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, Contra Costa County). Below we provide a summary of these regulatory authorities and a brief discussion of their applicability to the proposed Project. More in-depth analyses are provided in Section 6 (Results) and Section 4.5 of the PSA.

4.1 Federal

4.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) provides protection for Federally listed endangered and threatened species and their habitats. A project may obtain permission to take Federally listed species in one of two ways: a Section 10 Habitat Conservation Plan (HCP) issued to a non-Federal entity, or a Section 7 Biological Opinion from the USFWS and/or the National Oceanic and Atmospheric Administration (NOAA) issued to another Federal agency that funds or permits an action (e.g., USACE). Under either Section of the FESA, adverse impacts to protected species are avoided, minimized, and mitigated. Both cases require consultation with the USFWS and/or NMFS, which ultimately issues a

Biological Opinion determining whether the Federally listed species may be incidentally taken pursuant to the proposed action and authorizing incidental take.

Section 7 of FESA requires that Federal agencies develop a conservation program for listed species (FESA 7(a)(a)) and that they avoid actions that will jeopardize the continued existence of the species or result in the destruction or adverse modification of the species' designated Critical Habitat (FESA 7(a)(2)). FESA Section 9 prohibits all persons and agencies from take of threatened and endangered species (though the prohibition on taking listed plants only applies to plants taken from "areas under Federal jurisdiction" or plants taken "in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law"). Those who violate this mandate face civil and criminal penalties, including civil fines of up to $25,000 per violation, as well as criminal penalties of up to $50,000 and imprisonment for 1 year. Section 10 of FESA regulates a wide range of activities affecting fish and wildlife designated as endangered or threatened and the habitats on which they rely. Section 10 prohibits activities affecting these protected fish and wildlife species and their habitats unless authorized by a permit from USFWS or NMFS. These permits may include incidental take permits, enhancement of survival permits, or recovery and interstate commerce permits. HCPs under Section 10(a)(1)(B) provide for partnerships with non-Federal parties to conserve the ecosystems upon which listed species depend.

HCPs are required as part of an application for an incidental take permit under Section 10. They describe the anticipated effects of the proposed take, how those impacts will be minimized or mitigated, and how the HCP will be funded.

Applicability to the Proposed Project

FESA gives regulatory authority to USFWS for Federally listed terrestrial species and non-anadromous fish. NMFS has regulatory authority over Federally listed marine mammals and anadromous fish.

There are no Federally listed plant species anticipated to occur on the Project site. Several Federally listed plant and animal species are known to occur in the region of the Project site (Tables 1 and 2); however, none of these species are likely to be present within the Project footprint. Habitats present are highly disturbed and are not suitable for Federally listed plants. No Federally listed plants were observed during reconnaissance surveys performed by Sequoia in 2022 and 2023. A rare plant survey was performed in 2022 for a portion of the Project area, and the remainder of the footprint will be surveyed in 2023. Work will only occur in areas where rare plant surveys have been completed. A rare plant survey of the Project footprint and 50-foot buffer will be completed prior to initiation of Project activities.

Several Federally listed animal species are known to occur in the region of the Project site (Tables 1 and 2); three (3) of these species have potential to occur within the Project footprint. While much of the site has been disturbed by regular grazing activity, suitable habitat is present within portions of the Project site for AWS (varying quality throughout the site), California red-legged frog (*Rana draytonii*; CRLF) (low-

quality habitat), and American peregrine falcon (*Falco peregrinus anatum*) (foraging only; see Section 7.5, Impacts Analysis).

4.1.2 Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) (16 USC §§ 703–711), as administered by the USFWS, makes it unlawful to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird." This includes direct and indirect acts, except for harassment and habitat modification, which are not included unless they result in direct loss of birds, nests, or eggs.

Applicability to the Proposed Project

The Project site provides suitable nesting habitat for common passerine (songbird) and raptor (bird of prey) species. These birds are protected pursuant to the MBTA. Prior to commencing Project-related activities, a preconstruction survey would be performed, and active nests detected would be provided with an appropriately sized non-disturbance buffer. See Impacts Analysis section below.

4.1.3 Bald and Golden Eagle Protection Act of 1940

The Bald and Golden Eagle Protection Act (BGEPA; 16 USC. 668-668c) prohibits anyone from taking, possessing, or transporting a bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), or the parts, nests, or eggs of such birds without prior authorization. This includes inactive nests as well as active nests. Take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to take are prohibited without a permit.

Applicability to the Proposed Project

The Project site does not provide suitable foraging or nesting habitat for bald eagle; however, potentially suitable foraging habitat for golden eagle occurs in the vicinity of the Project site. This species is protected pursuant to the BGEPA and the MBTA. Prior to commencement of Project-related activities, a preconstruction survey for golden eagle would be performed, and active nests detected would be provided with an appropriately sized non-disturbance buffer. See Impacts Analysis section below.

4.1.4 Magnuson-Stevens Fishery Conservation and Management Act

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the San Francisco Bay Watershed is designated as Essential Fish Habitat (EFH) for coho (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*; US Geologic Survey [USGS] Hydrologic Unit Code 18050004), and Suisun Bay Watershed is designated EFT for Chinook salmon (USGS Hydrologic Unit Cod 18050001). Effective November 14, 2008, the NMFS issued this final rule that provides EFH identifications and descriptions for freshwater and marine habitats of Pacific salmon managed under the

Salmon Fishery Management Plan, including coho, Chinook, and pink salmon (*Oncorhynchus gorbuscha*). The term EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (USC. 1853 95-354, 99-659, 101-627, 104-297).

Applicability to the Proposed Project

Although the creeks and drainages on the Project site are not designated as EFH, the Project occurs on two watersheds that connect to EFH, San Francisco Bay and Suisun Bay, and some of the creeks are hydrologically connected to downstream waterways that are protected pursuant to the Magnuson-Stevenson Act. Accordingly, all work will be conducted above ordinary high water mark (OHWM) and outside of the flow of all drainage features. In addition, appropriate avoidance and minimization measures will be implemented; thus, potential indirect impacts to EFH will be avoided.

4.1.5 US Army Corps of Engineers – Clean Water Act – Section 404

USACE regulates activities within "waters of the United States" pursuant to congressional acts: Section 404 of the Clean Water Act (CWA; 1977, as amended) and Section 10 of the Rivers and Harbors Act of 1899. Section 404 of the CWA (1977, as amended) requires a permit for discharge of dredged or fill material into waters of the United States. Under Section 404, "waters of the United States" are defined as all waters that are used currently, or were used in the past, or may be used in the future for interstate or foreign commerce, including waters subject to the ebb and flow of the tide up to the high tide line. Additionally, areas such as wetlands, rivers, and streams (including intermittent streams and tributaries) are considered waters of the United States. The extent of wetlands is determined by examining the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances, all three of these parameters must be satisfied for an area to be considered a jurisdictional wetland under Section 404 of the CWA. Fill within wetlands is regulated under the CWA through a Nationwide Permit Program and an Individual Permit Program.

Applicability to the Proposed Project

The creeks on the Project site likely fall under USACE jurisdiction pursuant to Section 404 of the CWA. Thus, prior authorization from USACE pursuant to Section 404 of the CWA would be required if the proposed Project were to impact these features. The Project is proposing to avoid working within 50 feet of wetlands.

4.1.6 Conservation Easements and Long-Term Management Plans

Land within the Project footprint is managed by Wildlife Heritage Foundation for sensitive resources according to the following Federally and state-approved conservation easements:

- Final Resource Management Plan for the Montanera Project (April 2006)
    - Applicable to Work Areas 3, 5, and 6

- Long-Term Management Plan for the Montanera Project: Eastern Hills Open Space Area, Quarry Hill Open Space Area Development Buffer Area (June 2006)
    - Applicable to Work Area 3
- Long-Term Management Plan for the Montanera Project: Moraga Creek Open Space Area Indian Valley Preserve Area (June 2006)
    - Applicable to Work Areas 3, 5, and 6
- Long-Term Management Plan for the Montanera Project: Western Hills Open Space Area (June 2006)
    - Applicable to Work Area 3
- Long-Term Resource Management Plan for the Roberts Ranch Preserve 4-Acre Leona Heights Mitigation Area, Contra Costa County, California (May 2016)
    - Applicable to Work Areas 1 and 4
- Long-Term Resource Management Plan: The Roberts Ranch Preserve (August 2015)
    - Applicable to Work Areas 1 and 4
- Management Plan for the Moraga Creek Open Space Extension Area Upper San Leandro Watershed Open Space Area (October 2006)
    - Applicable to Work Area 5

4.2 State

4.2.1 California Environmental Quality Act

CEQA requires public agencies in California to analyze and disclose potential environmental impacts associated with a proposed discretionary project that the agency will carry out, fund, or approve. Any significant impact must be mitigated to the extent feasible, below the threshold of significance.

Applicability to the Proposed Project

The CEQA-approved CalVTP PEIR evaluated the potential environmental effects of implementing qualifying vegetation treatments to reduce the risk of wildfire within the CAL FIRE SRA. Serving as the lead agency under the CEQA, a project proponent will evaluate the proposed treatments for CEQA compliance as later activities covered by the CalVTP PEIR using the PSA checklist. Consistent with CEQA Section 21166 and CEQA Guidelines Sections 15162, 15163, 15164, and 15168, an addendum to an Environmental Impact Report (EIR) is appropriate when a previously certified EIR has been prepared and some changes or revisions to the Project are proposed, or the circumstances surrounding the Project have changed, but none of the changes or revisions would result in new or substantially more severe significant environmental impacts.

This report has been prepared as a Biology Section suitable for incorporation into the PSA Addendum of the CalVTP. The Project is proposing treatments outside of the Treatable Landscape, and the differences between these lands were compared as part of this report.

4.2.2 California Endangered Species Act

The CDFW is responsible for administering the California Endangered Species Act (CESA). Section 2080 of the California Fish and Wildlife Code prohibits take of any species that the Fish and Wildlife Commission determines to be an endangered species or a threatened species. However, CESA does allow for take that is incidental to otherwise lawful development projects. Sections 2081(b) and (c) of CESA allow the CDFW to issue an incidental take permit for a state-listed threatened and endangered species only if specific criteria are met (i.e., the effects of the authorized take are minimized and fully mitigated). The measures required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required shall maintain the applicant's objectives to the greatest extent possible. All required measures shall be capable of successful implementation.

Applicability to the Proposed Project

No state-listed plant or animal species would likely be impacted by the proposed Project (Tables 5 and 6). Focused preconstruction wildlife surveys and appropriately timed special-status plant surveys will be conducted prior to Project commencement to confirm the presence or absence of state-listed species. If necessary, appropriate avoidance and minimization measures will be implemented to ensure that no significant adverse impacts to state-listed animal or plant species occur. As such, the proposed Project should not be required to obtain an incidental take permit from the CDFW.

4.2.3 California Fish and Game Code – Lake or Streambed Alteration Agreement

The CDFW regulates activities within watercourses, lakes, and in-stream reservoirs. Under Section 1602 of the California Fish and Game Code (CFGC)—often referred to as the Lake or Streambed Alteration Agreement (LSAA)—the CDFW regulates activities that would alter the flow or change or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, or lake. Each of these activities requires a Section 1602 permit. Section 1602 requires the CDFW to be notified of any activity that might affect lakes and streams. It also identifies the process through which an applicant can come to an agreement with the state regarding the protection of these resources, both during and following project implementation.

Applicability to the Proposed Project

No work will occur within 50 feet of streams and drainages. There are no streams or drainages that would likely be regulated by CDFW. Accordingly, an LSAA with CDFW would not be necessary for this Project.

4.2.4 California Fish and Game Code – Nesting Birds

CFGC Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by the CFGC or any regulation made pursuant thereto. CFGC Section 3503.5 protects all birds of prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that project elements (specifically vegetation removal near nest trees) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, which may be subject to CDFW and/or USFWS approval.

4.2.5 California Fish and Game Code – Fully Protected Species, Species of Special Concern, and Non-game Mammals

The classification of "fully protected" was CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. CFGC sections dealing with "fully protected" species (birds §§ 3503 and 3511, mammals §§ 4150 and 4700, amphibians and reptiles § 5050, and fish § 5515) state that these species "may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species"; however, take may be authorized for necessary scientific research.

California Species of Special Concern (CSSC) are defined as animals not listed under the CESA or FESA. These species are of concern to CDFW because of rapid declines in populations that could result in listing or because they historically occurred in low numbers and known threats to their continued existence are present. This designation is intended to result in special consideration for these animals by CDFW, project proponents, and consultants, among others, and is also intended to encourage collection of additional information on these species and risks to their persistence. Although these species are afforded no special legal status, they are provided special consideration under the CEQA during project review.

Sections 4150-4155 of the CFGC protect non-game mammals, including bats. Section 4150 establishes that mammals occurring naturally in California that are not considered game, fully protected, or furbearing are non-game mammals. Non-game mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a non-game mammal and are protected under the CFGC.

Applicability to the Proposed Project

The Project site provides suitable roosting/maternity habitat for bats protected pursuant to CFGC Section 4150 and suitable migration/dispersal habitat for amphibians and reptiles listed as CSSC—specifically, pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) —protected pursuant to CFGC Section 5050. As such, preconstruction surveys for these species would need to be conducted prior to Project commencement to ensure no direct mortality of these species occurs as a result of the proposed Project (see Section 7).

4.2.6 Regional Water Quality Control Board – Clean Water Act – Section 401 and Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and RWQCB regulate activities in "waters of the state" (which includes wetlands) through two sources of legal authority: Section 401 of the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Wat. Code, Div. 7, §§ 13000 et seq.). The Section 401 water quality certification program allows the state to ensure that activities requiring a Federal permit or license comply with state water quality standards. Though similar to Section 404 and 401 requirements, the Porter-Cologne Act applies to all waters of the state, rather than to the portions thereof below OHWM. "Waters of the state" are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (Water Code § 13050(e)).

The Porter-Cologne Act requires any person discharging waste or proposing to discharge waste in any region that could affect the quality of waters of the state to file a report of waste discharge. Pursuant to the Porter-Cologne Act, the RWQCB also regulates "isolated wetlands." Functionally, the RWQCB typically evaluates whether an additional waste discharge requirement is necessary for the balance between Federal and state jurisdictional boundaries during the 401 certification process. The RWQCB issues a permit or waiver that includes implementing water quality control plans that reflect the beneficial uses to be protected. Waters of the state subject to RWQCB regulation extend to the top of bank, as well as isolated water/wetland features.

On April 2, 2019, the SWRCB adopted Resolution 2019-0015, thereby adopting a document entitled, "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" (Procedures) for inclusion in the Water Quality Control Plans for inland surface waters, enclosed bays, and estuaries of California.

In taking this action, the SWRCB noted that under the Porter-Cologne Act, discharges of dredged or fill material to waters of the state are subject to waste discharge requirements or waivers thereof. The SWRCB further explained that "although the state has historically relied primarily on requirements in the CWA to protect wetlands, US Supreme Court rulings reducing the jurisdiction of the CWA over wetland areas by limiting the definition of 'waters of the United States' have necessitated the use of California's independent authorities under the Porter-Cologne Act to protect these vital resources."

The Office of Administrative Law (OAL) approved the Procedures on August 28, 2019. Pursuant to the Procedures, the effective date is 9 months upon OAL approval. Accordingly, the Procedures became effective May 28, 2020.

By adopting the Procedures, the SWRCB mandated and standardized the evaluation of impacts and protection of waters of the state from impacts due to dredge and fill activities. The Procedures include: (1) a wetland definition; (2) a jurisdictional framework for determining if a feature that meets the

wetland definition is a water of the state; (3) wetland delineation procedures; and (4) procedures for application submittal, and the review and approval of dredge or fill activities.

The Procedures define an area as a wetland if it meets three criteria: wetland hydrology, wetland soils, and (if vegetated) wetland plants. An area is a wetland if: (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

Waters of the state, by definition, include more aquatic features than waters of the United States, which defines the jurisdiction of the Federal government. Waters of the state are not so limited. In addition, the Federal definition of a wetland requires a prevalence of wetland vegetation under normal circumstances. To account for wetlands in arid portions of the state, the SWRCB's definition differs from the Federal definition in that an area may be a wetland even if it does not support vegetation. If vegetation is present, however, the SWRCB's definition requires that the vegetation be wetland vegetation. The SWRCB's definition clarifies that vegetated and unvegetated wetlands will be regulated in the same manner.

The Procedures also include a jurisdictional framework that applies to aquatic features that meet the wetland definition. The jurisdictional framework will guide applicants and staff in determining whether an aquatic feature that meets the wetland definition will be regulated as a water of the state. The jurisdictional framework is intended to exclude from regulation any artificially created, temporary features, such as tire ruts or other transient depressions caused by human activity, while still capturing small, naturally occurring features, such as seasonal wetlands and small vernal pools that may be outside of Federal jurisdiction. The Procedures do not expand the SWRCB's jurisdiction beyond areas already under SWRCB's jurisdiction.

The Procedures exclude the following agricultural features from the protections accorded to wetlands: (1) ditches with ephemeral flow that are not a relocated water of the state or excavated in a water of the state; (2) ditches with intermittent flow that are not a relocated water of the state or excavated in a water of the state, or that do not drain wetlands other than any wetlands described in (4) or (5) below; (3) ditches that do not flow, either directly or through another water, into another water of the state; (4) artificially irrigated areas that would revert to dry land should application of waters to that area cease; or (5) artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, and settling basins.

The Procedures clarify what information and analysis the applicant needs to submit to have a complete application. The Procedures also standardize when an alternative analysis needs to be conducted and set a minimum mitigation ratio for any permanent impacts to waters of the state resulting from dredge and fill activities.

When an alternatives analysis is required, the applicant must demonstrate that the proposed alternative is the Least Environmentally Damaging Practicable Alternative (LEDPA). The term practicable means

available and capable of being done after taking into consideration cost, existing technology, and other logistics in light of the overall project purpose.

Applicability to the Proposed Project

The creeks and wetlands within the Project footprint and any adjacent seasonal wetlands on the Project site likely fall under the RWQCB/SWRCB's jurisdiction pursuant to Section 401 of the CWA. Thus, prior authorization from the RWQCB/SWRCB pursuant to Section 401 of the CWA would be required if the proposed Project were to impact these features. Impacts to waters of the state would require mitigation to the satisfaction of the RWQCB prior to issuance of a permit for impacts to these features. The Project proposes to avoid wetlands, creeks, and aquatic resources with a buffer of 50 feet.

4.3 Local

4.3.1 Contra Costa County Heritage Tree Preservation

Contra Costa County Code (dated February 23, 2023) offers protections to heritage trees under Title 8 Zoning, Division 816 – Trees, Chapter 816-4 "Heritage Tree Preservation (HTP) District." A "heritage tree" is defined as any tree 72 inches or more in circumference measured 4.5 feet above the natural grade; or any tree or a group of trees "particularly worthy of protection, and specifically designated as a heritage tree by the board of supervisors" as having historical or ecological significance, being interdependent with other trees for health or survival, or being considered an outstanding specimen of its species due to its location, size, age, rarity, shape, or health.

Applicability to the Proposed Project

The Project design includes limbing trees up to 6 feet and selective removal trees that are 6 inches DBH or less. Non-native trees will be given preference for removal. A qualified Registered Professional Forester (RPF) or biologist will be on-site for monitoring and consulting.

4.3.2 Contra Costa County Tree Protection and Preservation

Contra Costa County Code Chapter 816-6 "Tree Protection and Preservation" offers protection to all trees located within the unincorporated county with specific traits, including tree stands of four or more trees and trees 6.5 inches DBH or greater, and includes 26 indigenous tree species:

Acer macrophyllum (bigleaf maple)
Acer negundo (box elder)
Aesculus californica (California buckeye)
Alnus rhombifolia (white alder)
Arbutus menziesii (madrone)
Heteromeles arbutifolia (toyon)
Juglans hindsii (California black walnut)
Populus trichocarpa (black cottonwood)
Quercus agrifolia (California or coast live oak)
Quercus chrysolepis (canyon live oak)
Quercus douglasii (blue oak)
Quercus kelloggii (California black oak)
Quercus lobata (valley oak)
Quercus wislizenii (interior live oak)

Juniperus californica (California juniper)
Notholithocarpus densiflora (tanoak or tanbark oak)
Pinus attenuata (knobcone pine)
Pinus sabiniana (digger pine)
Platanus racemosa (California sycamore)
Populus fremontii (Fremont cottonwood)
Salix laevigata (red willow)
Salix lasiandra (yellow willow)
Salix lasiolepis (arroyo willow)
Sambucus callicarpa (coast red elderberry)
Sequoia sempervirens (coast redwood)
Umbellularia californica (California bay or laurel)

Applicability to the Proposed Project

The Project's overarching strategy for vegetation removal includes removing primarily dead and dying vegetation, removing invasive plants and noxious weeds, removing standing dead trees (except those on steep banks or those that would result in soil disturbance), strategically retaining native tree species (e.g., oak, elderberry, manzanita) to reduce fuel load while retaining natural woodland structure, and limiting tree removal to individuals 6 inches DBH or smaller.

5.0 METHODS

Sequoia performed numerous desktop and in-field assessments. Using those results, Sequoia employed various site assessments to evaluate the presence of and/or likelihood of occurrence of sensitive resources on the Project site.

5.1 Definitions

5.1.1 Special-Status Species

For the purposes of this document, special-status species include:

- Plant, fish, and wildlife species listed as threatened or endangered under FESA (50 CFR 17), and candidates for listing under the statute;
- Species protected by the CFGC, including nesting birds and fully protected species;
- Plant, fish, and wildlife species listed as threatened or endangered under CESA; and the laws and regulations for implementing CESA as defined in CFGC §§ 2050 et seq. and the California Code of Regulations (CCR) 14 CCR §§ 670.1 et seq., and candidates for listing under the statute (CFGC § 2068);
- Species meeting the definition of 'Rare' or 'Endangered' under CEQA Guidelines 14 CCR § 15125 (c) and/or 14 CCR § 15380, including plants listed on CNPS Lists 1A, 1B, 2A, and 2B, 3, and 4. Plants with CNPS Ranks of 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution" (CNPS 2001). These plants may be included as special-status species on a case-by-case basis due to local significance or recent biological information (see additional definition information below);

- USFWS Birds of Conservation Concern;
- Fully protected species, as designated by the CDFW (CFGC §§ 3511, 4700, 5050, and 5515);
- Species of Special Concern, as designated by the CDFW and required by 14 CCR § 15380; and/or
- Avian species protected under the MBTA of 1918.

Additional information regarding these categories and definitions is provided below.

Federally Threatened or Endangered Species

A species listed as threatened or endangered under the FESA is protected from unauthorized "take" (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a Federally listed threatened or endangered species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened or Endangered Species

A species listed as threatened or endangered under the CESA is protected from unauthorized "take" (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to "take" a state threatened or endangered species as part of an otherwise lawful activity, it would be necessary to receive permission from CDFW prior to initiating the "take."

CDFW Species of Special Concern

CDFW Species of Special Concern are species whose California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, some of these species could be considered "rare" and must therefore be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Ranking System

The CNPS maintains an inventory of special-status plant species. This inventory has four lists of plants with varying rarity: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or Federally listed species), CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. CNPS Rank 1-4 species are defined below:

- **Rank 1A:** Presumed extinct in California
- **Rank 1B:** Rare, threatened, or endangered in California and elsewhere
- **Rank 2A:** Presumed extirpated in California, but more common elsewhere
- **Rank 2B:** Rare, threatened, or endangered in California, but more common elsewhere
- **Rank 3:** Plants needing more information to assess status (CNPS Rank 3 plants have potential to be relisted as Rank 1 or 2)

- **Rank 4:** Plants that are of limited distribution or infrequent throughout a broader area in California; their status should be monitored regularly

Under CEQA review, only CNPS Rank 1 and 2 species are considered due to meeting CEQA's definition of "rare" or "endangered." Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

Fully Protected Birds

Fully protected birds are protected under CFGC Section 3511 and may not be "taken" or possessed (i.e., kept in captivity) at any time.

5.2 Desktop Review

Sequoia reviewed relevant databases and literature for baseline information regarding biological resources occurring and potentially occurring on the Project site and in the immediate vicinity. The review included the following sources:

- USFWS National Wetlands Inventory (NWI) (USFWS 2023)
- USFWS Critical Habitat Portal (USFWS 2023)
- CNPS Online Inventory of Rare and Endangered Plants of California for Oakland East and Las Trampas Ridge, California and ten surrounding US Geological Survey (USGS) 7.5-minute quadrangles (CNPS 2023)
- USFWS Endangered and Threatened Species List (USFWS n.d.)
- USGS topographic maps (USGS n.d)
- CDFW California Natural Diversity Database (CNDDB) for the Project polygon and a 3-mile buffer (CDFW 2023; Figures 8 and 9)
- Aerial photographs (Google Earth 2023)
- CalVTP PEIR Appendix Bio-3 (Tables 1a and 1b: Central California Coast Ecological Section 261A)

5.3 Site Reconnaissance Survey

Sequoia biologists conducted surveys on the Project site between May 24, 2022, and January 26, 2023, to record biological resources and to assess the limits of areas potentially regulated by resource agencies (i.e., preliminary hydrology analysis). Surveys involved searching all habitats on the site and within a 50-foot buffer and recording all plant and animal species observed. Sequoia cross-referenced the habitats occurring on the Project site with the habitat requirements of regional special-status species to determine if the proposed Project could directly or indirectly impact these species. All special-status species and suitable habitat were documented.

Tables 3 and 4 present the potential for occurrence of special-status plant and animal species known to occur in the vicinity of the Project site, along with their habitat requirements, occurrence classification, and basis for occurrence classification.

5.4 Habitat Assessments

Consecutive transects were traversed at approximately 30-foot intervals throughout the Project site and a 50-foot buffer. During the surveys, biologists scanned for special-status species and/or suitable habitat for CRLF, AWS, western pond turtle (*Emys marmorata*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and other special-status species. Special-status species and suitable habitat were documented.

5.4.1 Potential to Occur

Following the site assessment, potential for special-status species to occur in the Project footprint was evaluated according to the following criteria:

- *No Potential*. Habitat on and adjacent to the site is clearly unsuitable for the species' requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- *Low Potential*. 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., CNDDB, other reports) on the site recently.

6.0 RESULTS

The results of the desktop review and site assessment conducted between May 24, 2022, and January 26, 2023, are presented below. Sequoia staff conducted a survey of the Project site and a 50-foot buffer around the site and characterized all vegetation present. During the survey, the biologists also documented plant and animal species observed on the Project site (Appendix C: Tables 8 and 9). Habitat types and the presence of sensitive natural communities were examined by reviewing available habitat spatial data and documenting observed sensitive natural communities during field reconnaissance surveys, including habitat alliance descriptions in *A Manual of California Vegetation* (Sawyer et al. 2009). The CDFW's Vegetation Classification and Mapping Program (VegCAMP 2023) was reviewed for sensitive natural community data. The USFWS NWI (USFWS 2021) and the US Department of Agriculture Web Soil Survey data (USDA 2021) were also reviewed to determine the presence of sensitive wetland, waterway, and serpentine soil habitats.

6.1 Topography and Hydrology

The proposed Project footprint includes freshwater emergent wetland, forested/shrub wetland, freshwater pond, lake, riverine and Cal Streams (National Hydrography Dataset). Named creeks adjacent to the proposed Project include San Pablo Creek, Indian Creek, San Leandro Creek, and Redwood Creek, along with their tributaries. Indian Creek intersects the proposed Project in Work Areas 2 and 5. Tributaries from San Pablo Creek and an unnamed creek intersect Work Area 3. Tributaries from an unnamed creek that flows into Upper San Leandro Reservoir intersects Work Area 3. Tributaries from Las Trampas Creek intersect Work Area 4. Three (3) freshwater ponds are located in Work Area 4. What appears to be a fourth pond, the largest and westernmost freshwater pond in Work Area 4 (visible as in the USGS topographic basemap in Figure 6d, and as an NWI polygon in Figure 6d), is both outside of the PSA area on East Bay Municipal Utility District (EBMUD) lands and is an EMBUD facility with no surface water. Google Earth imagery from 2022 and field survey data confirm that the area contains an anthropogenic structure, which may be an enclosed water storage facility. Two (2) ephemeral freshwater ponds were observed in Work Area 5. The Upper San Leandro Reservoir is approximately 2,000 feet south of Work Area 2, and it is outside of the Project footprint.

6.1.1 Work Area 1

Elevations on-site ranged between 540-1,225 feet. The site is mostly characterized by large, contiguous rolling hills covered by oak woodland, coyote brush scrub, and annual grassland. Slopes range between 30-70 percent, often with an exposed lithic layer within grasslands and a deep layer of leaf duff under the canopy. Ephemeral drainages and runoff rilling are formed through winter storms and feed into artificial culverts, which feed into large bodies of water, primarily for cattle grazing. Valleys as low as 540 feet in elevation can be found within the hill ranges. Upper San Leandro Reservoir borders the site to the south of the site.

6.1.2 Work Area 2

Elevations on-site ranged between 500-600 feet. The site is mostly characterized by large, contiguous rolling hills covered by oak woodland and annual grassland along Canyon Road near Valle Vista. Slopes range between 10-35 percent with a deep layer of leaf duff under the canopy. Ephemeral drainages and runoff rilling are formed through winter storms and feed into artificial culverts, which feed into large bodies of water, primarily for cattle grazing. Most of the road follows the lowest valleys as low as 500 feet in elevation.

6.1.3 Work Area 3

Elevations on-site ranged between 640-1,700 feet. The site is mostly characterized by large, contiguous rolling hills covered by oak woodland, coyote brush scrub, and annual grassland. Slopes range between 30-88 percent, often with an exposed lithic layer within grasslands and a deep layer of leaf duff under the canopy. Ephemeral drainages and runoff rilling are formed through winter storms and feed into artificial culverts, which feed into large bodies of water, primarily for cattle grazing. Valleys as low as 640 feet in elevation can be found within the hill ranges.

6.1.4 Work Area 4

Elevations on-site ranged between 535-1,000 feet. The site is mostly characterized by rolling hills covered by oak woodland and annual grassland. Slopes range between 15-85 percent, often with an exposed lithic layer. Drainages and runoff rilling are formed through winter storms and feed into artificial ponds and natural bodies of water. Valleys as low as 535 feet in elevation can be found within the hill ranges.

6.1.5 Work Area 5

Elevations on-site ranged between 800-1,800 feet. The site is mostly characterized by large, contiguous rolling hills covered by oak woodland, coyote brush scrub, and annual grassland. Slopes range between 30-90 percent, often with an exposed lithic layer within grasslands and a deep layer of leaf duff under the canopy. Ephemeral drainages and runoff rilling are formed through winter storms and feed into artificial culverts, which feed into large bodies of water, primarily for cattle grazing. Valleys as low as 800 feet in elevation can be found within the hill ranges.

6.1.6 Work Area 6

Elevations on-site ranged between 530-1080 feet. The site is mostly characterized by ridges of dense scrub and remnant knobcone pine stands (*Pinus attenuata*). Slopes range between 30-90 percent, often with an exposed, decomposed lithic layers throughout the ridge and on the sides of the cliffs. Ephemeral drainages and runoff rilling are formed through winter storms and feed into artificial culverts downhill.

6.2 Plant Communities and Wildlife Habitats

A series of maps delineating vegetation types, potential sensitive habitats, and natural communities was prepared by overlaying habitat type data on the treatment area maps (Figures 4a-4d)) that describe seven (7) plant communities were mapped on the Project site (Sawyer et al. 2009) and are described below. Attachment C lists plant species observed on the Project site. The seven (7) California Wildlife Habitat Relationship (CWHR) System classified habitat types found on the Project site (Table 1) are annual grassland (1,121.7 acres), barren (0.5 acre), coastal oak woodland (120.3 acres), coastal scrub (67.4 acres), freshwater emergent wetlands (0.3 acre), lacustrine (3.0 acres), and urban (6.6 acres). Soils maps were prepared (Figures 5a-5d) to review habitat potential for special status plants, but will not be discussed within this report. Maps delineating wetlands and waterways were overlaid on vegetation type maps for fieldwork (Figures 6a-6d) but have been reproduced here separately for clarity. This habitat data was then verified and/or corrected during the field reconnaissance-level survey using maps loaded in ESRI's FieldMaps application on an Apple iPad Air tablet (4th generation). Habitat types were cross-referenced against sensitive natural communities lists maintained by CDFW and against the suitable habitats for sensitive plant and wildlife species identified in the desktop review. Reconnaissance surveys supported the identification and mapping of habitat types and potentially sensitive communities to Alliance group.

Table 1. Land Cover Type Within Each Work Area

Work Area Number	Total Acreage	Land Cover						
		Coastal Oak Woodland	Coastal Scrub	Annual Grassland	Freshwater Emergent Wetlands	Lacustrine	Barren	Urban
1	235.3	2.6	0.0	232.2	0.0	0.0	0.0	0.5
2	8.3	2.6	2.4	0.4	0.0	0.0	0.0	2.9
3	114.3	8.8	0.3	102.0	0.3	0.0	0.5	2.4
4	841.0	72.0	53.7	711.9	0.0	2.7	0.0	0.7
5	111.8	26.9	9.3	75.2	0.0	0.3	0.0	0.0
6	9.2	7.4	1.8	0.0	0.0	0.0	0.0	0.0
Totals	**1,319.9**	**120.4**	**67.4**	**1,121.7**	**0.3**	**3.0**	**0.5**	**6.6**

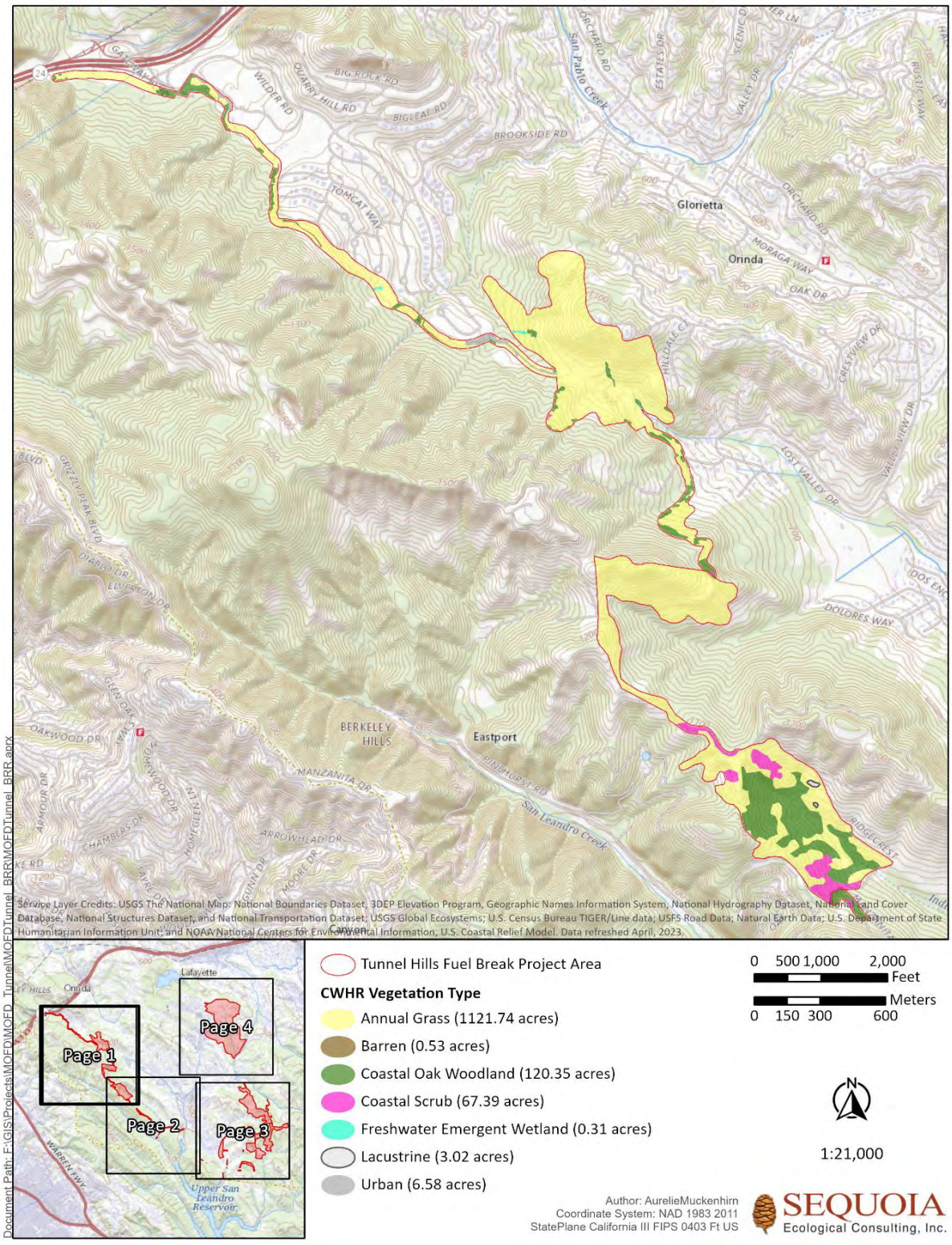

Figure 4a. Plant Communities on the Tunnel East Bay Hills Shaded Fuel Break Project Site, Work Areas 3 and 5

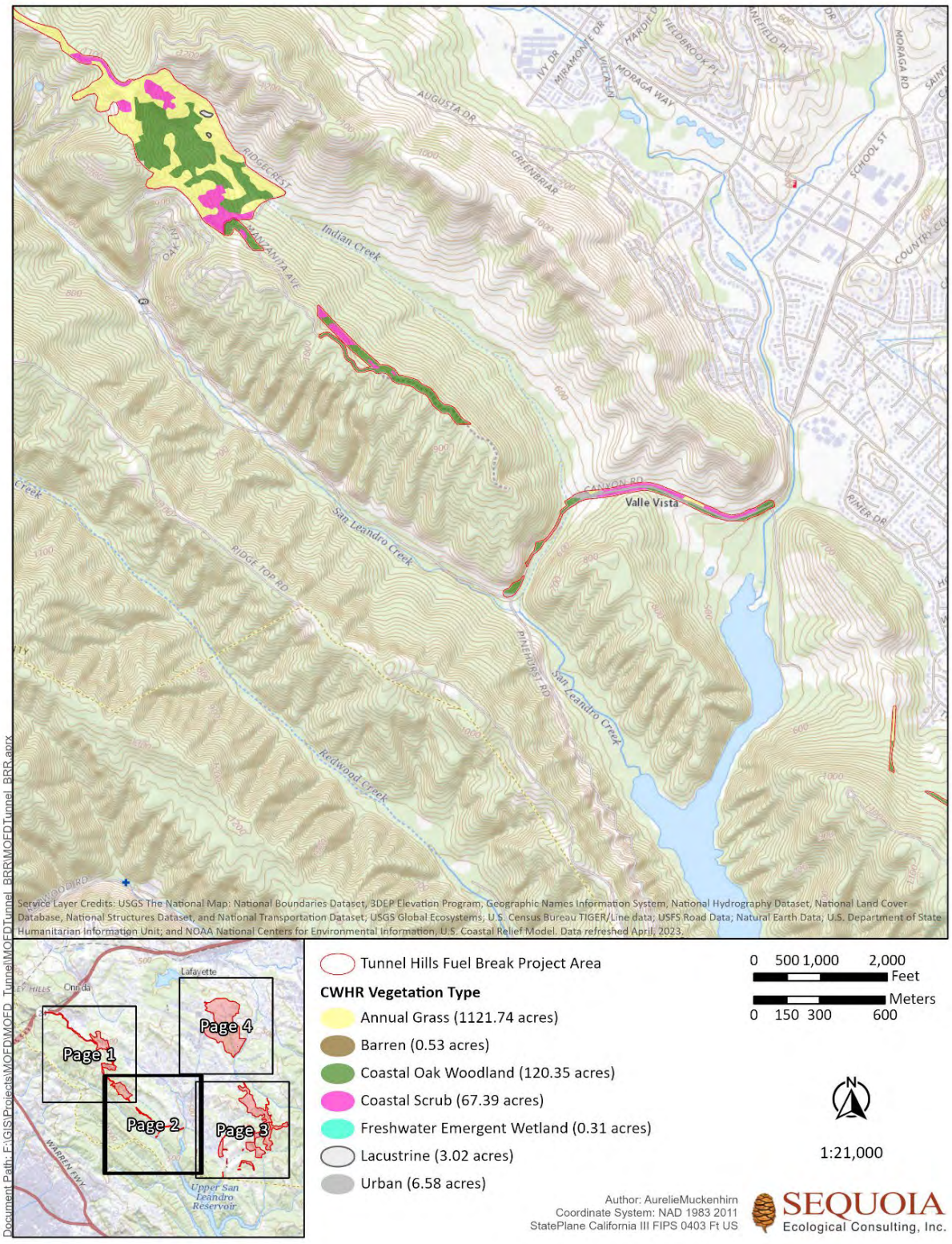

Figure 4b. Plant Communities on the Tunnel East Bay Hills Shaded Fuel Break Project Site, Work Areas 2, 5, and 6

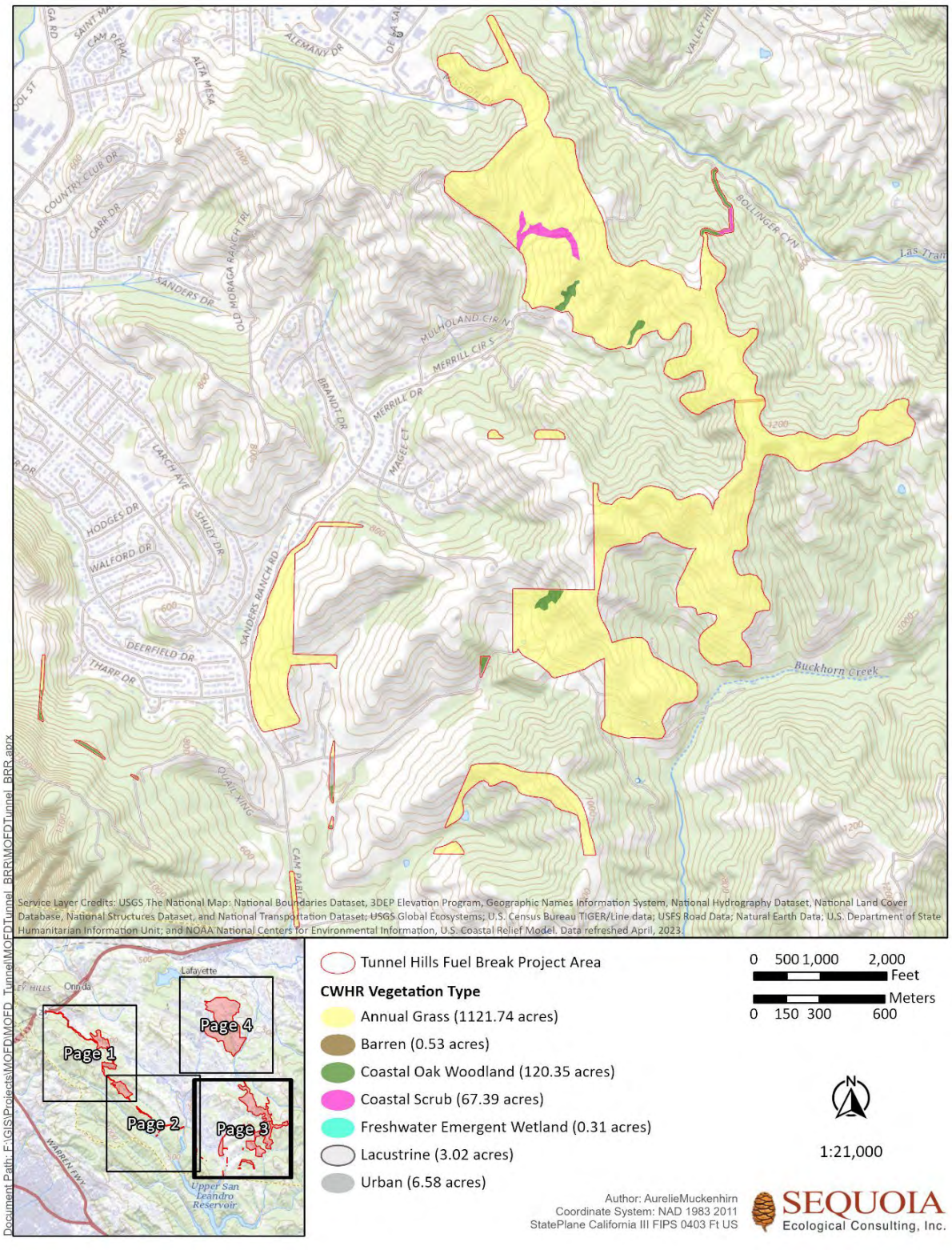

Figure 4c. Plant Communities on the Tunnel East Bay Hills Shaded Fuel Break Project Site, Work Areas 1 and 4 (Southern Portion)

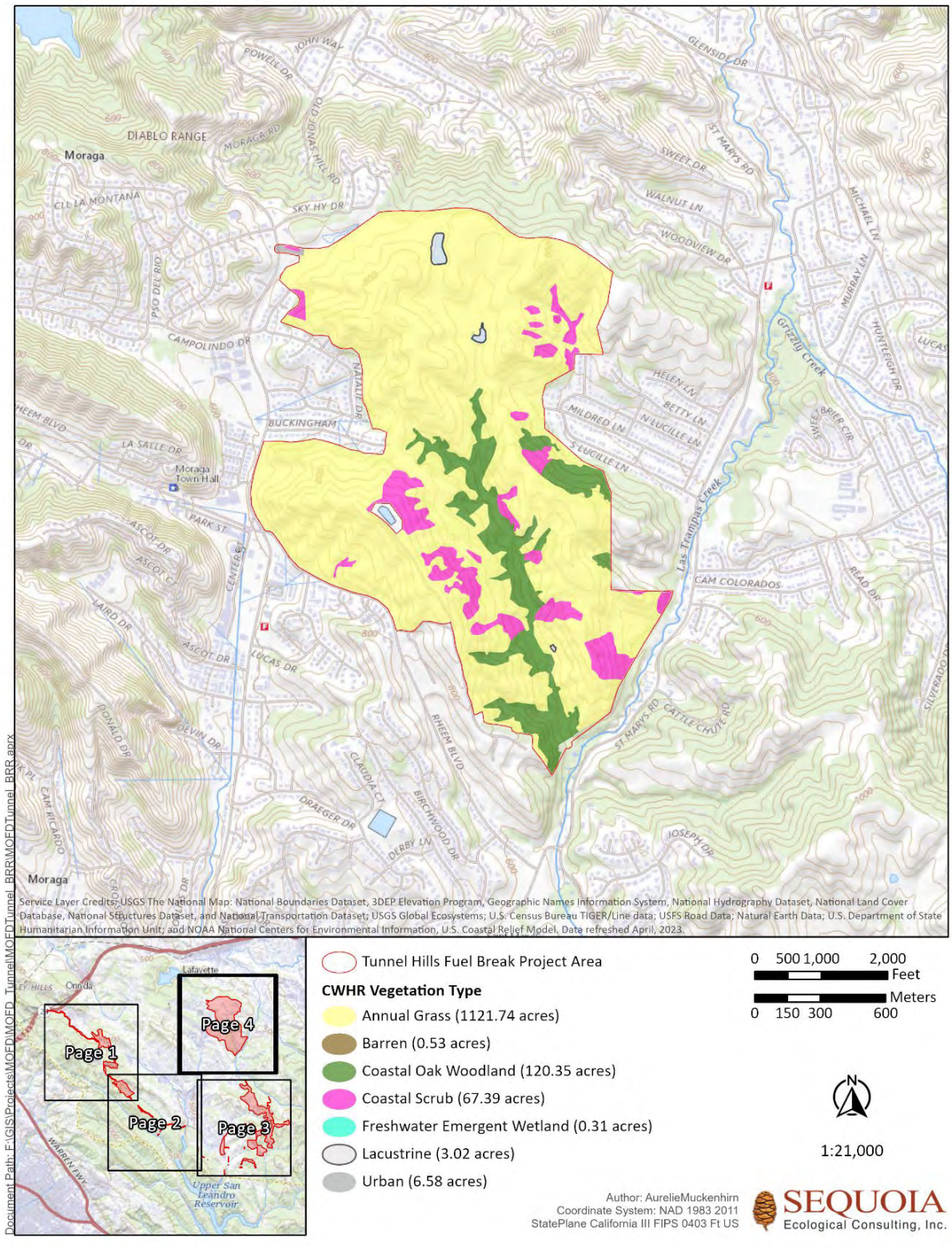

Figure 4d. Plant Communities on the Tunnel East Bay Hills Shaded Fuel Break Project Site, Work Area 4 (Northern Portion)

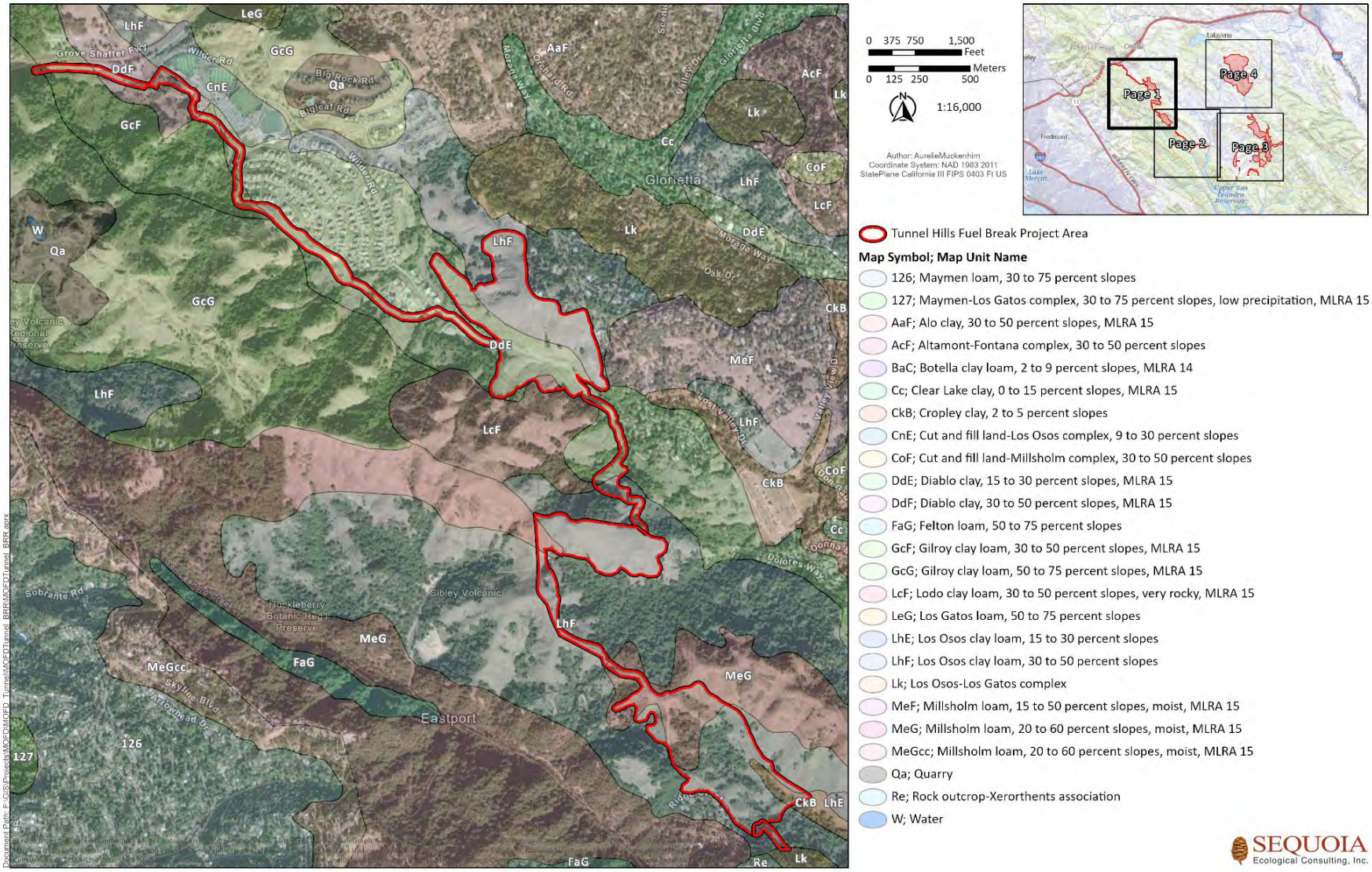

Figure 5a. Soil Types on the Tunnel East Bay Hills Shaded Fuel Break Project Site

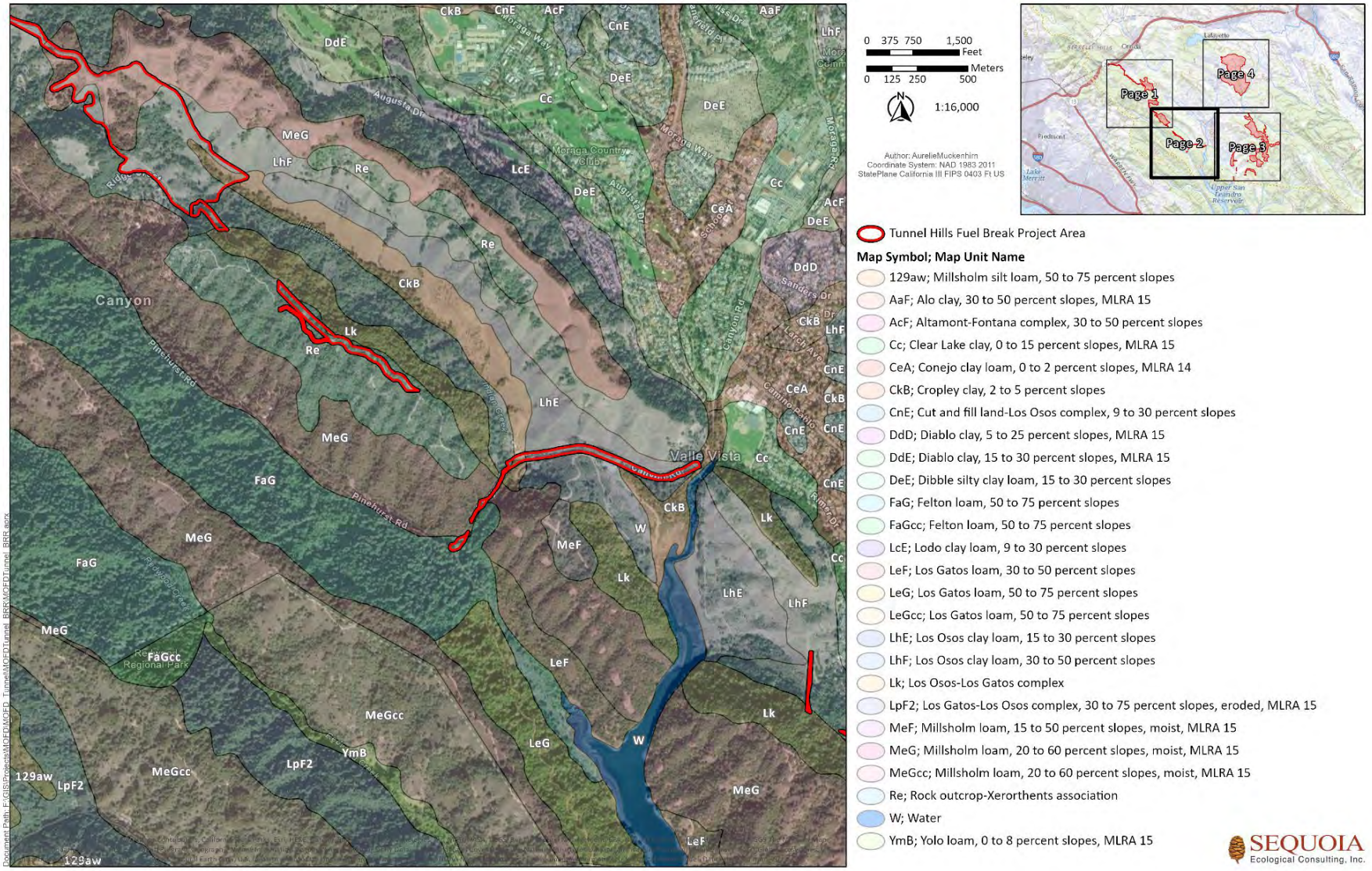

Figure 5b. Soil Types on the Tunnel East Bay Hills Shaded Fuel Break Project Site

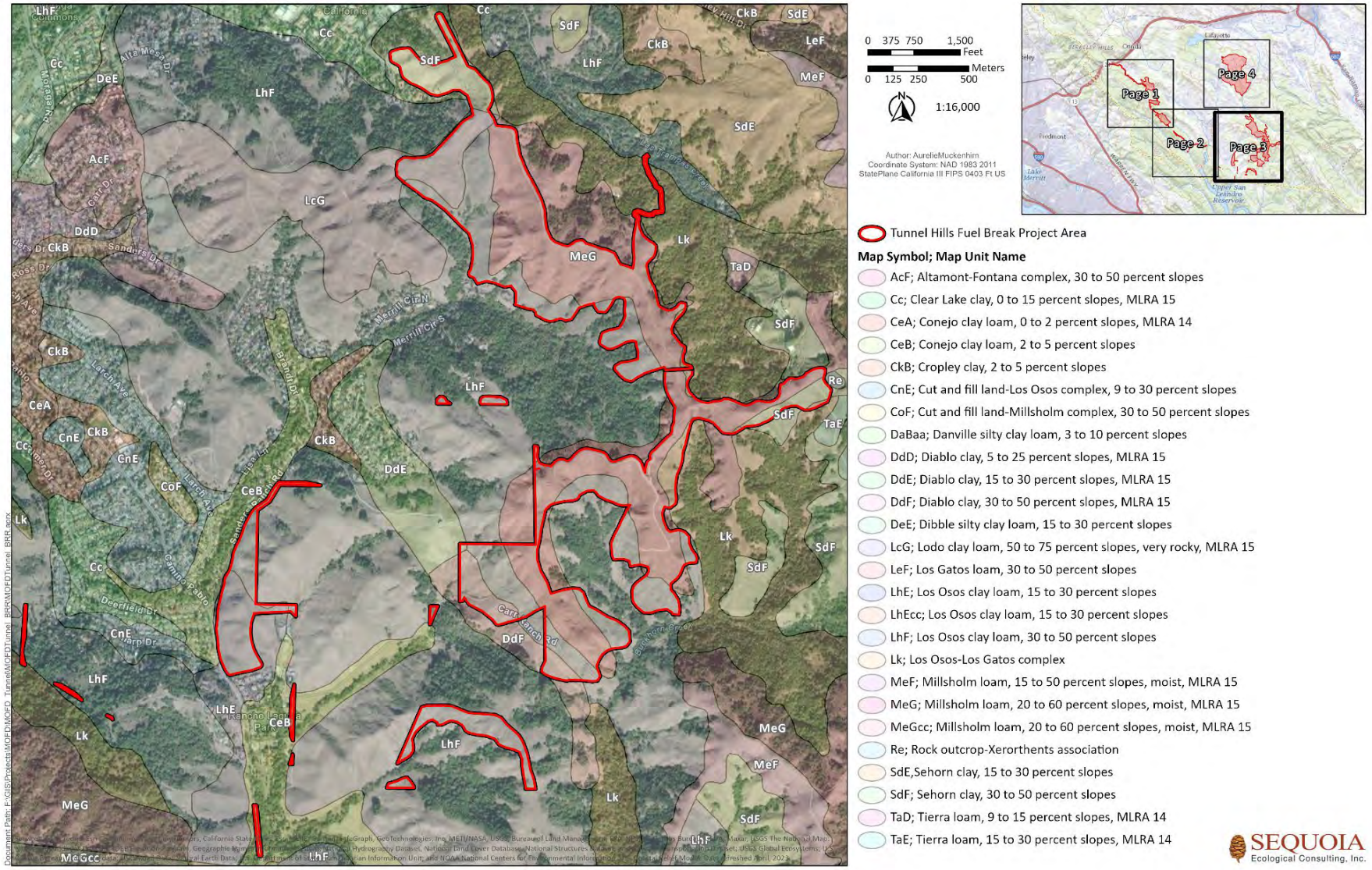

Figure 5c. Soil Types on the Tunnel East Bay Hills Shaded Fuel Break Project Site

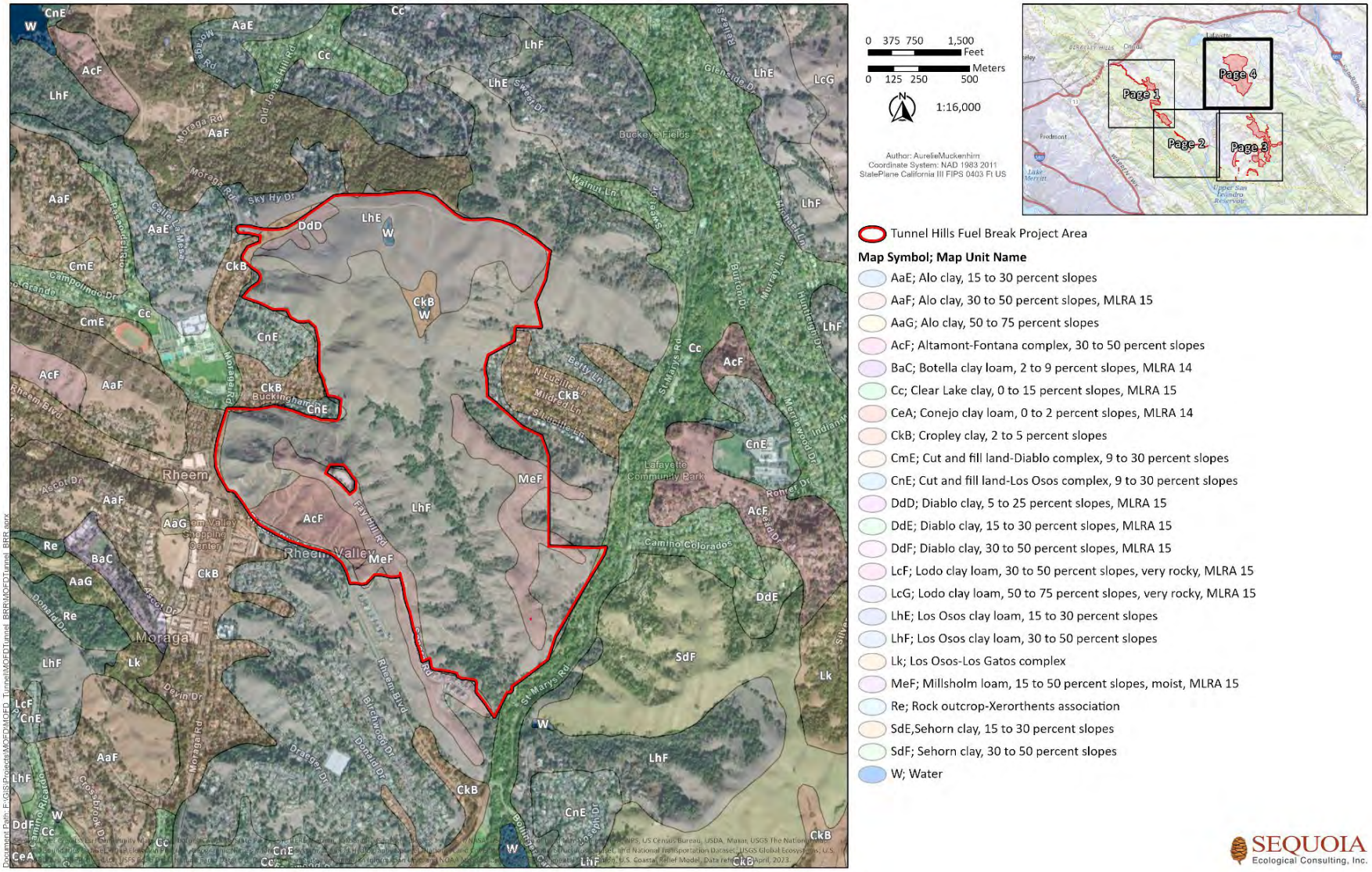

Figure 5d. Soil Types on the Tunnel East Bay Hills Shaded Fuel Break Project Site

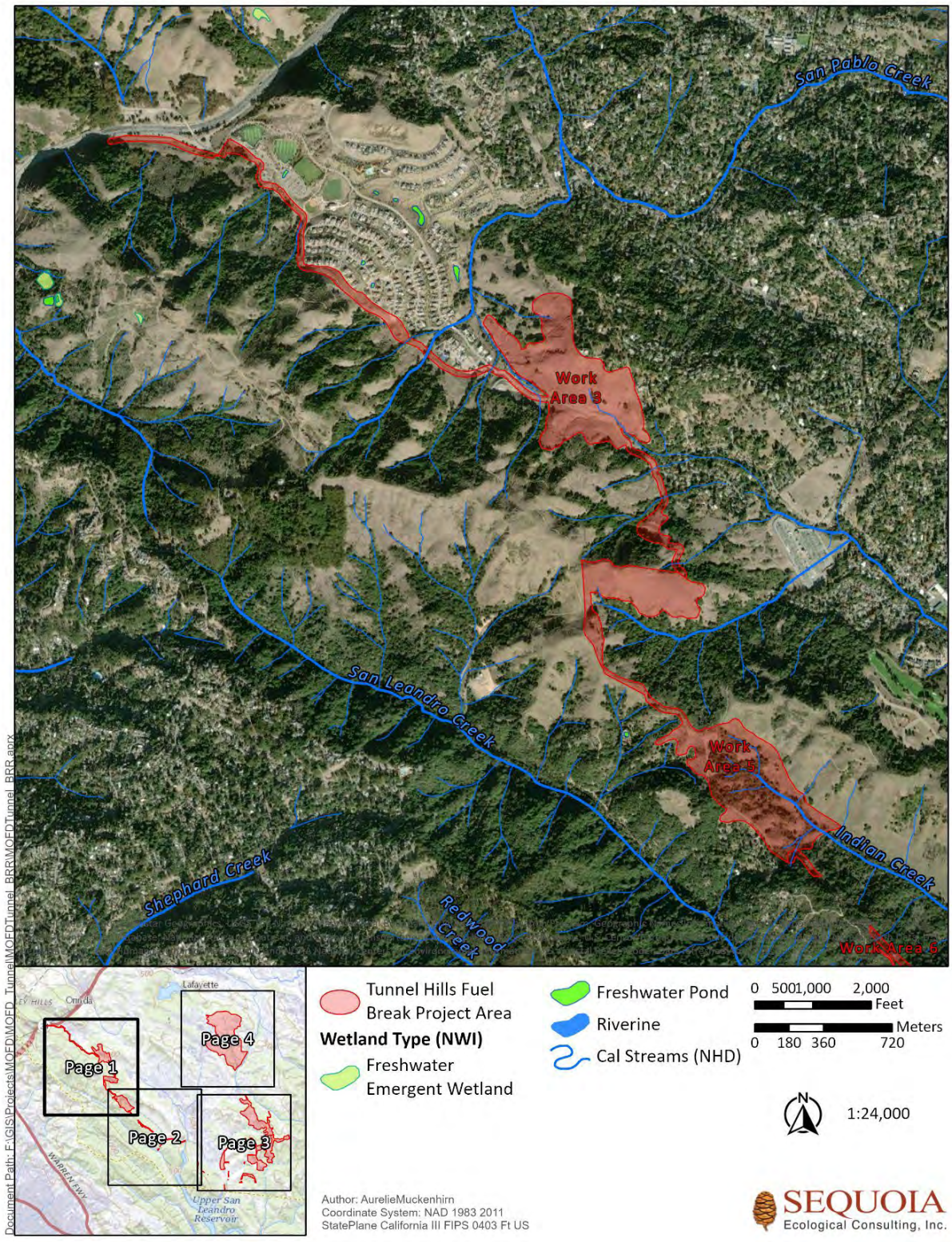

Figure 6a. USFWS National Wetlands Inventory on Tunnel East Bay Hills Shaded Fuel Break Project Site Work Areas 3 and 5

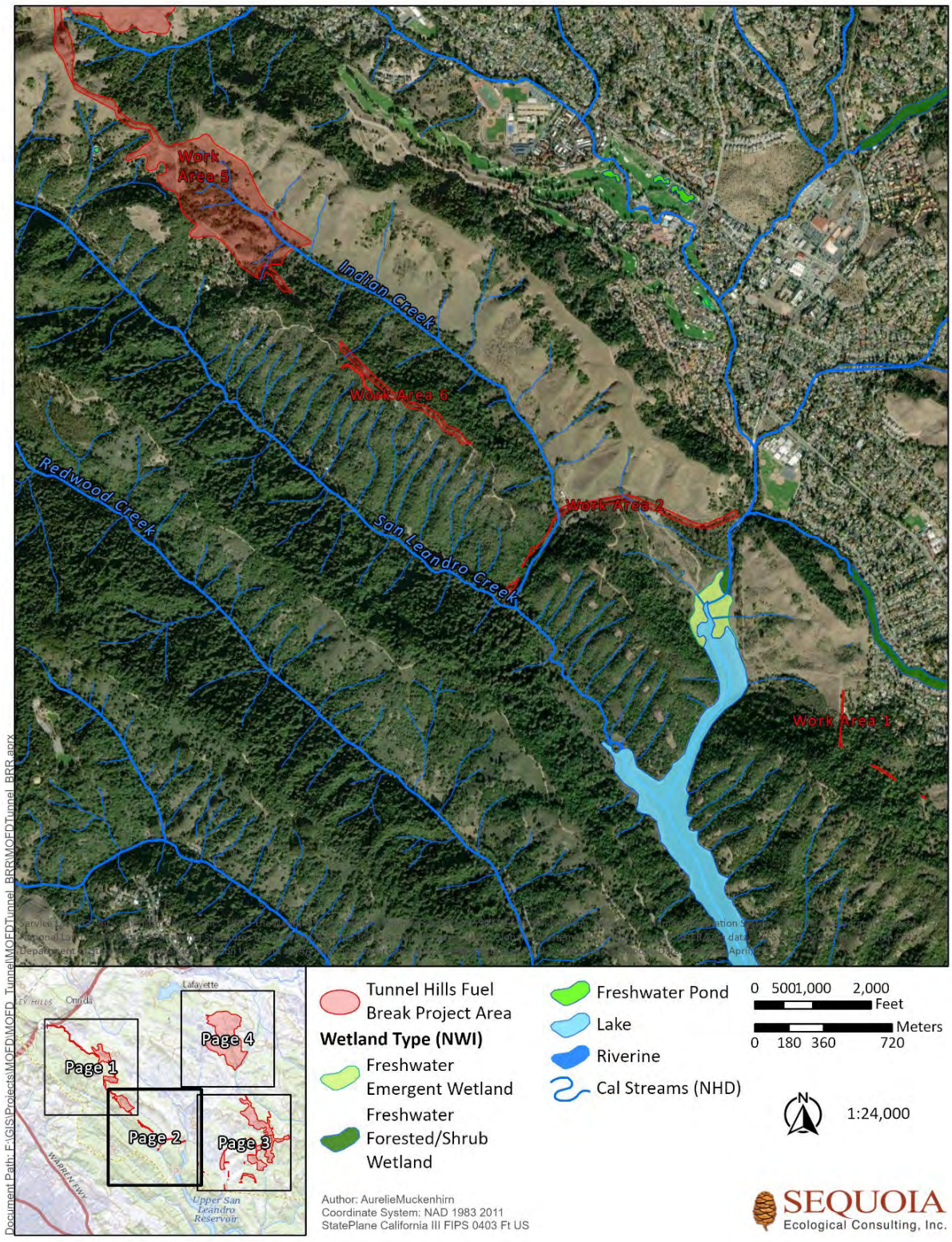

Figure 6b. USFWS National Wetlands Inventory on Tunnel East Bay Hills Shaded Fuel Break Project Site Work Areas 2, 5, and 6

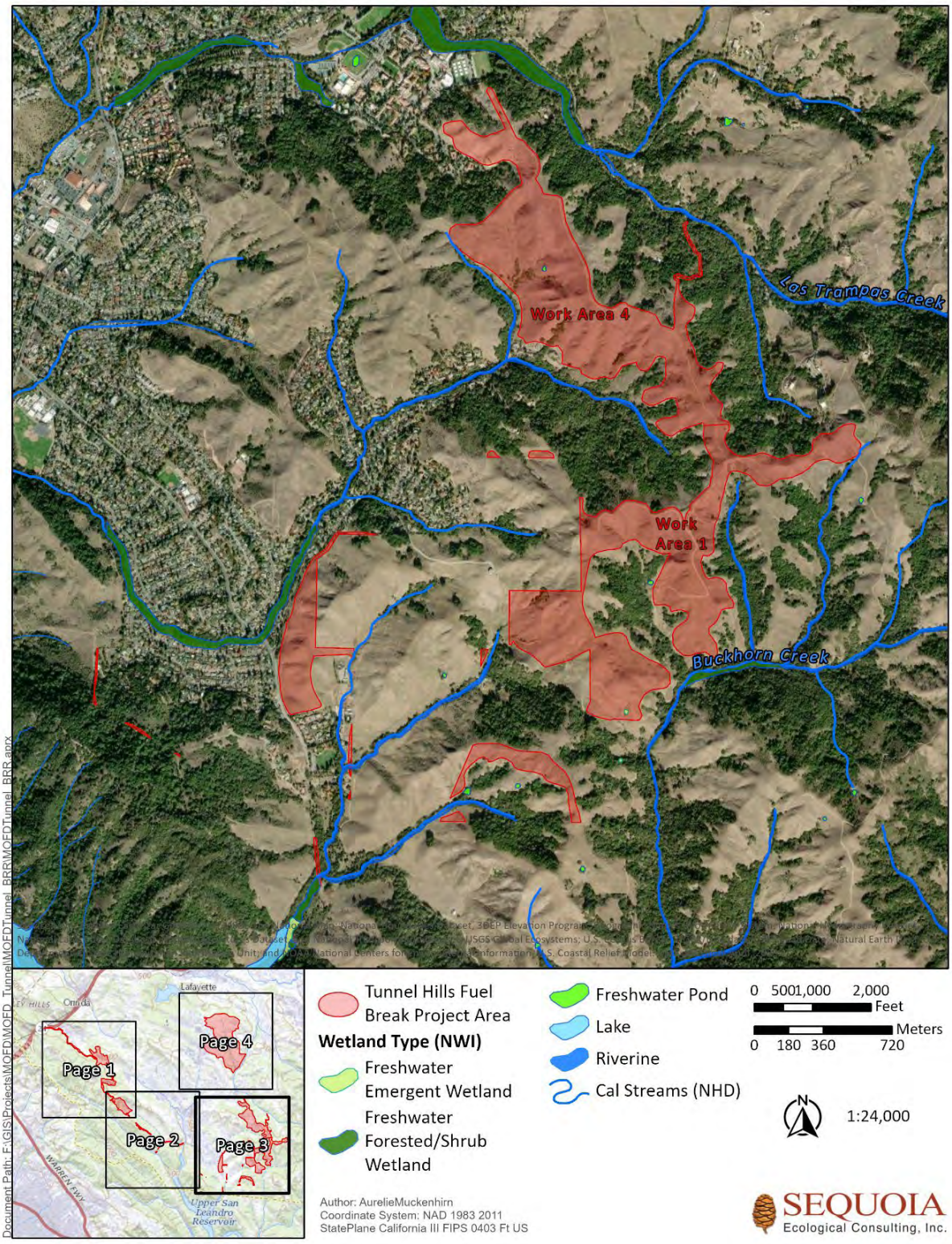

Figure 6c. USFWS National Wetlands Inventory on Tunnel East Bay Hills Shaded Fuel Break Project Site Work Areas 1 and 4 (Southern Portion)

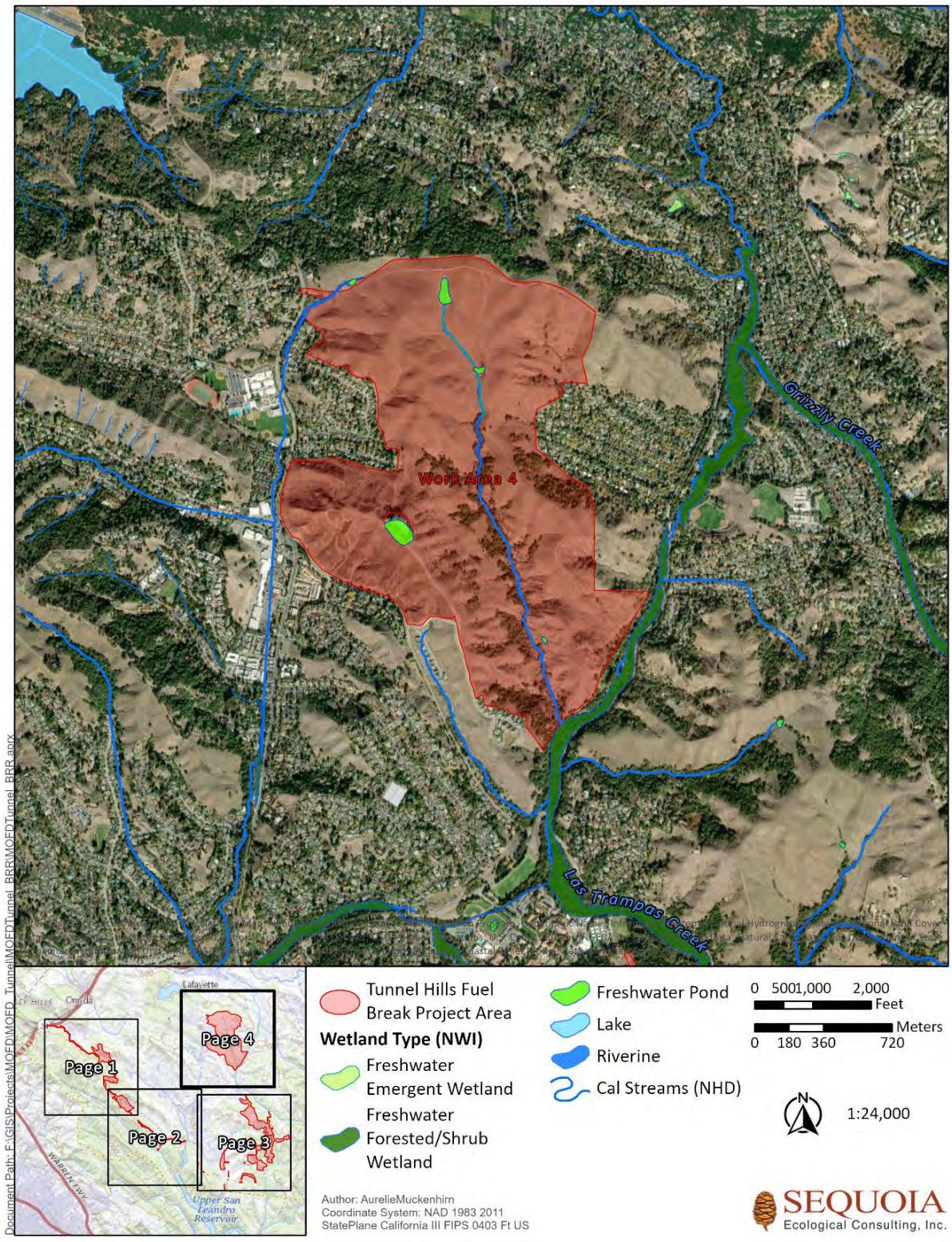

Figure 6d. USFWS National Wetlands Inventory on Tunnel East Bay Hills Shaded Fuel Break Project Site Work Area 4 (Northern Portion)

Twelve (12) sensitive natural communities were identified within the Project footprint, designated as vulnerable in the State of California by CDFW. CWHR's Coastal Oak Woodland type includes associations from both VegCAMP's *Quercus agrifolia* and *Umbellularia californica* primary lifeform categories. Similarly, the CWHR Coastal Scrub type is primarily defined by coyote brush (*Baccharis pilularis*), which falls under VegCAMP's *Baccharis pilularis* (G5S5) primary lifeform category. All the sensitive habitat types were ranked by CDFW as G4, "apparently secure globally," and S3, "vulnerable within the State of California."

6.2.1 Coastal Oak Woodland Habitat Types

- 71.060.00 Coast live oak woodland and forest
    - 71.060.17 *Quercus agrifolia – Arbutus menziesii – Umbellularia californica*
    - 71.060.48 *Quercus agrifolia – Umbellularia californica*

6.2.2 Coastal Scrub Habitat Types

- 32.060.00 Coyote brush scrub
    - 32.060.21 *Baccharis pilularis* / (*Nassella pulchra – Elymus glaucus – Bromus carinatus*)
- 32.015.00 California sagebrush – (purple sage) scrub
    - 32.010.11 *Artemisia californica – Diplacus aurantiacus*
- 37.940.00 Poison oak scrub
    - 37.940.02 *Toxicodendron diversilobum – Artemisia californica / Leymus condensatus*

6.2.3 Annual Grassland Habitat Types

- 43.200.00 California poppy – lupine fields
    - 43.200.02 *Lupinus bicolor*
- 41.081.00 Ashy ryegrass – creeping wildrye turfs
    - 41.080.02 *Leymus triticoides – Bromus* spp*. – Avena* spp.
    - 41.080.04 *Leymus triticoides – Carduus pycnocephalus – Geranium dissectum*
- 41.151.00 Needle grass - melic grass grassland
    - 41.150.01 *Nassella pulchra – Lolium perenne – (Trifolium* spp*.)*
    - 41.150.05 *Nassella pulchra – Avena* spp*. – Bromus* spp*.*
    - 41.150.06 *Nassella pulchra – Erodium* spp*. – Avena barbata*
- 43.300.00 Popcorn flower fields
    - 43.300.02 *Plagiobothrys nothofulvus – Castilleja exserta – Lupinus nanus*

6.2.4 Existing Conditions

During the reconnaissance survey, Sequoia biologists assessed all vegetation types on-site and verified habitats. Vegetation classification broadly followed the classification provided by Sawyer et al. (2009), VegCAMP (2022), and CWHR (Mayer and Laudenslayer 1988; CDFW 2022). Plant naming nomenclature follows the Jepson Manual (Baldwin et al. 2012) and Jepson eFlora Project (2022). Of the habitat types found within Contra Costa County, six different broad vegetation types within the overall plant communities identified during the desktop analysis were confirmed on the Project area during surveys (Figure 4a-4d).

The plant communities identified during the protocol-level floristic surveys include coastal oak woodland, coastal scrub, annual grassland, freshwater emergent wetlands, lacustrine, barren, and urban habitats. These CWHR level classifications have been placed under a broad classification system based on the CDFW CWHR System and California Sensitive Natural Habitats.

Coastal Oak Woodland

This habitat consisted of an overstory of deciduous and evergreen hardwoods, primarily oak species 4.5-15 and up to 70 feet sometimes mixed with scattered conifers such as Monterey pine (*Pinus radiata*). In mesic sites, trees are dense and form a closed canopy; in drier sites, trees are widely spaced, forming an open woodland or savannah. The understory varies from a dense cover of shade-tolerant shrubs, ferns, and herbs to sparse cover with a thick carpet of plant litter. Where the trees were scattered and form open woodland, the understory is grassland, sometimes with scattered shrubs. Especially along coastal regions, coast live oak is the only overstory species. In mesic forests, codominant trees in the canopy are characteristic of mixed evergreen forests with coast live oak such as California bay, madrone, and tanbark oak (*Notholithocarpus densiflorus*). In drier areas, coast live oak is mixed with valley oak and various conifers.

A typical understory consisted of dense shade-tolerant shrubs and herbs such as California blackberry (*Rubus ursinus*), creeping snowberry (*Gaultheria hispidula*), toyon, French broom (*Genista monspessulana*), California coffeeberry (*Frangula californica*), and coyote brush as well as herbaceous plants such as bracken fern (*Pteridium aquilinum*), California polypody (*Polypodium glyccorhiza*), hedgeparsley (*Torilis arvensis*), wakerobin (*Trillium* spp.), and miner's lettuce (*Claytonia parviflora*). Variability in slope aspect and conditions of site altered the composition of the understory.

Coastal oak woodland accounts for approximately 120 acres (9.1%) of the Project site (Figure 4a-4d, Table 1).

Coastal Scrub

Coastal scrub is a complex of plant associations that is typified by shrubs with drought tolerance and semi-woody stems growing from a woody base, primarily composed of a low-growing shrub layer. The typical scrub follows identification with southern sage scrub, which is typical of inland central areas around and including Mt. Diablo, and most southern stands. The canopy cover of coastal scrub in the Project area was usually dense. Light penetrated open areas to support an herbaceous understory, although bare areas are sometimes present through the canopy.

In California, typical southern sage scrub habitat is subdivided into three main types separated by aridity of the regions and species composition. The most mesic area occurs in the survey area from Mt. Diablo south to Santa Barbara. Coastal scrub does not typically have a normal dominant type of vegetation. Within the scrub habitat, most dominant cover was coyote brush and California sagebrush (*Artemesia californica*). In Work Area 5 on southwest-facing slopes, mixed scrub was present with California sagebrush and silver bush lupine (*Lupinus albifrons*) composing the dominant plant life in the overstory. There was no understory observed and was primarily barren ground. Small trees such as coast live oak and California bay laurel were present but in poor growing condition.

Coastal scrub accounts for approximately 67 acres (5.1%) the Project site (Figure 4a-4d, Table 1).

Annual Grassland

Annual grassland habitats are open grasslands composed primarily of annual forbs and grasses that include non-native and native species. The grasslands on-site were heavily impacted by cattle grazing and recent abnormal anthropogenic fire regimes. The annual grasslands were primarily non-native grasses consisting of wild oat (*Avena fatua*), annual goatgrass (*Aegilops triuncialis*), dogstail grass (*Cynosurus echinatus*), ripgut brome (*Bromus diandrus*), and red brome (*Bromus madritensis*). 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 are present during summer if grasslands are not grazed. There are a multitude of other species that make up the lesser mosaic of grasslands, including soft chess (*Bromus hordeaceus*), wild barley (*Hordeum marinum*), and foxtail fescue (*Fustuca myuros*). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*Erodium cicutarium*), turkey mullein (*Croton setiger*), clovers (*Trifolium* spp.), bur clover (*Medicago polymorpha*), and popcorn flower (*Plagiobothrys* spp. and *Cryptantha* spp.). Native species observed included California poppy (*Eschscholzia californica*), purple needlegrass (*Stipa pulchra*), creeping wild rye *(Elymus triticoides*), and blue wild rye (*Elymus glaucus*).

Annual grassland accounts for approximately 1,121 acres (85%) of the Project site (Figure 4a-4d, Table 1).

Freshwater Emergent Wetlands

Freshwater emergent wetlands were found throughout the Work Areas. This habitat was characterized by erect, rooted herbaceous hydrophytes (aquatic vegetation). All emergent wetlands consisted of frequently flooded ponds and depressions, with enough of a root system in the bed to survive any anaerobic vegetation. Vegetation varied in size from small clumps to vast areas. This habitat lacks a discernable canopy but consisted of hydrophytic vegetation, including big leaf sedge (*Cyperus eragrostis*), baltic rush (*Juncus balticus*), saltgrass *(Distichlis spicata*), common rush (*Juncus effusus*), and red willow on the fringes on-site, where the soil was saturated. In the middle of open water, cattails (*Typha* spp.), bulrush (*Schoenoplectus* spp.) and arrowhead (*Alisma* spp.) were present.

Freshwater emergent wetland accounts for approximately 0.3 acre (0.02%) of the Project site (Figure 4a-4d, Table 1).

Lacustrine

Lacustrine habitats are inland depressions or dammed rivers or channels that contain standing water. Within the Work Areas, small ponds (< 1 hectare) and livestock ponds were created for grazing cattle. The depths of these pools varied from 5 to 30 feet. Most permanent lacustrine systems support fish life and shallow pools that are vernally filled normally support plant life, including annual grasses, cattails, and non-native forbs. Lacustrine habitats on-site did not support vegetation, but suspended algae, cattails, *Alisma* spp., duckweed (*Lemna minor*), and water fern (*Azolla filiculoides*) made up the dominant plant life.

Lacustrine habitat accounts for approximately 3 acres (0.2%) of the Project site (Figure 4a-4d, Table 1).

Barren

Barren habitat is non-vegetated open rock, gravel, or soil. Any habitat with < 2 percent total vegetation cover by herbaceous, desert, or non-wildland species and < 10 percent cover by tree or shrub species is considered to be barren. Barren habitat may be found adjacent to many different habitat types. These environments, which are inhospitable for vegetation, typically include areas located in extremely hot or cold climates, areas adjacent to vertical slopes, areas with impermeable substrates, areas subject to frequent disturbance from humans or natural forces, or areas that are lacking organic matter or are excessively saline.

Barren accounts for approximately 0.5 acre (0.04%) of the Project site (Figure 4a-4d, Table 1).

Urban

Urban habitat includes grass lawns, ornamental trees, and hedges; soil is typically compacted from human activity. Vegetation is typically non-native and is distributed in a denser variable mosaic that may be actively landscaped. Urban habitats are not limited in their distribution. These environments are typically 37.4-41 degrees Fahrenheit warmer than the adjacent undeveloped landscape. Wind is typically reduced in urban areas, though tall structures can create a canyon effect providing opportunities for high velocity wind.

Urban accounts for approximately 7 acres (0.5%) of the Project site (Figure 4a-4d, Table 1).

6.2.5 Sensitive Habitats

Sensitive Habitat Types

Eleven (11) sensitive habitat types were identified within the Project footprint, designated as vulnerable in the State of California by CDFW. CWHR's Coastal Oak Woodland type includes associations from both VegCAMP's *Quercus agrifolia* and *Umbellularia californica* primary lifeform categories. Similarly, the CWHR Coastal Scrub type is primarily defined by coyote brush, which falls under VegCAMP's *Baccharis pilularis* (G5S5) primary lifeform category. All the sensitive habitat types were ranked by CDFW as G4, "apparently secure globally," and S3, "vulnerable within the State of California."

Coastal Oak Woodland

Within the coastal oak woodland, there are several sensitive habitats that fall within the oak woodland sub-categories alliances under VegCAMP classification and *A Manual of California Vegetation* (Sawyer et al. 2009). These are broken down below:

- 71.060.00 Coast live oak woodland and forest
    - 71.060.17 *Quercus agrifolia – Arbutus menziesii – Umbellularia californica*
    - 71.060.48 *Quercus agrifolia – Umbellularia californica*

Coastal Scrub

Within the coastal scrub, there are several sensitive habitats that fall within the oak woodland sub-categories alliances under VegCAMP classification and *A Manual of California Vegetation* (Sawyer et al. 2009). These are broken down below:

- 32.060.00 Coyote brush scrub
    - 32.060.21 *Baccharis pilularis* / (*Nassella pulchra – Elymus glaucus – Bromus carinatus*)
- 32.015.00 California sagebrush – (purple sage) scrub
    - 32.010.11 *Artemisia californica – Diplacus aurantiacus*
- 37.940.00 Poison oak scrub
    - 37.940.02 *Toxicodendron diversilobum – Artemisia californica / Leymus condensatus*

Annual Grassland

- 43.200.00 California poppy – lupine fields
    - 43.200.02 *Lupinus bicolor*
- 41.081.00 Ashy ryegrass – creeping wildrye turfs
    - 41.080.02 *Leymus triticoides – Bromus* spp. *– Avena* spp.
    - 41.080.04 *Leymus triticoides – Carduus pycnocephalus – Geranium dissectum*
- 41.151.00 Needle grass - melic grass grassland
    - 41.150.01 *Nassella pulchra – Lolium perenne – (Trifolium* spp.*)*
    - 41.150.05 *Nassella pulchra – Avena* spp. *– Bromus* spp.
    - 41.150.06 *Nassella pulchra – Erodium* spp. *– Avena barbata*
- 43.300.00 Popcorn flower fields
    - 43.300.02 *Plagiobothrys nothofulvus – Castilleja exserta – Lupinus nanus*

Critical Habitat

Of the 1,320-acre Project footprint, approximately 360 acres are within Federally designated Critical Habitat for Alameda whipsnake. All six Work Areas include AWS Critical Habitat that is either within Map Unit 2 or 6 or both (Table 2, Figure 7). Work Areas 2 and 5 are entirely within AWS Critical Habitat. Work Areas 1, 3, 4, and 6 are partially within AWS Critical Habitat. Work Areas 1, 2, 4, 5, and 6 are within Map Unit 2; Work Area 3 is within Map Unit 6; and Work Area 5 is within both Map Units 2 and 6.

Table 2. Critical Habitat Acreage on the Tunnel East Bay Hills Shaded Fuel Break Project

Work Area	Total Work Area Acres	Critical Habitat AWS Map Unit 2 Acreage	Critical Habitat AWS Map Unit 6 Acreage
1	224	198	0
2	8	8	0
3	114	0	18
4	851	22	0
5	112	42	70
6	9	2	0

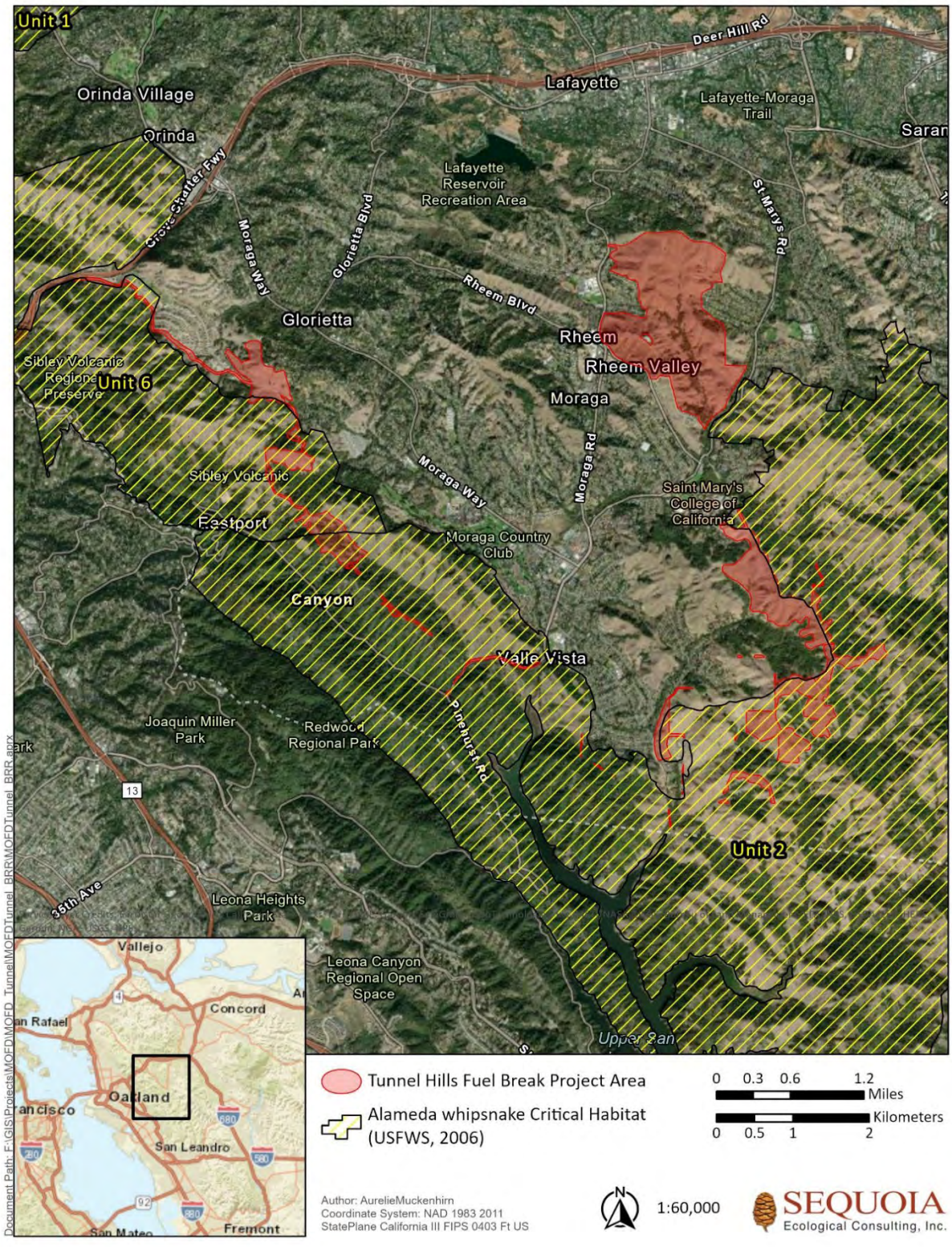

Figure 7. USFWS Critical Habitat in the Vicinity of the Tunnel East Bay Hills Shaded Fuel Break Project Site

6.2.6 Special-Status Plants

Figure 8 provides a graphical illustration for special-status plant species occurrences within 3 miles of the Project site. Table 3 provides an assessment of potential to occur of special-status plant species on the Project site. A total of 76 special-status plants have been previously documented within 3 miles of the Project site; approximately 4 special-status plants have been mapped there. Sequoia analyzed the potential to occur for these plant species, as well as species included in CNPS and resource lists during the desktop review (Section 5). A number of these species require specialized habitats such as coastal marshes, cismontane woodlands, and serpentinite soils that are not found on the Project site. Sixteen (16) special-status plant species have moderate to high potential to occur in the Project vicinity and are described below. Due to lack of suitable habitat and/or lack of known/recent occurrences in the Project vicinity, 60 special-status plant species are not expected to occur and are therefore not discussed further in this analysis (Table 3, Figure 8).

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Bent-flowered fiddleneck *Amsinckia lunaris*	-	-	1B.2	Cismontane woodland, coastal bluff scrub, valley and foothill grassland from 3 to 762 m in elevation. Blooms March-June.	**Moderate Potential all Work Areas**. Valley and foothill grassland is present within all Work Areas; recent occurrences have been recorded within 3 miles of Project site.
California androsace *Androsace elongata* ssp. *acuta*	-	-	4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland elevations 300-3,000 m. Blooms April-August.	No potential. No suitable habitat. Project area does not contain the necessary habitat such as coastal scrub, pinyon and juniper woodland and chaparral.
Slender silver moss *Anomobryum julaceum*	-	-	4.2	Broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest at elevations of 180-1,500 m.	No potential. No suitable habitat. Project area lacks lower montane coniferous forest, and North Coast coniferous forest.
Coast rockcress *Arabis blepharophylla*	-	-	4.3	Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub between 0-1,800 m elevation. Blooms February-June.	No potential. No suitable habitat. Project area does not contain suitable coastal habitat.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Mt. Diablo manzanita *Arctostaphylos auriculata*	-	-	1B.3	Chaparral, cismontane woodland between 300-1,200 m elevation. Blooms January-May.	No potential. Outside species known distribution. Species has a narrow range that is outside Project area. It is endemic only to Mt. Diablo and in surrounding hills.
Contra Costa manzanita *Arctostaphylos manzanita* ssp. *laevigata*	-	-	1B.2	Chaparral between 60-750 m elevation. Blooms January-May.	No potential. No suitable habitat. Project area does not provide dense chaparral patches with manzanita diversity.
Pallid manzanita *Arctostaphylos pallida*	FT	CE	1B.1	Broadleaved upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, coastal scrub between 300-1,650 m elevation. Blooms February-June.	No potential. Project is outside of known species distribution. This species has a narrow range that is outside Project area. It is endemic only to Huckleberry Ridge in Oakland and along the Skyline Trail.
Alkali milk-vetch *Astragalus tener* var. *tener*	-	-	1B.2	Playas, valley and foothill grassland, vernal pools from 0-1,200 m elevation. Blooms March-June.	No potential. No suitable habitat. Project area has valley and foothill grassland but lacks vernal pool habitat required.
Big-scale balsamroot *Balsamorhiza macrolepis*	-	-	1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Blooms March-June at elevations between 300-2,900 m.	**Moderate Potential within all Work Areas.** Project area contains chaparral and valley and foothill grassland with rocky outcrops and shallow soils.
Big tarplant *Blepharizonia plumosa*	-	-	1B.1	Valley and foothill grassland. Blooms July-October at elevations between 0-450 m.	**Moderate Potential in all Work Areas.** Project area contains valley and foothill grassland suitable for this species and occurrences near Mt. Diablo and east Contra Costa.
Brewer's calandrinia *Calandrinia breweri*	-	-	4.2	Chaparral, coastal scrub at elevations between 900-2,700 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks suitable coastal scrub or other chaparral habitat that this species requires.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	-	-	1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Blooms April-June at 300-2,300 m in elevation.	**Moderate potential in Work Areas 3 and 5.** Work Areas 3 and 5 have riparian woodland, chaparral and valley and foothill grassland.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Oakland star-tulip *Calochortus umbellatus*	-	-	4.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland from 100 to 1200 m in elevation. Blooms March-May.	**High potential all Work Areas.** Project area has suitable valley and foothill grassland and occurrences have been reported within 3 miles of the site.
Chaparral harebell *Campanula exigua*	-	-	1B.2	Chaparral between elevations of 450-1,200 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks suitable chaparral habitat that species requires.
Johnny-nip *Castilleja ambigua* var. *ambigua*	-	-	4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools between elevations of 900-2,700 m. Blooms May-August.	No potential. No suitable habitat. Project area lacks coastal habitat and marshes and swamps, including seasonally wet areas.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	-	-	1B.1	Valley and foothill grassland 0-900 m in elevation. Blooms May-October.	**High potential within all Work Areas.** Project area consists of suitable valley and foothill grassland habitat. There are occurrences within 5 miles of the Work Area.
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *palustre*	-	-	1B.2	Marshes and swamps between elevations of 0-300 m. Blooms April-July.	No potential. No suitable habitat. Project area has no marshes or swamps, especially salt marshes.
Robust spineflower *Chorizanthe robusta* var. *robusta*	FE	-	1B.1	Chaparral, cismontane woodland, coastal dunes, coastal scrub between elevations of 0-1,200 m. Blooms April-June.	No potential. No suitable habitat. Project area lacks proper coastal habitat and cismontane woodland.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	-	-	2B.1	Marshes and swamps between elevations of 0-1,800 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks marshes, swamps, and open bodies of water.
Franciscan thistle *Cirsium andrewsii*	-	-	1B.2	Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub between elevations of 0-900 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks coastal habitat and serpentine-influenced zones.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Santa Clara red ribbons *Clarkia concinna* ssp. *automixa*	-	-	4.3	Chaparral, cismontane woodland at elevations between 450-1,350 m. Blooms April-June.	No potential. No suitable habitat. Project area lacks cismontane woodland.
Presidio clarkia *Clarkia franciscana*	FE	CE	1B.1	Coastal scrub, valley and foothill grassland between elevations of 0-90 m. Blooms April-May.	No potential. No suitable habitat. Project area contains proper habitat but no occurrences within the area.
Serpentine collomia *Collomia diversifolia*	-	-	4.3	Chaparral, cismontane woodland at elevations between 450-2,100 m. Blooms May-September.	No potential. No suitable habitat. Project area lacks serpentine-influenced soils.
Mt. Diablo bird's-beak *Cordylanthus nidularius*	-	CR	1B.1	Chaparral between elevations of 90-1,050 m. Blooms June-September.	No potential. Not within known species distribution. This species has a narrow range and generally does not occur outside of Mt. Diablo.
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	-	-	1B.2	Chaparral, cismontane woodland, coastal scrub between elevations of 750-2,400 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks proper cismontane woodland and coastal scrub.
Western leatherwood *Dirca occidentalis*	-	-	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, closed-cone coniferous forest, North Coast coniferous forest, riparian forest, riparian woodland. Blooms January-March at elevations between 0-1,950 m.	**Present in Work Area 3.** This species was observed during reconnaissance surveys in Work Area 3.
Lime Ridge eriastrum *Eriastrum ertterae*	-	CC	1B.1	Chaparral between elevations of 150-450 m. Blooms March-May.	No potential. Outside of species' known distribution. Narrow range near Lime Ridge and Mt. Diablo.
Tiburon buckwheat *Eriogonum luteolum* var. *caninum*	-	-	1B.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland at elevations between 0-300 m. Blooms May-August.	No potential. No suitable habitat. Project area lacks the cismontane woodland and coastal habitats.
Mt. Diablo buckwheat *Eriogonum truncatum*	-	-	1B.1	Chaparral, coastal scrub, valley and foothill grassland at elevations between 150-1,600 m. Blooms July-August.	No potential. Outside of species' known distribution. Narrow range that is restricted to Mt. Diablo.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Bay buckwheat *Eriogonum umbellatum* var. *bahiiforme*	-	-	4.2	Cismontane woodland, lower montane coniferous forest at elevations between 0-460 m. Blooms April-August.	No potential. No suitable habitat. Project area lacks the proper cismontane woodland and montane coniferous forest.
Jepson's woolly sunflower *Eriophyllum jepsonii*	-	-	4.3	Chaparral, cismontane woodland, coastal scrub at elevations between 150-1,600 m. Blooms March-July.	No potential. No suitable habitat. Project area lacks cismontane woodland and coastal scrub.
Jepson's coyote-thistle *Eryngium jepsonii*	-	-	1B.2	Valley and foothill grassland, vernal pools between elevations of 0-914 m. Blooms June-October.	No potential. No suitable habitat. Project area lacks vernal pools on-site or suitable mesic habitats.
Cut-leaved monkeyflower *Erythranthe laciniata*	-	-	4.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest between elevations of 0-1,829 m. Blooms May-September.	No potential. No suitable habitat. Project area lacks montane woodland habitats.
San Joaquin spearscale *Extriplex joaquinana*	-	-	1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland at elevations between 0-152 m. Blooms July-October.	No potential. No suitable habitat. Project area does not contain playas and chenopod scrub within the valley and foothill grassland.
Minute pocket moss *Fissidens pauperculus*	-	-	1B.2	North Coast coniferous forest.	No potential. No suitable habitat. Project area does not contain any suitable North Coast coniferous forest.
Stinkbells *Fritillaria agrestis*	-	-	4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Blooms March-June.	No potential. No suitable habitat. Project area does not contain proper vernal pools and wet areas within habitats.
Fragrant fritillary *Fritillaria liliacea*	-	-	1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Blooms February-April.	No potential. No suitable habitat. Project area does not contain coastal habitat and vernally wet areas.
Phlox-leaf serpentine bedstraw *Galium andrewsii* ssp. *gatense*	-	-	4.2	Chaparral, cismontane woodland, lower montane coniferous forest. Blooms April-July.	No potential. No suitable habitat. Project area lacks cismontane woodland and coniferous forests.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Dark-eyed gilia *Gilia millefoliata*	-	-	1B.2	Coastal dunes between elevations of 0-3,000 m. Blooms April-July.	No potential. No suitable habitat. Project area lacks coastal dunes.
Toren's grimmia *Grimmia torenii*	-	-	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	No potential. No suitable habitat. Project area lacks suitable habitats.
Diablo helianthella *Helianthella castanea*	-	-	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland elevations between 200-1,300 m. Blooms March-June.	**Present in Work Area 4.** This species was observed during reconnaissance survey in Work Area 4.
Hogwallow starfish *Hesperevax caulescens*	-	-	4.2	Valley and foothill grassland, vernal pools. Found at elevations between 0 and 480 m. Blooms March-June.	No potential. No suitable habitat. Project area lacks suitable vernal pool habitat.
Brewer's western flax *Hesperolinon breweri*	-	-	1B.2	Chaparral, cismontane woodland, valley and foothill grassland between elevations of 600-2,100 m. Blooms April-August.	No potential. No suitable habitat. Project area lacks serpentine-influenced soils.
Loma Prieta hoita *Hoita strobilina*	-	-	1B.1	Chaparral, cismontane woodland, riparian woodland. Occurs at elevations of 80-1,060 m. Blooms May-July.	**High potential in all Work Areas.** Project area has suitable habitat in riparian woodland.
Santa Cruz tarplant *Holocarpha macradenia*	FT	SE	1B.1	Coastal prairie, coastal scrub, valley and foothill grassland between elevations of 0-1,000 m. Blooms August-October.	No potential. Outside of species known distribution. Species has narrow range that does not include Project area.
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	-	-	1B.1	Chaparral, closed-cone coniferous forest, coastal dunes, coastal scrub between elevations of 3,000-7,500 m. Blooms May-August.	No potential. No suitable habitat. Project area lacks suitable coastal habitats.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Coast iris *Iris longipetala*	-	-	4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Occurs at elevations from 10 to 320 m. Blooms March-May.	No potential. No suitable habitat. Project area lacks the proper montane and coast meadows.
California black walnut *Juglans californica*	-	-	4.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland between 30-900 m elevation. Blooms March-May.	**High potential in Work Areas 3 and 5** where there is suitable habitat. May also occur as hybridizations between *Juglans regia* or *Juglans hindsii*. Could occur in Work Areas 3 and 5.
Contra Costa goldfields *Lasthenia conjugens*	FE	-	1B.1	Cismontane woodland, playas, valley and foothill grassland, vernal pools between elevations of 0-1,000 m. Blooms March-May.	No potential. No suitable habitat. Project area lacks vernal pools, playas, or water bodies within valley and foothill grassland.
Bristly leptosiphon *Leptosiphon acicularis*	-	-	4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland below 700 m elevation. Blooms April-May.	**High potential in all Work Areas.** Project area contains valley and foothill grassland. This species could occur in all Work Areas.
Serpentine leptosiphon *Leptosiphon ambiguus*	-	-	4.2	Cismontane woodland, coastal scrub, valley and foothill grassland between elevations of 0-1,350 m. Blooms April-June.	No potential. No suitable habitat. Project area lacks serpentine influenced soils.
Large-flowered leptosiphon *Leptosiphon grandiflorus*	-	-	4.2	Cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland between elevations of 0-2,500 m. Blooms March-July.	No potential. No suitable habitat. Project area lacks cismontane woodland and coastal habitats.
Woolly-headed lessingia *Lessingia hololeuca*	-	-	3	Broadleaved upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland between elevations of 0-1,300 m. Blooms August-November.	No potential. No suitable habitat. Project area lacks coastal scrub, montane coniferous forest and suitable habitat within valley and foothill grassland.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Showy golden madia *Madia radiata*	-	-	1B.1	Cismontane woodland, valley and foothill grassland between elevations of 0-1,100 m. Blooms April-July.	No potential. No suitable habitat.
Hall's bush-mallow *Malacothamnus hallii*	-	-	1B.2	Chaparral, coastal scrub between elevations of 30-1,500 m. Blooms May-July.	No potential. No suitable habitat. Project area lacks suitable chaparral and scrub habitat.
Oregon meconella *Meconella oregana*	-	-	1B.1	Coastal prairie, coastal scrub lower than 1,000 m in elevation. Blooms March-May.	**High potential in Work Area 3.** There is potentially suitable habitat in Work Area 3 and there are known occurrences within 1 mile in Sibley Volcanic Regional Park.
Woodland woollythreads *Monolopia gracilens*	-	-	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland between 100-1,200 m elevation. Blooms March-July.	**High potential in all Work Areas.** Project area consists of proper valley and foothill grassland habitat. This species is likely to occur in all Work Areas.
Mt. Diablo phacelia *Phacelia phacelioides*	-	-	1B.2	Chaparral, cismontane woodland between elevations of 150-1,000 m. Blooms March-July.	No potential. No suitable habitat. Project area lacks cismontane chaparral and woodland.
Michael's rein orchid *Piperia michaelii*	-	-	4.2	Chaparral, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal scrub, lower montane coniferous forest less than 700 m in elevation. Blooms April-August.	**High potential in all Work Areas.** Project area has marginally suitable habitat but has been found recently near Project area along Bear Creek Road near the San Pablo Reservoir in Orinda.
San Francisco popcornflower *Plagiobothrys diffusus*	-	CE	1B.1	Coastal prairie, valley and foothill grassland between elevations of 0-100 m. Blooms April-July.	No potential. No suitable habitat. Project area lacks coastal habitat.
Hairless popcornflower *Plagiobothrys glaber*	-	-	1A	Marshes and swamps, meadows and seeps between elevations of 0-2,400 m. Blooms March-July.	No potential. No suitable habitat. Project area lacks marshes and swamps.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Oregon polemonium *Polemonium carneum*	-	-	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest between elevations of 100-2,500 m. Blooms May-July.	No potential. No suitable habitat. Project area does not have coniferous forest and coastal habitat.
Marin knotweed *Polygonum marinense*	-	-	3.1	Marshes and swamps between elevations of 0-300 m. Blooms May-August.	No potential. No suitable habitat. Project area lacks marshes and swamps.
Lobb's aquatic buttercup *Ranunculus lobbii*	-	-	4.2	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools between elevations of 0-1,500 m. Blooms April-July.	No potential. No suitable habitat. Project area lacks open water and vernal pools.
Adobe sanicle *Sanicula maritima*	-	CR	1B.1	Chaparral, coastal prairie, meadows and seeps, valley and foothill grassland between elevations of 0-400 m. Blooms April-July.	No potential. No suitable habitat. Project area lacks clay-based seeps and meadows within valley grassland.
Rock sanicle *Sanicula saxatilis*	-	CR	1B.2	Broadleaved upland forest, chaparral, valley and foothill grassland between elevations of 0-2,400 m. Blooms May-August.	Low potential. There is marginally suitable habitat, and no reported occurrences of this species near Project area.
Chaparral ragwort *Senecio aphanactis*	-	-	2B.2	Chaparral, cismontane woodland, coastal scrub between elevations of 50-1,700 m. Blooms April-July.	No potential. No suitable habitat. Project area contains chaparral and scrub but they are deteriorated; the Project site lacks large patches of coastal scrub and chaparral required for this species.
Long-styled sand-spurrey *Spergularia macrotheca* var. *longistyla*	-	-	1B.2	Marshes and swamps, meadows and seeps. Occurs at elevations from 5 to 170 m. Blooms February-May.	No potential. No suitable habitat. Project area lacks marshes and swamps.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	-	-	1B.2	Chaparral, cismontane woodland, valley and foothill grassland between elevations of 300-1,300 m. Blooms April-June.	No potential. No suitable habitat. Project area has valley and foothill grassland but not serpentine influenced soils.
Mt. Diablo jewelflower *Streptanthus hispidus*	-	-	1B.3	Chaparral, valley and foothill grassland between elevations of 400-900 m. Blooms April-May.	No potential. No suitable habitat. Project area lacks serpentine influenced soils.

Table 3. Special-Status Plant Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		CNPS Rank	Habitat	Potential for Occurrence
	Federal	State			
Northern slender pondweed *Stuckenia filiformis* ssp. *alpina*	-	-	2B.2	Marshes and swamps between elevations of 0-3,000 m. Blooms May-September.	No potential. No suitable habitat. Project area lacks marshes and swamps.
California seablite *Suaeda californica*	FE	-	1B.1	Marshes and swamps between elevations of 0-10 m. Blooms July-October.	No potential. No suitable habitat. Project area lacks marshes and swamps.
Saline clover *Trifolium hydrophilum*	-	-	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools between elevations of 0-1,500 m. Blooms March-June.	No potential. No suitable habitat. Project area lacks marshes, swamps, and vernally inundated areas.
Coastal triquetrella *Triquetrella californica*	-	-	1B.2	Coastal bluff scrub, coastal scrub elevations between 0-10 m. Blooms April-June.	No potential. No suitable habitat. Project area lacks coastal bluff and coastal scrub.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	-	-	1B.1	Valley and foothill grassland elevations under 400 m. Blooms March-April.	**High potential in all Work Areas.** Project area has suitable habitat and downed logs within valley and foothill grassland.
Oval-leaved viburnum *Viburnum ellipticum*	-	-	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest between 300-1,400 m elevation. Blooms May-July.	**High potential in all Work Areas.** Project site has potentially suitable habitat.

Key to listing status:
FE=Federally listed as endangered species
FT=Federally listed as threatened species
CC=California candidate species for state listing
CE=California listed as endangered species
CR=California rare plant species

CNPS Rare Plant Rank
1A=Plants presumed extirpated in California, and either rare or extinct elsewhere
1B=Plants rare, threatened, or endangered in California, or elsewhere
2A=Plants presumed extirpated in California but common elsewhere
2B=Plants rare, threatened, or endangered in California but more common elsewhere
3=Plants about which more information is needed
4=Plants limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly

Due to potentially suitable habitat on the Project site and known occurrences in the vicinity of the Project site, 16 special-status plant species are assessed in more detail below for potential to occur on the Project site.

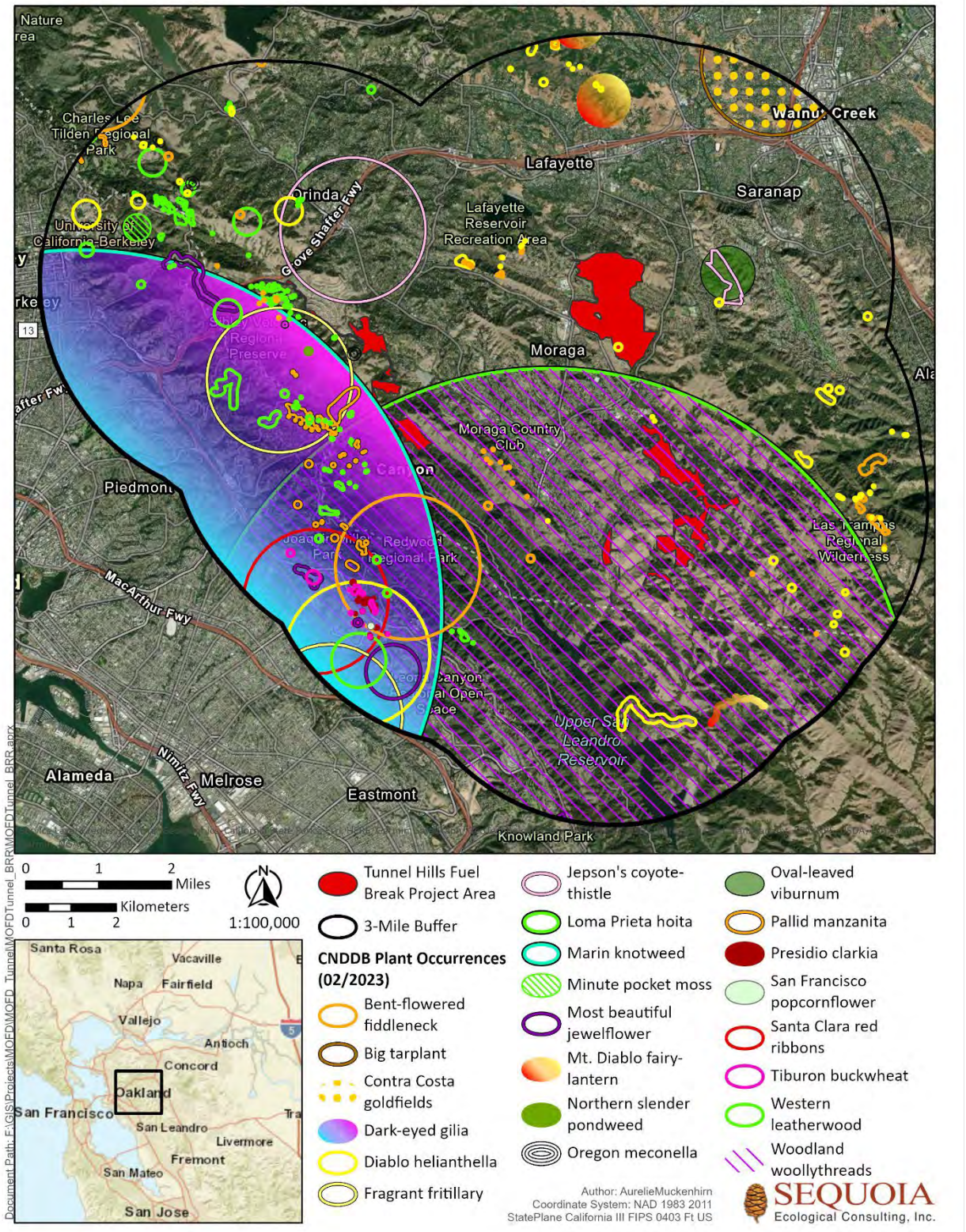

Figure 8. Closest Known Records for Special-Status Plant Species Within 3 Miles of the Tunnel East Bay Hills Shaded Fuel Break Project Site

Bent-Flowered Fiddleneck

Bent-flowered fiddleneck (*Amsinckia lunaris*) is an annual forb in the borage family Boraginaceae. It has a CNPS Ranking of 1B.2 and no state or Federal listing. It blooms from March to June, with large racemes of orange-red, trumpet-shaped flowers. Flowers will have red dots on the throat. This species is found primarily growing in cismontane woodland, coastal bluff scrub, and valley and foothill grassland from 9 to 2,500 feet in elevation. It is primarily found growing in open, heavily grazed grasslands throughout Contra Costa County.

Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is a perennial forb in the sunflower family Asteraceae. It has a CNPS Rank 1B.2 (rare or endangered in California and elsewhere, fairly endangered in California) and has no state or Federal listing. It blooms from March and June, with large, yellow, sunflower-like flowers. This species is found in chaparral, cismontane woodland, and valley and foothill grassland, primarily in areas with shallow soils and rocky outcrops.

Big Tarplant

Big tarplant (*Blepharizonia plumosa*) is a perennial forb in the sunflower family Asteraceae. This species has an involucre that is generally canescent and also has scattered tack-shaped glands, with basal or cauline leaves that wither before flowering. It has a CNPS Rank of 1B.1 and no state or Federal listing. It blooms from July to October, with showy white flowers with both rays and disc flowers present. This species is found on dry slopes within valley and foothill grassland, chaparral, and foothill woodland.

Mt. Diablo Fairy-Lantern

Mt. Diablo fairy lantern (*Calochortus pulchellus*) is a perennial bulbiferous plant in the lily family Liliaceae. This species is identified by a green erect stem, yellow, spheric, four-parted nodding flowers with hairy inner petals and large filaments. It is a CNPS Rank 1B.2 (rare or endangered in California and elsewhere, fairly endangered in California) and has no state or Federal listing. It blooms from April to June. This species is found on foothill woodland and foothill and valley grassland, on wooded slopes, generally on northern aspect, but rarely in chaparral, from 490 to 3,000 feet in elevation.

Oakland Star-Tulip

Oakland star-tulip (*Calochortus umbellatus*) is a perennial bulbiferous herb in the lily family Liliaceae. This species is identified by a short, two-branched stem, with a bell-shaped perianth that can be white or pale pink-lilac with generally purple-spotting at base. It has a CNPS Rank 4.2 (plants of limited distribution; fairly threatened in California) and no state or Federal listing. It blooms from March to May. This species occurs in yellow pine forest, mixed evergreen forest, chaparral, and valley grassland, normally in woodland openings and typically on serpentine-influenced soils from 80 to 2,460 feet in elevation.

Congdon's Tarplant

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) is an annual forb in the sunflower family Asteraceae. This species can be identified by leaves with glabrous or coarsely hairy, seldom glandular, with sometimes stalked yellow glands among non-glandular hairs. The flowers are coarse-hairy and seldom glandular, sometimes with minute, stalked, yellow glands among non-glandular hairs and an involucre .15 to .35 inches with palea lacking purple lines. It has a CNPS Rank 1B.1 and has no state of Federal listing. It blooms from for May to October. This species occurs in valley grassland and wet areas, normally associated with wetlands and mesic soils of terraces, swales, and floodplains from 0 to 984 feet in elevation.

Diablo Helianthella

Diablo helianthella (*Helianthella castanea*) is a perennial forb in the sunflower family Asteraceae. This species can be identified by mostly basal and some cauline leaves that are narrowly to widely elliptic, one large head with a peduncle 7 to 20 cm, stout, with rough-hairy, often with 1-few bracts near tip; involucre 2.5-4 cm diameter; outer phyllaries generally leaf-like, 3-10 cm, 7-20 mm wide, curving up around head; inner phyllaries 2-2.5 cm, coarsely ciliate. It is ranked as 1B.2 by CNPS but with no state or Federal listing status. It is currently also ranked as state S2/global G2 (imperiled). It is often found in open grassy sites at elevations between 200-1,300 m, but can also be found in woodlands, chaparral, and coastal scrub areas. The flowering time for this species is March-June.

Western Leatherwood

Western leatherwood (*Dirca occidentalis*) is a deciduous shrub growing along moist shaded slopes in most of Contra Costa County. It has leaves that are 3-7 cm, with clustered pendant yellow flowers that arrive after leaves have fallen. It is ranked as a 1B.2 by CNPS but with no state or Federal listing status. It is currently also ranked as state S2/global G2 (imperiled). It is often found on shaded north or northeastern facing slopes in mixed evergreen forest to chaparral, or within the fog belt. Western leatherwood blooms from January to March.

Loma Prieta Hoita

Loma Prieta hoita (*Hoita strobilina*) is an evergreen perennial vine to subshrub in the pea family Fabaceae. This species is identified by an erect, smooth to striate stem with leaves with a stipule 7 to 16 mm, becoming reflexed. The petioles are 3 to 7 cm and leaflets are 4.5 to 8 cm often lanceolate to round. The inflorescence 3 to 8 cm with a bract 15 to 21 mm, peduncle 4 to 6 cm and flowers that 13 to 19 mm and a calyx 13 to 17 mm, banner 12-13 mm. It has a CNPS rank of 1B.1 and no state or Federal listing. It is currently also ranked as state S2/global G2 (imperiled). The flowering period for this species is May to July.

California Black Walnut

California black walnut (*Juglans californica*) is a tree species endemic to California and located in oak woodlands, hillsides, and canyons between 30-900 m elevation. The trunk measures 6-9 m and has

petiole leaves measuring 2-5 cm. The leaflets are generally narrow-elliptic to -lance-elliptic, are rounded to acute and abaxial vein axils glabrous. They flower from March to May and produce 2-3.5 cm diameter nuts in a thick shell which are shallow and grooved. It is ranked as a 4.2 by CNPS but with no state or Federal listing status. It is currently also ranked as state S4/global G4 (uncommon but not rare).

Bristly Leptosiphon

Bristly leptosiphon (*Leptosiphon acicularis*) is an annual herb found primarily in grassy areas as well as woodland and chaparral below 700 m in elevation. It has a stem height of 3-15 cm and lobes of needle-like leaves 3-11 mm. The flower is calyx 5-10 mm and densely glandular-hairy with a membrane much narrower than the needle-like lobes and has corolla salverform, tube 7-20 mm, thread-like, yellow or +- pink, lobes 3(5) mm, oblanceolate to obovate, bright yellow. This species blooms from April through May. It is ranked as a 4.2 by CNPS but with no state or Federal listing status. It is currently also ranked as state S4/global G4 (uncommon but not rare).

Oregon Meconella

Oregon meconella (*Meconella oregana*) is an annual herb can be found primarily in coastal shaded canyons, prairies, and scrub habitats lower than 1,000 m in elevation. It ranges from 2-16 cm with leaves of 3-18 mm which are entirely to minutely toothed. The flowers include petals which are 1-5mm, stamens 4-6, in one series with anthers widely elliptic to round; they have a receptacle with expanded ring beneath the sepals. The Oregon meconella blooms from March to May and produces fruit which are 20-30 mm. It has a CNPS rank of 1B.1 and no state or Federal listing. It is currently also ranked as state S2/global G2G3 (imperiled/vulnerable).

Woodland Woollythreads

Woodland woollythreads (*Monolopia gracilens*) is an annual herb that is endemic to California. It has an erect stem with branches mostly distal, and an inflorescence with radiate heads, peduncle 2-12 cm, involucre 5-7 mm, phyllaries 7-11, elliptic-oblanceolate, free. The flowers are either Ray: 5-10 mm, entire or slightly lobed; or Disk: corolla 2.5-4 mm, 5-lobed, funnel-shaped; lobes with glandless hairs. They bloom between March and July and can be found in serpentine grasslands, open chapparal, and oak woodlands between 100-1,200 m elevation. This species is ranked as a 1B.2 by CNPS but with no state or Federal listing status. It is currently also ranked as state S3/global G3 (vulnerable).

Michael's Rein Orchid

Michael's rein orchid (*Piperia michaelii*) is a perennial herb that is endemic to California and found in northern coastal and sage scrub, forests, and foothill woodlands less than 700 m in elevation. It is 9-70 cm with leaves of basal 7-30 cm and 10-40 mm wide, the flowers have a strong, pleasant fragrance; perianth green to yellow-green; upper sepal ascending, lower spreading; lateral petals +- ascending, +- concave, lip 1.7-6 mm, deltate-ovate, spur 8-12 mm, +- curved, generally pointed down. They bloom from April-August. It is ranked as a 4.2 (uncommon in California, moderately threatened in California) by CNPS but with no state or Federal listing status. It is currently also ranked as state S3/ global G3 (vulnerable).

Caper-Fruited Tropidocarpum

Caper-fruited tropidocarpum (*Tropidocarpum capparideum*) is an annual herb species that is identified by a 1.5-7 dm. stem; leaves that are a proximal cauline blade 1.2-7 cm; lateral lobes entire, pairs 3-6; flowers have sepals 2.5-3.5 mm; petals 3-5 mm, 1.5-2 mm wide, obovate to spoon-shaped, yellow, occasionally tinged purple. This species flowers from March-April and produces silique fruit about 0.9-2 cm. It prefers alkaline soils in low hills and valleys with elevations under 400 m. It has a CNPS rank of 1B.1, but has no state or Federal listing status. It is currently also ranked as state S1/global G1 (critically imperiled).

Oval-Leaved Viburnum

Oval-leaved viburnum (*Viburnum ellipticum*) is a deciduous shrub. This species can be identified by petiole leaves 6-12 mm, without glands, with many non-glandular hairs throughout; blade 2-6 cm, elliptic to round or cordate, unlobed, coarsely dentate above middle. The flowers are 6-8 mm diameter, white, and occur in flat-topped clusters that are up to 12 cm wide. The flower buds are pink, and the flowers bloom from May to July. The fruit of oval-leaved viburnum is a drupe which is about 6-10 mm in diameter and contains a single seed. Oval-leaved viburnum typically grows in chaparral, yellow-pine forests, and north facing slopes between 300-1,400 m elevation. It has a rank of 2B.3 by CNPS but no state or Federal listing status. It is currently also ranked as state S3/global G4G5 (vulnerable/uncommon but not rare).

6.2.7 Special-Status Animals

Table 4 provides an assessment of potential to occur for special-status animal species on the Project site. Figure 9 provides a graphical representation of special-status animal species occurrences within 3 miles of the Project site. Eighteen (18) special-status animal species have been previously documented (CNDDB occurrences) within 3 miles. Sequoia analyzed the potential to occur for these animal species, as well as species included in resource lists, during the desktop review (Section 5). A number of these species require specialized habitat such as tidally influenced marshes that are not found on the Project site. Twelve (12) special-status animal species have moderate to high potential to occur in the Project vicinity and are described below. Due to lack of suitable habitat and/or lack of recent occurrences in the Project vicinity, six (6) special-status animal species are not expected to occur and are therefore not discussed further in this analysis (Table 4, Figure 9).

Table 4. Special-Status Animal Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		Habitat	Potential for Occurrence
	Federal	State		
Invertebrates				
Crotch bumble bee *Bombus crotchii*	-	CC	Inhabits grassland and scrub areas, requiring a hotter and drier environment than other bumble bee species.	Low potential. Possibly extirpated but not confirmed. Regional CNDDB records are from 1926 and 1957.
Western bumble bee *Bombus occidentalis occidentalis*	-	CC	Frequents chaparral, valley foothill and grassland, and oak woodlands, where there is an abundance of nectar plants and soft ground to create burrows.	**High potential in all Work Areas.** Suitable grassland and forest habitat is present throughout the Project area, and this species and bumble bee burrows have been observed throughout the area.
Monarch butterfly *Danaus plexippus*	-	CC	Found throughout their range in meadows, grasslands, and prairies. Also found in urban and wet areas where ample populations of milkweed are found.	**High potential in all Work Areas.** This species has been observed in all habitat types, especially along riparian and grasslands.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT	-	Found on shallow serpentine derived soils. Primary larval host plant dwarf plantain (*Plantago erecta*) utilized until it dries up. Then relies on purple owl's clover (*Castilleja densiflora or C. exserta*).	No potential. No suitable habitat. No serpentine soils are known to occur within the Work Area and were not observed during preliminary surveys.
California tiger salamander *Ambystoma californiense*	FT	ST	Occurs in vernal and seasonal pools and associated grasslands, oak savannah, woodland, and coastal scrub. Needs underground refuges (i.e., small mammal burrows, pipes) in upland areas such as grassland and scrub habitats.	No potential. Outside of specie's known distribution. Only one CNDDB occurrence within 3 miles that is listed as extirpated. In addition, species is generally not considered to be present in the Orinda/Moraga area, even though there is potentially suitable aquatic and upland habitat within the Work Areas.
Foothill yellow-legged frog *Rana boylii*	-	SE, SSC	Occurs in rocky, slow-moving streams with open canopy from Oregon to southern California and through the foothills of the Sierras.	No potential. Considered extirpated from the area; no suitable habitat. All CNDDB occurrences within 3 miles consider species to be extirpated, except one observation that is not within or directly adjacent to the Work Areas. In addition, there is no suitable habitat such as cobbled slow-moving streams known to occur in the Work Areas, and no suitable habitat was observed during preliminary surveys.

Table 4. Special-Status Animal Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		Habitat	Potential for Occurrence
	Federal	State		
California red-legged frog *Rana draytonii*	FT	SSC	Occurs in semi-permanent or permanent water at least 2 feet deep, bordered by emergent or riparian vegetation, and upland grassland, forest, or scrub habitats for aestivation and dispersal.	**Moderate potential in all Work Areas.** Potentially suitable aquatic and upland habitat are present (ponds and creeks) and adjacent to the Project area. Suitable riparian and breeding ponds were found in all the Work Areas.
California newt *Taricha torosa*	-	SSC	Occurs in mixed chaparral, oak savannah, woodland and coastal scrub, redwood, closed cone pine forest, eucalyptus stands, and valley grasslands.	**High potential in all Work Areas.** Occurrences of species throughout Diablo Range and suitable breeding and upland habitat. Suitable breeding ponds in Work Areas 4 and 5. Suitable dispersal habitat found throughout all the Work Areas.
Western pond turtle *Emys marmorata*	-	-	Occurs in rivers, ponds, and freshwater marshes, and nests in upland areas (sandy banks or grassy open fields) up to 1,640 feet from water.	**Moderate potential in Work Area 4.** Potentially suitable aquatic habitat within ponds and streams in and adjacent to Work Area 4. May potentially disperse into upland areas in the Project area adjacent to streams.
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT	ST	A fast-moving, diurnal predator; actively hunts with head held high. Limited range, mostly in Alameda and Contra Costa counties, utilizing chaparral, scrub, and rocky outcrops as core habitat. Also uses surrounding woodlands and grassland for foraging and dispersal.	**High potential in all Work Areas.** The Project site overlaps with Critical Habitat Units 2 and 6. There are small patches of potentially suitable scrub or chaparral habitat that AWS could occupy, and the species has been observed adjacent to the Project footprint.
Golden eagle *Aquila chrysaetos*	-	FP	Utilizes rocky cliff faces and woodland for breeding, and forages in open grassland for squirrels, rabbits, and other medium-sized mammals.	**Present; high potential in all Work Areas for foraging/ dispersing.** Known to occur. Individual observed soaring and foraging at Work Area 4. May nest within the Project area, and is expected use the Project area for foraging or dispersing through the East Bay. The significant amount of urban area present within and surrounding the Work Areas likely reduce their suitability as nesting habitat.

Table 4. Special-Status Animal Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		Habitat	Potential for Occurrence
	Federal	State		
American peregrine falcon *Falco peregrinus anatum*	Delisted	Delisted, FP	Inhabits open wetlands near cliffs, also occurs in some cities where nests on buildings and bridges.	**Moderate potential in all Work Areas for foraging.** No suitable nesting habitat. Minimal to no suitable nesting habitat within the Work Areas, but potential nesting habitat is near the Work Areas. Peregrine falcon may use the Work Area for foraging or dispersal.
Alameda song sparrow *Melospiza melodia pusillula*	-	SSC	Endemic to California, where it is restricted to tidal salt marshes on the fringes of south San Francisco Bay. Found in relatively large marshes and in remnant patches of marsh vegetation along sloughs, dikes, and levees, including some highly disturbed and urbanized sites.	No potential. No suitable habitat, such as tidally influenced marshes or sloughs, are present in the Work Areas.
Mammals				
Pallid bat *Antrozous pallidus*	-	SSC	Occurs in deserts, grasslands, shrublands, woodlands, and forest. Most common in open, dry, habitats with rocky area for roosting. Roost must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate potential in all Work Areas for roosting/ foraging.** Potential roosting habitat may occur within crevices of woodlands and forests within Work Areas. Suitable foraging habitat present throughout the Project area.
Townsend's big-eared bat *Corynorhinus townsendii*	-	SSC	Found in a wide variety of habitats, including deserts and high-elevation mixed/coniferous forest. Females form maternity colonies in buildings, caves and mines, and males roost singly or in small groups. Forages along streams or in wooded habitats.	**Moderate potential in all Work Areas for roosting and foraging.** Potential roosting habitat may occur within hollows of large trees in woodlands and forests within Work Areas. May forage in various habitats in the Project area.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	-	SSC	Found in forested habitats of moderate canopy and moderate to dense understory.	**Present/High potential in all Work Areas.** Suitable habitat is present in riparian and woodland habitat dispersed throughout the Project area. Middens were observed during the reconnaissance survey.

Table 4. Special-Status Animal Species with Potential to Occur on the Tunnel East Bay Hills Shaded Fuel Break Project Site

Species	Listing Status		Habitat	Potential for Occurrence
	Federal	State		
Big free-tailed bat *Nyctinomops macrotis*	-	SSC	Prefer rugged, rocky terrain in southwestern states; CNDDB reports an unconfirmed collected individual.	No potential. No recent records, and an unlikely vagrant.
American badger *Taxidea taxus*	-	SSC	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. Cannot live in frequently plowed fields. Preys on burrowing rodents.	**Moderate potential in all Work Areas.** Potentially suitable grassland is present throughout the Project area.

Key to listing status:
FE=Federally listed as endangered species
FP=California listed as fully protected
FT=Federally listed as threatened species
FC=Federal candidate species for listing
CC=California candidate species for state listing
CE=California listed as endangered species
CT=California listed as threatened species
SSC=California species of special concern

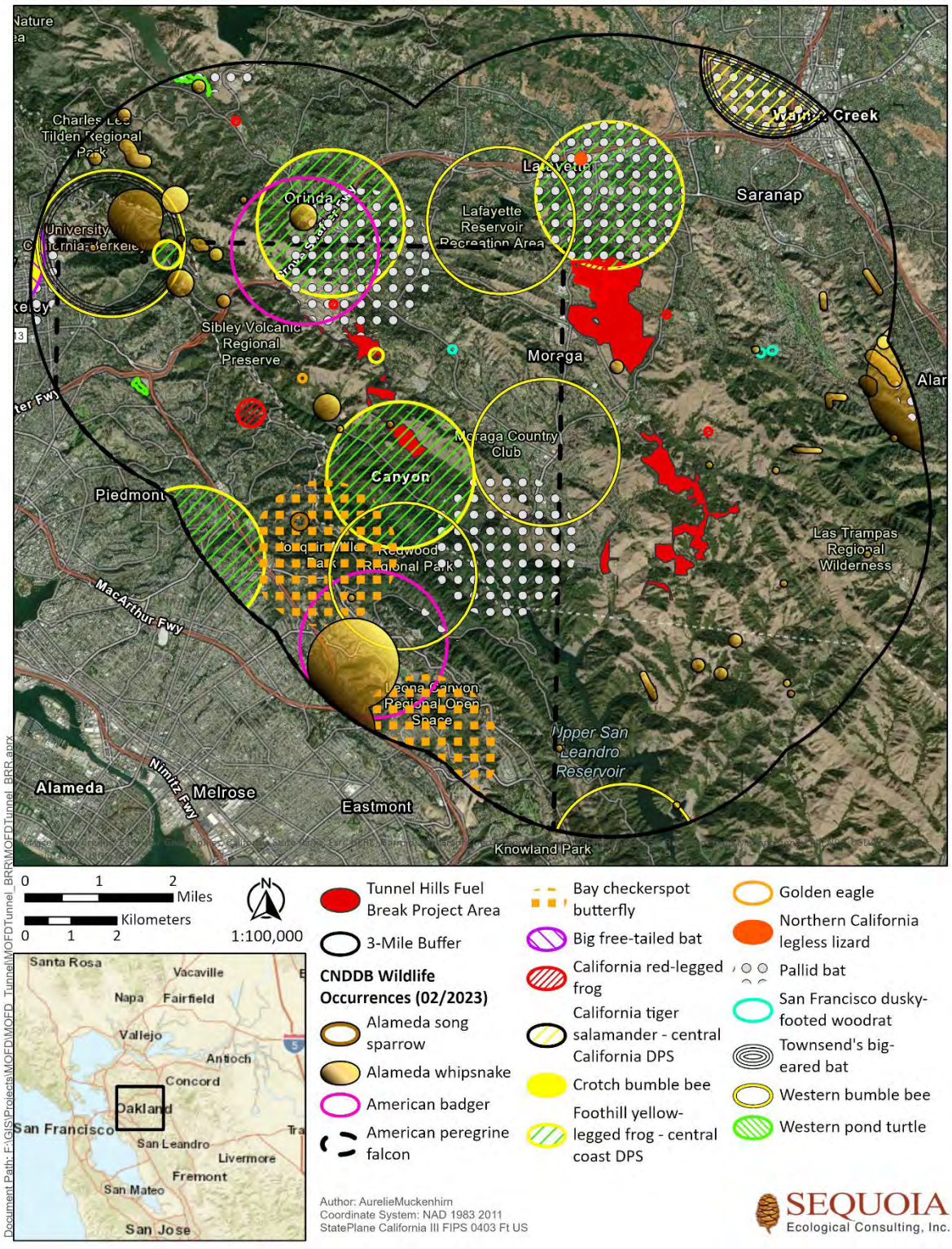

Figure 9. Closest Known Records for Special-Status Animal Species Within 3 Miles of the Tunnel East Bay Hills Shaded Fuel Break Project Site

Pallid Bat

The pallid bat is designated as a CSSC by the CDFG and a Medium Priority species by the Western Bat Working Group (CDFW 2018). The pallid bat is a relatively large, light-colored bat ranging throughout the southwestern United States from interior British Columbia to Mexico (Hermanson and O'Shea 1983, Sherwin and Rambaldini 2005). These bats inhabit foothills and lowlands near water throughout California below 2,000 meters in elevation, but are most abundant in arid deserts and grasslands, particularly in areas with rock outcrops near water (Hermanson and O'Shea 1983). Pallid bats typically roost in small groups in a variety of roosts, including bridges, buildings, tree hollows in coast redwoods, bole cavities in oaks, exfoliating bark, rock crevices in outcrops and cliffs, caves, and mines, as both day and night roosts (Sherwin and Rambaldini 2005). Roost sites may change seasonally and are typically reused for a few days to weeks. Pallid bats primarily feed on a variety of arthropods by capturing prey on the ground or gleaning from surfaces near the ground. Parturition varies with latitude, but generally occurs from late-April to August; maternal colonies disperse by October (Hermanson and O'Shea 1983). Overwintering is common along the California coast, but individuals may migrate short distances between winter and summer roosts (Sherwin and Rambaldini 2005).

Golden Eagle

The golden eagle (nesting and wintering) is designated as a CSSC, fully protected by the CDFG, and is protected under the Bald Eagle Protection Act (16 USC. 668-668d, 54 Stat. 250) as amended, which prohibits the taking, possession, and commerce of eagles, their nests, eggs, or feathers unless expressly authorized by permit pursuant to Federal regulations. Golden eagles are also protected under the MBTA (16 USC. 703-712; MBTA) and Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447; MBTRA).

Golden eagles inhabit grasslands, savannahs, oak and pine woodlands, and agricultural fields. They nest on cliffs and in large trees in open areas. Golden eagles exhibit strong site fidelity and will reuse the same nest from year to year; however, it is not uncommon for a breeding pair to have several alternate nest sites available within the same territory (Kochert et al. 2002, Baicich and Harrison 2005). Breeding season begins between February and May depending on latitude, and it may take more than 6 months to completely rear a single chick (Kochert et al. 2002). During the non-breeding season, golden eagles inhabit open habitats such as grasslands, savannahs, scrub, and oak woodlands. Prey consists of small to medium-sized mammals, including black-tailed jack rabbits (*Lepus californicus*), cottontails (*Sylvilagus* spp.), and California ground squirrels (*Spermophilus beecheyi*).

Western Bumble Bee

The westen bumble bee (*Bombus occidentalis occidentalis*) is a listed US Forest Service sensitive species, and is listed by the Xerces Society as imperiled but under review by USFWS (Xerces 2019, USFWS 2019). Western bumble bee are sexually dimorphic, and both male and female exhibit a variety of colorations, including black, yellow, and white. Western bumble bee habitat requirements include: suitable nesting sites for the colonies, nectar and pollen from floral resources available throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for the queens (Baldwin et al.

2012). They can be found near the flowers and crops they pollinate throughout most of their range. The western bumble bee is an important pollinator of greenhouse tomatoes, cranberries, alfalfa, avocado, apples, cherries, blackberries, blueberry, and other wild flowering plants. They are known to frequent species of genera *Melilotus, Cirsium, Trifolium, Centaurea, Chrysothamnus,* and *Eriogonum* (Koch et al. 2013). Bumble bees in general require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late November for *B. occidentalis*, although dates may vary with elevation (USFS 2015). Bumble bees nest underground in abanonded rodent burrows or similar underground structures, and in open west-southwest slopes bordered by trees. Very little is known about the hibernacula, or overwintering sites (Baldwin et al. 2012).

Western bumble bees are considered rare throughout much of their range and in decline, but may be locally common. Their historic range runs from the Pacific Coast to the Rocky Mountains, but they are experiencing severe population decline west of the Sierra Cascade Crest. Populations are still known from the Great Basin, the Rocky Mountains, and Alaska.

Townsend's Big-Eared Bat

The Townsend's big-eared bat is designated as a CSSC by the CDFG and a High Priority species by the Western Bat Working Group (CDFW 2018). It is an uncommon resident throughout California, inhabiting mesic environments. The species is a moth specialist and typically roosts in cavities that are 16 inches in diameter or greater (pers. comm. Dave Wyatt) in caves, mines, bridges, building, rock crevices, tree hollows in coastal lowlands, and cultivated valleys and nearby hills characterized by mixed vegetation below 3,300 meters. Townsend's big-eared bats exhibit a high site fidelity and are highly sensitive to disturbance. They forage by gleaning insects from trees and shrubs along edge habitats near water. Foraging bouts peak in late evening, and individual bats may travel long distances during feeding outings. Winter hibernacula are used from October to April.

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is listed as a candidate species under FESA. In California, the CDFW treats this species' migration and overwintering habitats as sensitive. Each fall, thousands of monarch butterflies fly west to their wintering grounds in California and Mexico. In the spring, the butterflies return to their summer homes, where they will lay eggs and die.

The larval host plant for the monarch is the milkweed plant (*Asclepias* spp.). A female monarch will lay eggs on the milkweed and hatched larvae will remain on the plants where they consume the plants and metamorphose into an adult butterfly. Adult monarchs who remain in California through the winter often seek shelter in groves of eucalyptus trees (*Eucalyptus* spp.) or a mixture of eucalyptus and Monterey pine trees. These clusters or groupings of trees allow them to avoid strong winds and cold temperatures. They prefer tree clumps on south-facing slopes in depressions.

Western Pond Turtle

The western pond turtle, a CSSC, is the only freshwater turtle native to greater California and are distributed along much of the western coast from the Puget Sound in Washington south to the Baja Peninsula of Mexico (Storer 1930). The literature describes two subspecies of western pond turtle; the northwestern pond turtle (*Emys marmorata marmorata*) and the southwestern pond turtle (*Actinemys pallida*). Overall, western pond turtles are habitat generalists, and have been observed in slow-moving rivers and streams (e.g., oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and sewage treatment plants. They prefer aquatic habitat with refugia such as undercut banks and submerged vegetation (Holland 1994), and require emergent basking sites such as mud banks, rocks, logs, and root wads to thermoregulate their body temperature (Holland 1994, Bash 1999). Pond turtles are omnivorous and feed on a variety of aquatic and terrestrial invertebrates, fish, amphibians and aquatic plants.

Western pond turtles regularly utilize upland terrestrial habitats, most often during the summer and winter, especially for oviposition (females), overwintering, seasonal terrestrial habitat use, and overland dispersal (Reese 1996, Holland 1994). Females have been reported ranging as far as 500 meters from a watercourse to find suitable nesting habitat (Reese and Welsh 1997). Nest sites are most often situated on south or west-facing slopes, are sparsely vegetated with short grasses or forbs, and are scraped in sands or hard-packed, dry, silt or clay soils (Holland 1994, Rathbun et al. 1992, Holte 1998, Reese and Welsh 1997). Western pond turtles exhibit high site fidelity, returning in sequential years to the same terrestrial site to nest or overwinter (Reese 1996).

In southern and central California, females lay their clutch as early as late April to late July, although they predominantly lay in June and July. In the early morning or late afternoon, gravid females leave the water and move upland to nest (Holland 1994). Natural incubation times vary, ranging from 80-100+ days in California. In northern California and Oregon, hatchlings remain in the nest after hatching and overwinter, emerging in the spring. In southern and central California, those that do not overwinter emerge from the nest in the early fall (Holland 1994).

American Peregrine Falcon

The American peregrine falcon (nesting) is a Federally and state recovered species. It is a California fully protected species and is included on the USFWS Birds of Conservation Concern list (CDFW 2018). The American peregrine falcon is also protected under the MBTA (16 USC. 703-712; MBTA) and Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447; MBTRA).

Peregrine falcons are the largest falcon over most of the continent, with long, pointed wings and a long tail. Adults are typically dark gray on top and have a blackish helmet and yellow eyering and cere. Peregrine falcons are a year-round resident in California and are most commonly found along the coast. They inhabit a variety of habitats, ranging from wetlands, coastal shorelines, and islands, to deserts, forests, and urban areas (White et al. 2002). American peregrine falcons nest on cliffs, rocky outcrops,

bare ground, and man-made structures such as bridges, buildings, and other tall, prominent structures (Baicich and Harrison 2005). Breeding begins from mid-March to mid-May, depending on latitude. This species is single-brooded, and exhibits high site fidelity (Baicich and Harrison 2005). They have a variable diet and feed primarily on birds; however, they may also consume small mammals, including bats and various rodents.

Alameda Whipsnake

The AWS was listed as a Federal threatened species on December 5, 1997 (USFWS 1997, 62 FR 64306) and is state listed as threatened (CDFW 2018). Critical Habitat was designated for this species on October 2, 2006 (USFWS 2006, 71 FR 58176), and a recovery plan was published in 2002 (USFWS 2002b). The AWS is a fast moving, slender, diurnal snake with a broad head, large eyes, and measures 2.5-5 feet in length (Stebbins 2003). Dorsal coloration is brown to black with wide lateral stripes and an orange to pink ventral surface becoming more brilliantly colored near the tail. The AWS is a subspecies of the California whipsnake (*Masticophis lateralis*), which inhabits the foothills and mixed deciduous and pine forests of the Sierra Nevada and Coast Range mountains from Siskiyou County in northern California to the flatland desert in Cañon de Los Reyes in southern Baja California (Stebbins 2003). The AWS inhabits the inner Coast Ranges in western and central Contra Costa and Alameda counties (Jennings 1983, McInnis 1992, Swaim 1994). Habitat fragmentation has restricted its range into five recognized subpopulations: Tilden-Briones population, Oakland-Las Trampas population, Hayward-Pleasanton Ridge population, Mount Diablo-Black Hills population, and Sunol-Cedar Mountain population. Suitable habitat for this species includes mixed chaparral, coastal scrub, and annual grassland and oak woodlands adjacent to scrub habitats. Grassland areas linked to scrub by rock outcrops or river corridors are also considered primary habitat constituent elements (USFWS 2002b). This habitat provides cover for snakes during dispersal, shelter from predators, and a variety of microhabitats where whipsnakes can move to regulate their body temperature (Swaim 1994). AWS typically emerge to bask then hunt when soil surface temperatures are 66°F (19°C) (Hammerson, 1979). During brumation (November 1 through March 31), AWS are typically located in underground refugia, however they have been observed active on the surface when daily high temperatures were as low as 57°F (13.9°C) (Alvarez et al., 2021). Important features include small mammal burrows, rock outcrops, talus, and other forms of shelter that provide snakes with alternative habitats for temperature regulation, protection from predators, sites for egg-laying, and winter hibernaculum. Whipsnakes will use grasslands, woodlands, riparian areas, and the fringes of developed or disturbed land cover types to move to and from core habitat areas.

San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat is a CSSC (CDFW 2018). One of 11 recognized subspecies, the San Francisco dusky-footed woodrat is found on the San Francisco Peninsula south to Santa Cruz County, and inland to the East Bay hills. It is a medium-sized, brownish-gray rodent with a white belly, large ears, and a long, scantily haired tail. This species inhabits oak and riparian woodlands with a well-developed understory as well as chaparral scrub habitats, where their conical stick nests are often visible (Carraway and Verts 1991). These nests may be as much as 6 feet tall, and contain multiple chambers used for sleeping and food storage. Nests are usually occupied by single adults or females with young, and can be

used by successive generations of woodrats. They exhibit high site fidelity, are highly arboreal, and build stick nests that may last for tens of years. Woodrat nests provide cover for many other animal species, including small mammals, reptiles, amphibians, and arthropods, thus increasing local biodiversity (Cranford 1982, Vestal 1938). Woodrats are generalist herbivores and live in loosely cooperative societies. The diet of woodrats consists primarily of foliage of evergreen broadleaf plants, such as oaks, coffeeberry, Mexican elderberry (*Sambucus mexicana*), toyon, and gooseberry (*Ribes* spp.) (Atsatt and Ingram 1983). Reproduction occurs from February through September.

California Red-Legged Frog

The CRLF was listed as a Federally threatened species on May 23, 1996 (USFWS 1996; 61 FR 25813) and is designated as a CSSC (CDFW 2019). A recovery plan was published for the CRLF on September 12, 2002 (USFWS 2002a). Critical Habitat was designated for this species on April 13, 2006 (71 FR 19244) and revisions to the Critical Habitat designation were published on March 17, 2010 (75 FR 12816).

The CRLF is distributed throughout 26 counties in California, but is most abundant in the San Francisco Bay Area. Populations have become isolated in the Sierra Nevada, northern Coast, and northern Transverse ranges (Jennings and Hayes 1994, Stebbins 2003). The species is believed to be extinct from the southern Transverse and Peninsular ranges, but is still present in Baja California, Mexico (USFWS 2017). CRLFs predominantly inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 1,500 meters in elevation (Jennings and Hayes 1994, Bulger et al. 2003, Stebbins 2003). Adults breed in a variety of aquatic habitats, while larvae and metamorphs use streams, deep pools, backwaters of streams and creeks, ponds, marshes, sag ponds, dune ponds, and lagoons. Stock ponds are frequently used for breeding when they provide suitable hydroperiod, pond structure, and vegetative cover, and are managed to control of non-native predators such as bullfrogs and exotic fish. Breeding occurs between November and April within still or slow-moving water with light to dense, riparian or emergent vegetation, such as cattails, tules (*Scirpus* spp.) or overhanging willows (*Salix* spp.) (Hayes and Jennings 1988). Egg masses are attached to vegetation below the surface and hatch after 6 to 14 days (Storer 1925, Jennings and Hayes 1994). Larvae undergo metamorphosis 3.5 to 7 months following hatching and reach sexual maturity at 2 to 3 years of age (Jennings and Hayes 1984, Jennings and Hayes 1994). During the dry season, CRLFs may use refugia in upland habitat, such as small mammal burrows or adjacent moist vegetation, for aestivation (USFWS 2002a).

Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley of eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement in the fall months corresponding to 0.2 inch of precipitation that tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia, including ground squirrel burrows at the bases of trees or rocks, logs, grass thatch, crevices, cow hoof prints, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one female was

reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were more often used and were more commonly associated with areas exhibiting higher object cover (e.g., small woody debris, rocks, and vegetative cover).

Most frogs move away from breeding ponds to upland areas. The distance moved is site-dependent, though one recent study shows that only a few frogs move farther than the nearest suitable non-breeding habitat (Fellers and Kleeman 2007). In this Marin County study, the furthest distance traveled was 1.4 kilometers and most dispersing frogs moved through grazed pastures to reach the nearest riparian habitat (Fellers and Kleeman 2007). Bulger et al. (2003) did not observe habitat preferences among frogs moving between ponds. As breeding ponds dry, CRLFs use moist microhabitats of dense shrubs and herbaceous vegetation within one mile of breeding ponds.

California Newt

The California newt (*Taricha torosa*), also known as the Coast Range newt, is a CSSC (CDFW 2018) in Monterey County and to the south. California newt breed in ponds, reservoirs, and slow-moving streams. Upland habitat includes wet forests, oak woodland, chaparral, and grassland with burrows or other refugia. Home range and maximum dispersal distance is not well-studied, but Trenham (1998) recaptured adult newts up to 3,200 meters from the breeding pond where they were marked. California newt are found along the coast and Coast Range mountains from Mendocino County south to San Diego County. They are afforded the status of CSSC within Monterey County and to the south within their total distribution. They have been observed at elevations ranging from sea level to 4,200 feet (on Mt. Hamilton) (Stebbins and McGinnis 2012).

American Badger

The American badger (*Taxidea taxus*) is designated as a CSSC (CDFW 2018). They are stocky mammals with huge foreclaws, and are covered by a coarse brown, black, and white coat, with one white stripe that extends from the nose to the base of the head. This species once occurred throughout California in grasslands and open stages of most shrub, forest, and herbaceous habitats with dry, friable soils from elevations below sea level in Death Valley, California to 3,660 meters (Long 1973). Characterized by a stout, muscular, compressed body that is well-adapted to digging, the badger forages on other fossorial (burrowing) species such as ground squirrels, pocket gophers, and rats. Reproduction occurs in summer and fall; altricial young are born following delayed implantation in March and early April (Long 1973). Some predation occurs from coyotes, cougars, bobcats, golden eagles (Shefferly, 1999). Their average home range is 2,100 acres in the summer and approximately 5 acres in the winter.

7.0 DISCUSSION AND IMPACT ASSESSMENT

7.1 Treatable Landscape

Vegetation communities within mapped CalVTP Treatable Landscape areas were consistent with habitat outside the Treatable Landscape in habitat types and structure, level of disturbance, and habitat quality for common and special-status species. There is no discernable difference between these mapped designations, and impacts can be analyzed collectively.

7.2 Sensitive Plant Habitat on the Project Site

Suitable habitat was assessed as low-quality for most of the Work Areas, as they are primarily dominated by non-native grasses, with scattered stands of oak and oak-bay woodlands and scrub habitat. A few *Helianthella* spp. individuals were observed in the northern section of Work Area 4, although senescence made it difficult to accurately identify the individuals to species. Western leatherwood was observed in Work Area 3. Additionally, the following habitats observed within the Work Areas may provide a low potential for sensitive plant species to occur (Table 5).

Table 5. Special-Status Plant Species with Potential to Occur, by Work Area

Species Name	Work Area					
	1	2	3	4	5	6
Bent-flowered fiddleneck *Amsinckia lunaris*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Big-scale balsamroot *Balsamorhiza macrolepis*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Big tarplant *Blepharizonia plumosa*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Mt. Diablo fairy-lantern *Calochortus pulchellus*	None	None	Moderate	None	Moderate	None
Oakland star-tulip *Calochortus umbellatus*	High	High	High	High	High	High
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	High	High	High	High	High	High
Western leatherwood *Dirca occidentalis*	None	None	Present	None	High	None
Diablo helianthella *Helianthella castanea*	High	High	High	Present	High	High
Loma Prieta hoita *Hoita strobilina*	High	High	High	High	High	High
California black walnut *Juglans californica*	None	None	High	None	High	None

Table 5. Special-Status Plant Species with Potential to Occur, by Work Area

Species Name	Work Area					
	1	2	3	4	5	6
Bristly leptosiphon *Leptosiphon acicularis*	High	High	High	High	High	High
Oregon meconella *Meconella oregana*	None	None	High	None	None	None
Woodland woollythreads *Monolopia gracilens*	High	High	High	High	High	High
Michael's rein orchid *Piperia michaelii*	High	High	High	High	High	High
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	High	High	High	High	High	High
Oval-leaved viburnum *Viburnum ellipticum*	High	High	High	High	High	High

7.2.1 Annual Grassland

Grassland within the Work Areas was dominated by non-native grass species with limited forb establishment. These grassland habitats have a low potential for providing suitable habitat for special-status plant species.

7.2.2 Freshwater Emergent Wetland/Lacustrine

Habitat for wetland plant species was low-quality within each of the Work Areas. The wetlands were either human-made livestock ponds or dried or nearly dried ephemeral wetlands. Impacts (e.g., compacted soil, etc.) from livestock grazing were observed, which reduce the potential for special-status plant species to establish.

Drainages throughout the Project footprint may provide more suitable habitat for sensitive plant species, as habitat there was primarily oak and oak-bay woodlands with scattered riparian vegetation, such as *Salix* spp. and cottonwoods.

Riverine habitat was only present in Work Area 3, where the biologist identified creek habitat in the lower elevation portions of the Work Area. The creek habitat provides an increase in species richness due to the presence of riparian vegetation, but it is not a perennial waterway that could be regularly utilized by aquatic and semi-aquatic species.

7.2.3 Coastal Oak Woodland

The predominant forest types throughout the Project footprint were coastal oak woodlands, as well as a large, dispersed stand of valley oaks in Work Area 5. These provide unique habitat for several special-status species.

7.2.4 Coastal Scrub

The northern portion of Work Area 4 contains fragmented populations of coastal scrub species that were dominated by coyote brush. These areas are fairly mosaiced but relatively small compared to the Work Area.

Work Area 5 has a monoculture of coyote brush that is dense in areas and moderate in quality.

Work Area 3 contains coastal scrub habitat on the edges of the Work Area and within the buffer zone. Coastal scrub patches within Work Area 3 are primarily fragmented and bordered by coastal oak woodlands and annual grasslands.

7.3 Sensitive Wildlife Habitat on the Project Site

Habitat quality varied throughout the Project footprint providing marginal to suitable habitat for sensitive wildlife species (Table 6).

Table 6. Special-Status Wildlife Species with Potential to Occur, by Work Area

Species Name	Work Area					
	1	2	3	4	5	6
Pallid bat *Antrozous pallidus*	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)
Golden eagle *Aquila chrysaetos*	High (foraging only)	High (foraging only)	High (foraging only)	High (foraging only)	High (foraging only)	High (foraging only)
Western bumble bee *Bombus occidentalis occidentalis*	High	High	High	High	High	High
Townsend's big-eared bat *Corynorhinus townsendii*	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)	Moderate (roosting and foraging)
Monarch butterfly *Danaus plexippus*	High	High	High	High	High	High
Western pond turtle *Emys marmorata*	None	None	None	Moderate	None	None
American peregrine falcon *Falco peregrinus anatum*	May occur	May occur	May occur	May occur	May occur	May occur

Table 6. Special-Status Wildlife Species with Potential to Occur, by Work Area

Species Name	Work Area					
	1	2	3	4	5	6
Alameda whipsnake *Masticophis lateralis euryxanthus*	High	High	High	High	High	High
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	High	High	High	High	High	High
California red-legged frog *Rana draytonii*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
California newt *Taricha torosa*	High	High	High	High	High	High
American badger *Taxidea taxus*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

7.3.1 Wetland Habitat

Wetland habitat was observed within Work Areas 1, 3, 4, and 5. The wetland habitat throughout these Project areas are primarily classified as livestock ponds or nearly dried to dried ephemeral ponds. The biologist observed evidence of livestock grazing within two stock ponds located in Work Area 5.

7.3.2 Riparian Corridor

Riparian corridors were observed within all Work Areas, primarily as drainages along moderately steep slopes. Work Area 3 contains creek habitat within the lower elevation areas of the site, which may provide suitable habitat for CRLF but was not considered suitable for western pond turtle due to lack of perennial waterways.

7.3.3 Avian Nesting and Bat Roosting

Suitable avian nesting and bat roosting habitat was identified throughout the Project footprint, predominantly within the oak woodland-dominated drainages and scrub habitat. In addition, the sites are dominated by grassland, which provides an ideal habitat for ground-nesting birds.

7.3.4 Terrestrial Riparian Wildlife Habitat

Habitat for western pond turtle, CRLF, and California tiger salamander was identified within each Work Area, although it was predominantly characterized as low-quality.

7.3.5 Alameda Whipsnake Habitat

Work Area 1 consisted of dense, large *Baccharis* patches that may be considered core shrub habitat for AWS. The chapparal patches were bordered by oak woodlands and grassland, providing suitable dispersal and foraging habitat.

Habitat in Work Area 2 was identified as low-quality suitable habitat for as there was minimal core scrub habitat observed. Few rocky outcrops were seen and suitable mammal burrows were noticeably absent throughout the site. The adjacent grassland and oak woodlands provide low suitability for cover but could act as dispersal for snakes.

Habitat in Work Area 3 was identified as moderately suitable for AWS, as the core scrub habitat was primarily found to occur on the perimeter of the Work Area with a few patches to the north and south that contain a moderately dense mosaic canopy. All the core scrub habitat found within Work Area 3 was directly adjacent to oak-bay woodland dispersal habitat, and adjacent to grassland habitat. The woodlands provide approximately 90 to 100 percent cover between sites, and the grasslands are relatively uniform in species richness. Rocky outcrops were observed throughout the Work Area, although none were close to or directly adjacent to core habitat. While not typical AWS shelter, many Botta's pocket gopher (*Thomomys bottae*) burrows were identified throughout the site.

Work Area 4 contains low-quality suitable habitat for AWS, as there is minimal core scrub habitat, and the core scrub habitat that is present is heavily fragmented with small patch sizes. There were also few rocky outcrops and mammal burrows located near scrub habitat, upon which the AWS relies. The grassland provides low cover and is not likely to be suitable, and the oak woodland within the Work Area is minimal and not located near scrub habitat.

The biologist assessed AWS habitat in Work Area 5 as moderately suitable, as it contained mosaic scrub habitat. While there are limited rocky outcrops and burrows, there is good dispersal habitat near coyote brush patches in oak woodland and annual grassland areas.

Habitat in work area 6 was identified as high suitability for AWS, as core scrub was found in high density along the upper ridge of the area. The ridges consisted of core scrub habitat, bordered by coastal oak woodland and annual grassland. The oak woodland and grassland provide suitable dispersal habitat along the site. Rocky outcrops and mammal burrows were in high density in this site and provide suitable cover for snakes.

7.3.6 California Red-Legged Frog Habitat

Work Area 1 consists of oak-bay woodland upland habitat and a bare, rocky channel that may provide suitable upland habitat for CRLF, albeit low-quality and seasonal.

Work Area 3 contains freshwater emergent wetland and creek habitat with oak-bay woodland upland habitat, which may be suitable for CRLF. However, adequate breeding habitat was not observed within this Work Area.

Work Area 4 provides some man-made ponds and drainages, although the site is lacking suitable oak woodland habitat and hydrophytic vegetation within the ponds. While the area contains limited aquatic resources, the presence of Sierran treefrog (*Pseudacris sierrae*) may indicate potential for CRLF to occur within the site.

Work Area 5 contained several ephemeral ponds and riparian drainage habitat. It had potential for CRLF recruitment from the surrounding area.

7.3.7 California Tiger Salamander Habitat

Habitat within Work Area 1 consists of oak-bay woodland upland habitat and a rocky and degraded channel. There is low potential for California tiger salamander to utilize this habitat.

Work Area 4 has potential for California tiger salamander in the scattered ponds throughout, although few burrows occurred in the surrounding non-native grasslands that dominate the site. A few ground squirrel burrows were located near the pond, but the rest were primarily gopher burrows.

Aquatic features and drainages in Work Area 5 provide low-quality habitat, but there is potential for California tiger salamander recruitment from the surrounding area. The creek habitat and scattered ephemeral ponds with predominantly grassland habitat may be suitable for California tiger salamander, although the assessment of the quality remains low.

7.3.8 Western Pond Turtle Habitat

Work Area 3 provided potentially suitable habitat for western pond turtle, where creek habitat is present in the lower elevations of the site. However, no perennial water was identified, so it is unlikely that western pond turtle would be found within the site.

7.4 Significance Criteria

Pursuant to CEQA and CEQA Guidelines, direct and indirect adverse impacts to biological resources are classified as less than significant, potentially significant, or significant. According to CEQA Guideline § 21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. According to CEQA Guideline § 15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. State, Federal, and local jurisdictions and regulations are considered in the evaluation of significance of proposed actions.

The CalVTP PEIR analyzed impacts to biological resources, and these impacts are therefore considered for the current Project for its compliance under the CalVTP PEIR (Table 7).

Table 7. CalVTP-Analyzed Biological Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Impact BIO-1: Substantially Affect Special-Status Plant Species Either Directly or Through Habitat Modifications	☐	☒	☐	☐
Impact BIO-2: Substantially Affect Special-Status Wildlife Species Either Directly or Through Habitat Modifications	☐	☒	☐	☐
Impact BIO-3: Substantially Affect Riparian Habitat or Other Sensitive Natural Community Through Direct Loss or Degradation that Leads to Loss of Habitat Function	☐	☒	☐	☐
Impact BIO-4: Substantially Affect State or Federally Protected Wetlands	☐	☒	☐	☐
Impact BIO-5: Interfere Substantially with Wildlife Movement Corridors or Impede Use of Nurseries	☐	☒	☐	☐
Impact BIO-6: Substantially Reduce Habitat or Abundance of Common Wildlife	☐	☐	☒	☐
Impact BIO-7: Conflict with Local Policies or Ordinances Protecting Biological Resources	☐	☐	☐	☒
Impact BIO-8: Conflict with the Provisions of an Adopted Natural Community Conservation Plan, Habitat Conservation Plan, or Other Approved Habitat Plan	☐	☐	☐	☒

7.5 Impacts Analysis

In this section, potential impacts to sensitive biological resources, including special-status plants, reptiles, amphibians, bats and nesting birds and raptors are discussed. Each impact is followed with a mitigation prescription that, when implemented, would reduce impacts to a level considered less than significant pursuant to CEQA and as analyzed by CalVTP's PEIR. This impact analysis is based on preliminary site plans prepared by MOFD (Tunnel East Bay Hills Shaded Fuel Break Project Project-Specific Analysis, Section 2, Project Description), a desktop analysis for biological resources, and a field reconnaissance survey described in Section 6, Results of the Biological Resources Report. Impacts to sensitive biological resources are reduced to less than significant with the implementation of CalVTP PEIR's SPRs, MMs, and additional measures described here. Project relevant CalVTP SPRs and MMs can

be found in Attachment A of this document and are referenced by number in the discussion of each Impact.

CalVTP Thresholds of Significance (excerpted from CalVTP PEIR Section 3.6 Biological Resources)

The thresholds of significance used to evaluate impacts on biological resources incorporate the mandatory findings of significance, as listed in Section 15065 and Appendix G of the State CEQA Guidelines. The CalVTP would result in a significant impact related to biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries;
- have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; and
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

Inclusion of Land Outside the Treatable Landscape

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the treatment area boundary, general habitat characteristics are essentially the same within and outside the treatable landscape (e.g., no resource is affected outside the treatable landscape that would not also be similarly affected within the treatable landscape). Therefore, the potential impact on sensitive biological resources is also the same and analyzed simultaneously. All impacts have been found to be “Less Than Significant with Mitigation” or “Less Than Significant” following implementation of the SPRs and MMs

described for each impact below. This determination is consistent with the PEIR and thus would not constitute a substantially more severe significant impact than what was covered in the PEIR.

7.5.1 Impact BIO-1: Substantially Affect Special-Status Plant Species Either Directly or Through Habitat Modifications – Less Than Significant with Mitigation

From the desktop review of special-status species with potential to occur, 76 sensitive plant species were identified to potentially to occur in the Project area (Figure 8; Tables 3 and 5). Following a field reconnaissance survey, it was determined that 16 species had moderate to high potential to occur on the Project site. Potential impacts and approach to mitigating impacts for these 16 species are discussed further in this section. The 60 species that are not expected to occur will not be discussed further.

The Project proposes manual and mechanical vegetation removal, prescribed burning, pile burning, prescribed herbivory, and targeted herbicide application. These treatment activities could result in direct or indirect adverse effects to special-status plant species. The potential for these treatment activities to result in impacts to special-status plant species was examined in the PEIR and was found to be less than significant with mitigation (pp. 3.6-131–3.6-138). The Project area contains known occurrences of sensitive plant species as well as potentially suitable habitat for some sensitive plant species (Table 3).

Mechanical treatment and herbicide application have potential to directly or indirectly impact special-status species if not strategically applied; however, strategic removal of understory vegetation and invasive species would promote the regeneration of native species that support a healthier residual forest. The Project is designed to reduce the risk of catastrophic stand-replace wildfires that would threaten known sensitive plant populations.

The potential for adverse effects to special-status plant species is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and intensity of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (pp. 3.6-131–3.6-138). Impacts to special status plants would be reduced to less than significant with the following SPRs and MMs (Attachment A). In addition to the CalVTP PEIR SPRs and MMs, additional Project-specific measures are described below each applicable measure.

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5 Maintain Site Cleanliness

SPR AQ-3: Create Burn Plan

- Project design includes a fire restriction zone. No fire ignition (nor use of associated accelerants) would occur within 50 feet of listed plants.

SPR AQ-4: Minimize Dust

SPR BIO-1: Review and Survey Project-Specific Biological Resources and determine whether avoidance is possible

- The current Biological Resources Report describes a desktop review and a reconnaissance field survey that satisfy a component of CalVTP SPR BIO-1.
- A qualified biologist will conduct a pre-treatment survey to identify, map, and flag any sensitive plants or vegetative communities for avoidance or follow-up surveys, if needed, to be conducted when weather conditions and timeframes are suitable for the detection of sensitive resources. No work will occur in the work area until the area has been adequately surveyed and assessed for sensitive resources.

SPR BIO-2: Require Biological Resource Training for Workers

- All crew members and contractors will receive training from a qualified biologist prior to the start of work in all work areas. The training will describe the appropriate work practices necessary to effectively implement the appropriate sensitive resource impact avoidance measures and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of special-status plant species with potential to occur; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; and Best Management Practices. As appropriate, the training will include protocols for work, such as specific trimming techniques and herbicide application methods, where applicable.

SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats and map locations

- If any rare plant populations are found, the species' location, quantity, and description will be reported to the CNDDB. Any in-field methods of identification that will require handling will follow proper permitting and protocols. Rare plants will be demarcated with flagging and avoided during work.

SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub

- Chaparral and coastal sage scrub in the Project footprint are suitable AWS habitat and will be referred to as AWS habitat. Work in AWS habitat will be restricted to hand tools only. Vegetation removal will include dead, woody materials and invasive plants. The nature of shaded fuel break work will not change the habitat functions of dispersal and foraging of species occurring within, including AWS. AWS core scrub habitat is described as shrub communities with a mosaic of open and closed canopy patches. USFWS defines scrub as coastal scrub, coyote brush scrub, or maritime chaparral areas (or "scrub") greater than 0.5 acre in size, or scrub areas greater than 0.2 acre in size that are within 50 feet of scrub patches greater than 0.5 acre in size (USFWS 2006). When work is occurring within core scrub habitat areas, the crew will work closely with the biologist to remove scrub selectively in a way that retains these dimensions and therefore the overall habitat function while still serving the needs of the shaded fuel break. This

technique has been used on previous projects and aims to provide a "scrub mosaic" that retains AWS habitat function. Scrub mosaic recommendations may vary depending on site conditions. The following techniques will be implemented during treatment:

- Vegetation removal will occur in irregular, oblong shapes to maintain a natural condition.
- Vegetation removal will avoid rocky outcrops.
- The overall dominant habitat type will not be converted.

Preliminary and post-treatment surveys will be conducted that will assess the condition and acreage of core scrub habitat. Post-treatment conditions will be assessed to ensure that there is no overall loss of habitat functionality within AWS core scrub.

It should be noted that scrub and chaparral are transitional habitat types and over time, canopy in these areas grows taller and denser, and larger tree species such as oak and madrone are naturally recruited and become increasingly dominant. Without any intervention, over a long period of time, chaparral and scrub communities will natural be converted to woodland and forested habitat. Thoughtful treatment of select areas which incorporates the retention of scrub islands suitable for AWS core scrub is expected to be more effective in retaining key core scrub habitat for AWS than complete avoidance of these areas.

SPR BIO-6: Prevent Spread of Plant Pathogens

- *Phytophthora ramorum* is a harmful fungal pathogen that can cause mortality in several oak tree species and causes twig and foliar diseases in numerous native shrub and tree species. *P. ramorum* has devastated oak stands throughout Contra Costa and Alameda Counties open spaces, and minimizing its spread is a priority during project activities. The pathogen is spread through the broadcasting of infected material and by wetted soil clinging to boots and equipment. To contain the spread of *P. ramorum*, crews will minimize the movement of soil and leaf litter under and around infected trees. Boots, treads, and equipment such as saws, shovels, hoes, and other tools will be scrubbed free of soil and debris that come from infected sites. All reasonable methods to sanitize shoes and equipment will be used in areas with susceptible species both before and after work in those areas. These methods will include disinfecting material with 10% bleach, Lysol, or 70% isopropyl alcohol after the surface has been scrubbed free of debris with bristle brushes.
- Any material suspected of being infected must stay in the area, as close to the origin point as possible. Generally, removal of *P. ramorum*-infected or killed oak trees is only necessary if the tree is considered hazardous in a park setting. When infected oaks are cut down and left on-site, the branches will be chipped and cut and split, if possible, to reduce fire hazard and facilitate decomposition. If chipping is not possible, material will be lopped and scattered downslope and away from host species to reduce fire hazard and further spread. When debris may not be left, infested material will be disposed of at an approved and permitted dump facility.

SPR BIO-7: Survey for Special-Status Plants

SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife

- Broom (*G. monspessulana*, *S. junceum*, and *C. scoparius*) and Italian star thistle (*Carduus pycnocephalus*) are common invasive plants in the project areas and are classified as noxious weeds by the California Invasive Plant Council. They are aggressive species whose seeds are easily spread by project activities. No species of broom or star thistle should be chip cut; instead, they should be hand-pulled whenever possible. If an individual plant is too large to pull, it will be cut to the base of the plant, and an herbicide will be hand-applicated on the stem within 30 minutes of cutting.
- When working in areas with broom, star thistle, or other invasive plants, crews will ensure that equipment is cleaned of all soil, mud, and debris before departing the site. Whenever possible, crews and equipment will remain on paved, rocked, and well-traveled trails and will avoid cross-country travel. Mud, soil, and organic debris must be removed from equipment, treads, and boots before moving between work sites, with removed soil being left at its original location. Crews can remove soil and vegetative debris by brushing and blowing, followed by water or sanitizing solution, if necessary. If water is used, crews will ensure that no erosion occurs and no waterways are contaminated.

SPR GEO-1: Suspend Disturbance during Heavy Precipitation

SPR GEO-3: Stabilize Disturbed Soil Areas

- Soil areas disturbed by mechanical, prescribed herbivory, and prescribed burns that exhibit bare soil over 50 percent or more of the treatment area will be stabilized with mulch or organic matter produced from non-invasive vegetation removal biomass disposal.

SPR GEO-4: Erosion Monitoring

- Erosion will be monitored by the project proponent through an inspection for proper implementation of applicable SPRs and mitigations prior to the rainy season, and an inspection will be conducted of the treated areas for evidence of erosion after the first large storm or rainfall event.

SPR GEO-5: Drain Stormwater via Water Breaks

SPR GEO-7: Minimize Erosion

- Heavy equipment will remain on existing roads to prevent erosion, and treatment will not occur on slopes 50% or greater.

SPR HAZ-5 Spill Prevention and Response Plan

- Herbicide application will not occur within protective buffers for special-status plants to prevent drift and non-target application.

SPR HAZ-6 Comply with Herbicide Application Regulations

SPR HYD-2 Avoid Construction of New Roads

- No new roads will be created as part of Project implementation.

Even with implementation of the above SPRs, impacts could be potentially significant per the CalVTP PEIR. Following implementation of MMs BIO-1a and BIO-1b, special-status plants identified during protocol-level surveys would be given a no-disturbance buffer of 50 feet within which vegetation treatment activities would not occur unless a qualified biologist determines that the species would benefit from treatment in the occupied habitat area. The size and shape of the generally 50-foot buffer may be adjusted if a qualified RPF or botanist determines that a smaller or larger buffer would be sufficient to avoid impacts on listed plants. Additionally, all state and federally protected wetlands will be avoided (MM BIO-4) by a standard buffer of 50 feet, which will be adjusted if slopes or other conditions warrant an increased buffer. Mitigation of the 16 plant species with moderate to high potential to occur is considered based on persistence of detection throughout their lifecycles. MMs BIO-1a and BIO-1b would be required when the following conditions are met:

- where sensitive species are known to occur
- when treatments cannot be completed in the dormant season or the species are persistent year-round due to its lifecycle (woody or non-dormant)
- when treatments would be implemented during the growing period of sensitive annual and geophyte species
- where protocol-level surveys are required (per SPR BIO-7) and special-status plants are identified during these surveys

MM BIO-1a: Avoid Loss of Special-Status Plants Listed under ESA or CESA

MM BIO-1b: Avoid Loss of Special-Status Plants Not Listed Under ESA or CESA

MM BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands

MM BIO-4: Avoid State and Federally Protected Wetlands

Impacts to Annual Forbs

Plant species exhibiting seasonal vegetative growth and flowering, followed by a dormant period where the vegetation dries after seeding, and new individuals are expected to grow subsequent years in the same general vicinity include:

- Bent-flowered fiddleneck (*Amsinckia lunaris*)
- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)
- Bristly leptosiphon (*Leptosiphon acicularis*)
- Oregon meconella (*Meconella oregana*)
- Woodland woollythreads (*Monolopia gracilens*)
- Michael's rein orchid (*Piperia michaelii*), and
- Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)

To avoid impacts on herbaceous annual forb species, focused botanical surveys will be performed during the appropriate blooming period for each of these species (MM BIO-1a and MM BIO-1b). If these species are detected, they will be recorded using a Global Positioning System (GPS) and mapped. No Project-related ground disturbance will occur within a generally 50 foot buffer of these identified locations. The size and shape of the generally 50-foot buffer may be adjusted if a qualified RPF or botanist determines that a smaller or larger buffer would be sufficient to avoid impacts on listed plants. If pre-treatment surveys identify species within the same genus of each of these species, these individuals will be treated as potentially special status species and will be offered the same protective buffer for avoidance.

Impacts to Perennial Forbs

Plant species exhibiting seasonal vegetative growth and flowering, followed by a dormant period where the vegetation dries and the plant is difficult to locate, but the plant is expected to be persistent underground during dormancy and to grow subsequent years in the same location include:

- Big-scale balsamroot (*Balsamorhiza macrolepis*)
- Big tarplant (*Blepharizonia plumosa*)
- Mt. Diablo fairy lantern (*Calochortus pulchellus*)
- Diablo helianthella (*Helianthella castanea*)

To avoid impacts on herbaceous perennial forb species, focused botanical surveys will be performed during the appropriate bloom period for each of these species (MM BIO-1a and MM BIO-1b). If these species are detected, they will be recorded using a GPS and mapped. Special-status plants identified during protocol-level surveys would be given a no-disturbance buffer of at 50 feet within which vegetation treatment activities would not occur unless a qualified biologist determines that the species would benefit from treatment in the occupied habitat area. The size and shape of the generally 50-foot buffer may be adjusted if a qualified RPF or botanist determines that a smaller or larger buffer would be sufficient to avoid impacts on listed plants. If pre-treatment surveys identify species within the same genus of each of these species, these individuals will be treated as potentially special status species and will be offered the same protective buffer for avoidance.

Impacts to Woody Shrubs, Trees, and Vines

Plant species exhibiting seasonal vegetative growth and flowering, which may or may not include a period of dormancy, and the plant is expected to be persistent above ground and detectable year-round include woody shrubs, trees, and vines:

- Western leatherwood (*Dirca occidentalis*)
- Loma Prieta hoita (*Hoita strobilina*)
- California black walnut (*Juglans californica*)
- Oval-leaved viburnum (*Viburnum ellipticum*)

To avoid impacts on persistent above-ground perennial species, focused botanical surveys will be performed during the appropriate bloom period for each of these species (MM BIO-1a and MM BIO-1b).

If these species are detected, they will be recorded using a GPS and mapped. Special-status plants identified during protocol-level surveys would be given a no-disturbance buffer of at 50 feet within which vegetation treatment activities would not occur unless a qualified biologist determines that the species would benefit from treatment in the occupied habitat area. The size and shape of the generally 50-foot buffer may be adjusted if a qualified RPF or botanist determines that a smaller or larger buffer would be sufficient to avoid impacts on listed plants. If pre-treatment surveys identify species within the same genus of each of these species, these individuals will be treated as potentially special status species and will be offered the same protective buffer for avoidance.

Impacts to Sensitive Natural Communities

To avoid impacts to sensitive natural communities, focused botanical surveys will be performed (MM BIO-1a and MM BIO-1b). If these communities are identified, they will be recorded using a GPS and mapped. No Project-related ground disturbance will occur within 50 feet of these sensitive natural communities (MM BIO-3a).

With implementation of all SPRs and MMs listed above, including survey protocols and preoperational meetings, impacts to special-status plant species would be reduced to less than significant.

7.5.2 Impact BIO-2: Substantially Affect Special-Status Wildlife Species Either Directly or Through Habitat Modifications – Less Than Significant with Mitigation, except Western Bumblebee – Potentially Significant and Unavoidable

From the desktop review of special-status species with potential to occur, 18 sensitive wildlife species were identified to potentially to occur in the Project area (Figure 9; Tables 4 and 6). Following a field reconnaissance survey, it was determined that 12 species had potential to occur on the Project site. Potential impacts and approach to mitigating impacts for these 12 species are discussed further in this section. The 6 species that are not expected to occur will not be discussed further. The Project footprint contains known occurrences of sensitive wildlife species as well as potentially suitable habitat for other sensitive wildlife species (Figure 9; Table 4 and 6).

Manual and mechanical vegetation removal, broadcast and pile burning, targeted herbicide application, and prescribed herbivory have the potential to result in direct or indirect adverse effects to special-status wildlife species or habitat. Manual and mechanical treatments, herbivory, prescribed broadcast burn, and targeted herbicide application would result in reduced understory vegetation that may modify preferred habitats for some species; however, it would promote a healthier, native residual forest habitat.

The potential for adverse effects to special-status wildlife species is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and intensity of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (pp. 3.6-131–3.6-138). Impacts to special status wildlife would be reduced to less than significant with the following SPRs and MMs (Attachment A). In addition to the CalVTP PEIR SPRs and MMs, additional Project-specific measures are described below each applicable measure.

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5: Maintain Site Cleanliness

SPR AQ-3: Create Burn Plan

- Project design includes a fire restriction zone. No fire ignition (nor use of associated accelerants) would occur within 50 feet of listed plants, riparian habitat or aquatic features, or any identified sensitive species or habitat.
- In habitat suitable for Alameda whipsnake suitable winter retreats (e.g., within native scrub habitat, rock outcrops within approximately 50 feet of scrub habitat), as determined by a qualified RPF or biologist, prescribed burning would not occur between approximately November 1 and March 31 (as determined by a qualified biologist based on temperature and weather conditions) in order to avoid potential disturbance of hibernating Alameda whipsnake.
- Prescribed burning and pile burning would be restricted to when temperatures are conducive to AWS movement, which is typically when soil surface temperatures reach 66°F (19°C) (Hammerson, 1979).

SPR AQ-4: Minimize Dust

SPR BIO-1: Review and Survey Project-Specific Biological Resources and Determine whether avoidance is possible

- A qualified biologist will conduct a pre-treatment survey to identify, map, and flag any sensitive wildlife resources for avoidance or follow-up surveys if needed. The surveys will be conducted when weather conditions and timeframes are suitable for the detection of sensitive resources. No work will occur in the work area until the area has been adequately surveyed and assessed for sensitive resources. Pre-treatment surveys may occur concurrently with nesting bird, passerine, raptor, and roosting bat surveys, or with AWS or CRLF focused surveys.

SPR BIO-2: Require Biological Resource Training for Workers

- All crew members and contractors will receive training from a qualified biologist prior to the start of work in all work areas. The training will describe the appropriate work practices necessary to implement effectively the appropriate sensitive resource impact avoidance measures and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of special-status wildlife species with potential to occur; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; and Best Management Practices. As appropriate, the training will include vegetation treatment protocols for work near suitable habitat for western bumblebee, monarch butterfly, CRLF, California newt, western pond turtle, AWS, golden eagle, American peregrine falcon, pallid bat, Townsend's big-eared bat, San Francisco dusky-footed woodrat, American badger, and nesting birds.

SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats and map locations

- See discussion below for species-specific habitat measures

SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub

- See discussion in Impact BIO-1 for measures to retain this habitat as scrub islands and to avoid type conversion

SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife

SPR BIO-10: Survey for Special-Status Wildlife and Nursery Sites

- See below for impacts discussion on western bumblebee, monarch butterfly, CRLF, California newt, western pond turtle, AWS, golden eagle, American peregrine falcon, pallid bat, Townsend's big-eared bat, San Francisco dusky-footed woodrat, American badger, and nesting birds.

SPR BIO-11: Install Wildlife-Friendly Fencing during Prescribed Herbivory

SPR BIO-12: Protect Common Nesting Birds, Including Raptors through the use of avoidance buffers, treatment modification, or treatment delay. Monitor Active Raptor Nest During Treatment and Retain Raptor Nest Trees.

- See below for impacts discussion of raptors and nesting birds.

SPR GEO-1: Suspend Disturbance during Heavy Precipitation

SPR HAZ-5: Spill Prevention and Response Plan

SPR HAZ-6: Comply with Herbicide Application Regulations

SPR HYD-1: Comply with Water Quality Regulations

SPR HYD-2: Avoid Construction of New Roads

SPR HYD-3: Water Quality Protections for Prescribed Herbivory

SPR HYD-4: Identify and Protect Watercourse and Lake Protection Zones

SPR HYD-5: Protect Non-Target Vegetation and Special-status Species from Herbicides

Even with implementation of the above SPRs, impacts could be potentially significant per the CalVTP PEIR. Following implementation of additional MMs BIO-2a, BIO-2b, BIO-2e, BIO-2g, BIO-4, and BIO-5 special-status wildlife with moderate to high potential to occur would be addressed as described below.

MM BIO-2a: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Listed Wildlife Species and California Fully Protected Species

MM BIO-2b: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Other Special-Status Wildlife Species

MM BIO-2e: Design Treatment to Retain Special-Status Butterfly Host Plants – Monarch Butterfly

MM BIO-2g: Design Treatment to Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Special-Status Bumble Bees

MM BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands

MM BIO-4: Avoid State and Federally Protected Wetlands

MM BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites

Impacts to Western Bumble Bee

Western bumble bee is a State Candidate species and is known to be present within the vicinity of the Project area. Western bumble bee occurs in chaparral, valley foothill and grassland, and oak woodlands, where there is an abundance of nectar plants and soft ground to create burrows. Suitable grassland and forest habitat is present throughout the Project area, and individual bumble bee and burrows have been observed throughout the area. Direct and indirect impacts could occur to western bumble bee from off-road travel and removal of flowering plants. The Project does not propose ground disturbance or heavy equipment off road.

The Project is designed to avoid riparian habitat and type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and no new roads will be created (SPR HYD-2). Pre-treatment surveys would combine a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) following CDFW's Survey Considerations for CESA Candidate Bumble Bees (June 2023) to identify suitable habitat, foraging adults, nest burrows, and overwintering burrows within the Project footprint. Crew members and contractors would be trained to identify and avoid these western bumblebee burrows if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance as needed. If identified, these burrows would be protected with an avoidance buffer (SPR AD-2). A Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation, and the Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants.

Although Mitigation Measures BIO-2a, BIO-2b, BIO-2g, BIO-3a, and BIO-4 would reduce impacts on foraging special-status bumble bees and their floral resources, substantial adverse effects could still occur to special-status bumble bee species during nesting and overwintering, because vegetation treatment activities could kill individuals or crush or disturb overwintering or nesting colonies. If western bumble bee, nursery sites, or flowering nectar plants are observed during focused surveys (following CDFW, 2023), or the species is assumed to be present in lieu of conducting surveys, the project proponent would avoid or minimize adverse effects on the species by implementing the following:

- If feasible, treatment activities would occur during periods when western bumble bee colonies are least active (e.g., October – January). If avoiding peak colony active time and queen and gyne flight periods is deemed infeasible for project implementation. The project proponent would require flagging areas for avoidance in which no treatment activities would occur,

biological monitoring would be required, and/or other measures recommended by CDFW as necessary to avoid injury to or mortality of these species or impacts to the population.

- Surveys for western bumble bee colonies would be conducted during queen flight season (February – March), colony active period (April – September), and gyne flight season (October – November). Surveys conducted during these active periods are considered the most effective way to protect the species; however, surveys may fail to detect the presence of a western bumblebee. A project proponent may choose to assume presence and rely on habitat as an indicator of presence in lieu of or in addition to surveys.
- Bumble bees move nests each year, and therefore surveys should be repeated each year. Even if surveys from a particular project site failed to detect bumble bees within one year, additional surveys would be performed each year or presence would be assumed, and a qualified biologist would conduct pretreatment surveys and monitor treatment activities.
- If any of the candidate bumble bee species are detected during surveys, the biologist would notify CDFW as further coordination may be required to avoid or mitigate certain impacts. As very little is known about nesting or overwintering sites of the candidate species, if nest or overwintering sites are discovered or can be documented, contact (preferably within three days) CDFW (wildlifemgt@wildlife.ca.gov), USFWS (for *B. franklini*, *B. occidentalis*, and/or *B. suckleyi*), as well as regional CDFW staff (Robynn.Swan@wildlife.ca.gov) in which the sighting occurred to contribute to the knowledge pool for bumble bee habitat and behavior.
- If CESA-protected bumble bees are observed, project proponents may consult with CDFW to obtain an Incidental Take Permit (ITP) if take of CESA-protected bumble bees may occur during project activities.

Because little is known about the life history and behaviors of western bumble bee, they can be difficult to detect, and there is no established methodology for detecting overwintering or nesting colonies of these species, western bumble bee may be difficult to completely avoid during proposed Project treatment activities. If colonies were destroyed, it is possible that populations of these species would be reduced below self-sustaining levels, and treatment activities could substantially reduce the number or restrict the range of species. Primary threats to the survival of special-status bumble bees include habitat loss or modification due to development, agriculture, high-intensity fire, fire suppression, and herbicide use (Xerces Society et al. 2018). The objective of the CalVTP is to reduce the occurrence of high-intensity wildfire and modify past practices of fire suppression, which could beneficially decrease an existing threat to western bumble bee; however, in the process of achieving this objective, there are potential impacts to western bumble bee. The CalVTP PEIR recognizes the difficulty in detecting overwintering and nesting bumble bees, determining the occurrence and severity of impacts, and that impacts to western bumble bee are designated in the PEIR to be potentially significant and unavoidable. The Project Proponent has concluded accordingly that proposed Project impacts are consistent with those described in the CalVTP PEIR, and that impacts to western bumble bee by the proposed treatment activities are potentially significant and unavoidable.

Impacts to Monarch Butterfly

Monarch butterfly is a State Candidate species and is known to be present within the vicinity of the Project area. Monarch butterfly is found in meadows, grasslands and prairies, and lays eggs exclusively on native milkweed plants. This species can also be found in urban and wet areas where ample populations of native milkweed are found. Direct and indirect impacts could occur to monarch butterfly through removal of flowering plants providing nectar, removal of native milkweed stands for larval development, and collisions with project vehicles.

The Project is designed to avoid riparian habitat and type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and no new roads will be created (SPR HYD-2). Treatment activities would be suspended during heavy precipitation until soils are no longer saturated (SPR GEO-1), a situation that would reduce the potential for Project activities to disturb burrows. Pre-treatment surveys would be combined with a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify native milkweed plants, nectar plants, and all life stages of monarch butterfly within the Project footprint. Crew members and contractors would be trained to identify and avoid milkweed and monarch butterfly if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance, as needed. If identified, milkweed and monarch larvae/pupae would be protected with an avoidance buffer (SPR AD-2). A Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation, and the Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants.

Even following the above SPRs, project impacts could still be considered potentially significant. Therefore, the implementation of MM BIO-2a, BIO-2b, BIO-2e, and BIO-3a would be implemented including targeting removal of non-native vegetation, protecting native milkweed, and restricting prescribed burning activities to the season when monarch butterfly is inactive to avoid direct impacts to individuals and their nectar plants. If Monarch butterfly, monarch larva host plants (region-specific native milkweeds: *Asclepias californica, A. fascicularis*, or *A. speciosa*), or flowering nectar plants (e.g., *Achillea millefolium, Agastache urticifolia, Arctostaphylos spp., Baccharis pilularis, B. salicifolia, Ceanothus spp., Grindelia spp., Helianthus spp., Heteromeles arbutifolia, Monardella spp., Salix spp., Salvia spp., Solidago spp., Verbena lasiostachys*, etc.) are observed during focused surveys (conducted pursuant to SPR BIO-10), or the species is assumed to be present in lieu of conducting surveys, the project proponent would avoid or minimize adverse effects on the species by avoiding treatment activities during blooming periods for Monarch butterfly host plants and nectar plants. If avoiding larval stage is deemed infeasible for project implementation, Monarch butterfly caterpillars and host plants that are detected during focused surveys would be avoided. The project proponent would require flagging areas for avoidance in which no treatment activities would occur, biological monitoring would be required, and/or other measures recommended by CDFW as necessary to avoid injury to or mortality of these species or impacts to the population. Because the Project proposes to remove invasive species through various treatments, the results of Project implementation may improve habitat quality for monarch butterfly. With these additional focused mitigation measures, impacts to monarch butterfly would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to California Red-Legged Frog, California Newt, and Western Pond Turtle

CRLF occupies permanent and ephemeral ponds and streams and uses upland habitats adjacent to these features for aestivation and dispersal. The CRLF predominately inhabits permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 1,500 meters in elevation (Stebbins 2003). During the dry season, CRLF may use refugia in upland habitat, such as small mammal burrows or adjacent moist vegetation, for aestivation (USFWS 2002a).

California newt is a State Species of Special Concern and has potential to occur on the Project site. California newts breed in ponds, reservoirs, and slow-moving streams, and use upland habitat such as wet forests, oak woodland, chaparral, and grassland with burrows or other refugia. Home range and maximum dispersal distance is not well known, though one study (Trenham 1998) recaptured adult newts up to 3,200 meters from the breeding pond where they were marked.

Western pond turtle is vulnerable in California. It uses upland and aquatic habitat in and around freshwater ponds and streams. This species nests in leaves or soil upland from water bodies in flat areas with short vegetation and dry soil that is highly associated with ponds and streams. Manual and mechanical methods of vegetation removal could impact upland areas used for egg laying, and vehicles or livestock used for prescribed herbivory could trample pond turtles or their eggs.

The Project is designed to avoid riparian habitat, aquatic features and protection zones (SPR HYD-4), type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and creation of new roads (SPR HYD-2). SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb ground-supporting burrows, nests occupied by CRLF, California newts, and western pond turtles, and would reduce the potential for impacts to this species. Pre-treatment surveys would be combined with a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify individuals of all life stages, nests, and aestivation sites within the Project footprint. Crew members and contractors would be trained to identify and avoid nests, aestivation and breeding habitat, and individuals of all life stages if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance, as needed. If habitat or individuals are encountered, they would be protected with an avoidance buffer (SPR AD-2). To protect both aquatic and upland habitat, a Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation. The Project proponent will comply with water quality regulations (SPR HYD-1); will adhere to water quality protection measures when conducting prescribed herbivory (SPR HYD-3), herbicide application regulations (SPR HAZ-6), and restrict use of herbicide to avoid native plants; and will reduce the potential for impacts to aquatic and upland habitat occupied by this species.

Even following the above SPRs, project impacts could still be considered potentially significant. Therefore, the implementation of MM BIO-2a, BIO-2b, BIO-3a (overwintering upland habitat), and BIO-4 would be implemented including avoiding suitable habitat such as riparian, wetland, and aquatic habitat by with a minimum 50-foot buffer; providing a qualified biologist during treatment activities to provide avoidance advice during an encounter; and avoiding vegetation treatment within occupied habitat or

conducting vegetation treatment outside the sensitive period in these species' life cycle. This would be accomplished by avoiding all aquatic habitat identified during focused surveys prior to work. MM BIO-2b requires biological monitoring during treatment activities within or adjacent to sensitive habitat areas (e.g., streams, ponds, etc.), flagging areas for avoidance, and establishing no work-buffers. If these species are detected during pre-activity surveys or work, the animal will be allowed to leave the area of its own volition. Manual removal of these species are not anticipated during work but permitted biologists with applicable CDFW SCP and/or USFWS 10(a)(1)(A) permits will be on call during work activities to consult with the on-site biologist, as necessary.

A qualified RPF or qualified biologist will conduct protocol-level surveys for California red-legged frog pursuant to the Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog (USFWS 2005) within habitat potentially suitable for the species, or presence of the species will be assumed and Mitigation Measure BIO-2a will be implemented. If protocol-level surveys are conducted and California red-legged frogs are not detected within the treatment areas, then no mitigation for the species will be required and avoidance buffers (as required in Mitigation Measures BIO-2a) will not be required. If California red-legged frog is detected or assumed present, Mitigation Measure BIO-2a will be implemented.

To avoid impacts on western pond turtle, focused visual encounter surveys for the species and for potentially suitable burrows will be conducted within habitat areas suitable for the species prior to treatment activities within approximately 1,500 feet of aquatic habitat (i.e., streams, ponds). If upland habitat with suitable burrows/nest sites for western pond turtle is detected, the RPF or qualified biologist will inspect the burrow to determine whether it is occupied (e.g., using a burrow scope). If western pond turtle is identified during focused surveys or assumed present, Mitigation Measure BIO-2b for these species will be implemented.

If California red-legged frog, California newt, and Western pond turtle are assumed present or detected during protocol-level surveys, the following measures would be implemented:

- Mechanized operations would be shut down when the precipitation threshold is met, and the shutdown period would begin once the precipitation event has ended.
- If California red-legged frog, California newt, or western pond turtle are detected during focused surveys, the project proponent would require flagging areas for avoidance in which no treatment activities would occur, biological monitoring, or other measures recommended by CDFW as necessary to avoid injury to or mortality of these species. If impacts would remain significant under CEQA and the project proponent determines that additional mitigation is necessary to reduce significant impacts, Mitigation Measure BIO-2c would be required, and incidental take permitting under CESA may be required pursuant to consultation with CDFW.

California Red-Legged Frog

- During the dispersal season from October 15 (or after the first rainfall of the year) through April 15, pre-treatment visual surveys would be performed daily by a qualified RPF, biologist, or

biological monitor, prior to implementation of any treatment activities (i.e., mechanical, manual, and herbicide) within breeding, upland, or dispersal habitat as determined by a qualified biologist. If a California red-legged frog is found during pre-activity surveys or enters the Project site during treatment activities, all work would stop within a non-disturbance buffer of 100 feet around the individual unless the qualified RPF or biologist determines that a different sized buffer is appropriate to avoid disturbance, injury, or mortality. Treatment activities would cease within the buffer until the animal leaves on its own and the occurrence would be reported to the qualified RPF or biologist and USFWS.

- If California red-legged frog is found during pre-activity surveys, which would be conducted by a qualified RPF or biologist, or enters the Project site during treatment activities, the specific habitat features (i.e., log, tree, debris pile) used by the frog when detected would be evaluated by a qualified RPF or biologist for habitat retention, if habitat retention is achievable while meeting the project goals.
- All herbicide use during project implementation would comply with the herbicide use restrictions in the stipulated injunction issued by the Federal District Court for the Northern District of California to resolve the 2006 case brought against the US EPA by the Center for Biological Diversity. For example, to comply with the injunction, only cut stump and basal bark applications would be allowed in California red-legged frog habitat under the following conditions.
- Cut stump and basal bark applications may be used but would not be applied within 60 feet of breeding or non-breeding aquatic habitat.
- If operators need to move or treat large woody debris greater than 12 inches in diameter, that piece of woody debris would be evaluated for the presence of California red-legged frog by a qualified biologist, qualified professional, RPF, RPF supervised designee, or a contractor who has been through the environmental awareness training.

The following additional measures apply to a variety of sensitive reptiles and amphibians with potential to occur in the Project area.

- All contractors, their employees, and agency personnel involved in the implementation of the project would check for the presence of Alameda whipsnake, California red-legged frog, California newt, Western pond turtle, or other sensitive wildlife under or next to stationary vehicles prior to operating their vehicles. If a special-status reptile or amphibian is found, the qualified RPF or biologist would determine necessary next steps to avoid impact.

- If pile burning is implemented, piles would be placed away from mammal burrows, rock outcrops, or scrub habitat that could serve as refugia for Alameda whipsnake, California newt, western pond turtle, or California red-legged frog. Within AWS habitat, prescribed burning and pile burning would be restricted to when temperatures are conducive to Alameda whipsnake movement, which is typically when soil surface temperatures reach 66°F (19°C) (Hammerson, 1979). Burn piles would be burned gradually and lit from one end (the uphill side on slopes) to

allow animals that may be using the pile for refuge to escape. When feasible, a single pile would be ignited, and all other piles in the vicinity of the burning pile would be carried to the burning pile and burned in the same location as the initial burn pile. When feasible, this strategy would minimize risk to wildlife using piles for refuge. Burn piles would not be placed on mammal burrows which occur in oak woodland, grassland, or savannah within suitable upland, breeding, core, dispersal, or foraging habitat for Alameda whipsnake, California red-legged frog, California newt, or Western pond turtle.

- Whenever feasible in forested environments adjacent to scrublands (for Alameda whipsnake and California red-legged frog) or in oak woodland or grasslands (for California newt, Western pond turtle, and California red-legged frog), understory vegetation would be removed first, followed by trees, to facilitate visibility of sensitive reptiles and amphibians by a qualified RPF or biologist.

- Heavy equipment including front-loaded mastication equipment which may collapse burrows would occur exclusively from compacted surfaces such as established roads and trails.

With these additional mitigation measures, impacts to California red-legged frog, California newt, and western pond turtle would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to Alameda Whipsnake

AWS is a Federally and state threatened species of snake and may occur within the Project area. This species primarily uses scrub and chaparral habitats along with adjacent oak woodland and grassland habitats for foraging and dispersal. This species is also highly associated with rocky outcrops within and adjacent to core scrub areas for basking and foraging. Federally designated Critical Habitat is identified within the Project footprint, suitable coyote brush scrub was observed during reconnaissance surveys, and the species is known to be locally present. Direct impacts could occur during manual removal and traveling on- and off-road.

No mechanical equipment would be used within 50 feet of scrub habitats, and all mechanical equipment used for the Project will remain on existing roads, which greatly reduces the potential for direct impacts to AWS. Indirect impacts could occur from habitat type conversion of scrub and chaparral; however, vegetation removal in these habitats would include removing invasive species and only removing dead branches and individuals of native vegetation, creating a natural mosaic of scrub islands (USFWS 2006) to prevent type conversion and potentially enhance habitat by creating mosaiced, less dense scrub and chaparral communities. Within AWS habitat, treatment methods would primarily include manual methods; mechanical equipment would not be operated within AWS habitat. Grazing and prescribed burning would occur in adjacent grasslands which is suitable foraging and dispersal habitat for AWS.

The Project is designed to avoid type-conversion of chaparral or coastal sage scrub (SPR BIO-5) and creation of new roads (SPR HYD-2). SPR GEO-1 would suspend treatment activities during heavy

precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb ground-supporting burrows, and would reduce the potential for impacts to this species. Pre-treatment surveys would be combined with a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify individuals and burrow sites within the Project footprint. Crew members and contractors would be trained to identify individuals and burrows, if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance as needed. If individuals are encountered, they would be protected with an avoidance buffer (SPR AD-2). To protect habitat, a Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation. The Project proponent will adhere to water quality protection measures when conducting prescribed herbivory (SPR HYD-3), herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants, and will reduce the potential for impacts to suitable habitat.

AWS cannot be effectively avoided through seasonal avoidance or avoidance buffers, which may be effective for other species. Even following the above SPRs, project impacts could still be considered potentially significant. Measures that ensure full avoidance of AWS take will be implemented at all project areas. Therefore, implementation of the following AWS avoidance and minimization strategy will be used consistent with the following CalVTP MM BIO-2a, BIO-2b, and BIO-5.

Pre-treatment Survey. CalVTP MM BIO-2a requires that treatments will not be implemented within occupied habitat. This will be achieved by conducting focused surveys to determine presence of AWS immediately prior to work at each new area. If crews are working in suitable core habitat for AWS, a biologist will conduct ongoing pre-treatment focused surveys for the species, adhering to methodologies recommended in USFWS 2011 and Miller and Alvarez 2016. Surveys will be conducted in specified areas immediately prior to vegetation removal to ensure that the species is not present prior to the start of work in each scrub area. Surveys will involve a qualified biologist checking refugia on the ground, branches and brush, and vegetative canopy for AWS that could be present. When dense vegetation inhibits visual survey effectiveness, the biologist will work closely with the crew to cut intermittently a small amount of brush and survey a small area. Surveys will occur constantly immediately ahead of work activities, and if work ceases for up to 1 hour, the area will be resurveyed prior to returning to work. During this survey effort, the biologist will also advise the crew on avoidance of potential refugia such as burrows and rock piles. AWS focused surveys will occur daily when work is scheduled for areas identified during biological review that could potentially support AWS, such as in suitable scrub/chaparral habitat or oak woodland/grassland adjacent to scrub/chaparral.

AWS Avoidance and Minimization Strategy. Alameda whipsnake would generally be assumed present in all scrub communities, adjacent grasslands, adjacent woodlands, and open woodland habitat.

Avoidance of mortality or disturbance to individual Alameda whipsnakes would be achieved through the following strategies, which are applicable to manual treatment, mechanical treatment, and prescribed burning:

- Pre-activity survey: A qualified RPF or biologist would conduct a pre-activity visual clearance survey for Alameda whipsnake immediately prior to manual, mechanical, broadcast burn, and

pile burn treatment activities occurring in suitable habitat (scrub habitat, adjacent grassland, and open woodland) each day.

- Biological Monitor: A qualified biologist would monitor all manual and mechanical treatment activities and prescribed burning. The monitor would conduct ongoing surveys ahead of all manual and mechanical work in suitable chaparral and coastal scrub habitat areas. Survey methodology would be adapted from techniques discussed in USFWS 2011 and Miller and Alvarez 2016.
    - Surveys would be conducted on an ongoing basis throughout the day ahead of vegetation removal to ensure that the species is not present prior to the start of work.
    - The qualified biological monitor would visually survey refugia on the ground, branches and brush, and vegetative canopy for Alameda whipsnake that could be present.
    - When dense vegetation inhibits visual survey effectiveness, the biologist would work closely with the crew to ensure all cut vegetation is surveyed prior to manual and mechanical removal; the crew and biologist would continuously switch between removing a small amount of vegetation, then surveying the next visible patch of vegetation.
    - If work ceases for up to one hour, the area would be resurveyed prior to returning to work. If the qualified RPF or biologist deems the area to be highly suitable habitat for Alameda whipsnake, it may be required that the crew cuts the upper half of the canopy, pauses for survey, and then removes the lower portion of the canopy.
    - During this pre-activity visual clearance survey effort, the biologist would advise the crew on avoidance of potential refugia such as burrows and rock piles.
- Coverboards shall be installed in key areas, determined by the qualified RFP / biologist prior to vegetation clearing activities within suitable AWS habitat. The coverboards shall be placed to provide refuge for the Alameda whipsnake fleeing the area, including areas where a directional treatment methodology is used. Coverboards shall be inspected at the end of each workday and use by wildlife shall be recorded.
- Prior to operating stationary vehicles and equipment, all contractors, their employees, and agency personnel shall check under and near vehicles/equipment for the presence of AWS and any wildlife that may have moved there. If AWS or any wildlife are discovered, the qualified biologist will be contacted immediately. The Biologist shall have the authority to halt project activities until the animal leaves the area of its own accord, and shall contact USFWS, as necessary, to determine necessary steps.
- Seasonal Restrictions: In habitat suitable for Alameda whipsnake suitable winter retreats (e.g., within native scrub habitat, rock outcrops within approximately 50 feet of scrub habitat), as determined by a qualified RPF or biologist, treatment activities involving prescribed burning, heavy equipment, and ground disturbance would not occur between approximately November 1 and March 31 (as determined by a qualified biologist based on temperature and weather conditions) in order to avoid potential disturbance of hibernating Alameda whipsnake. Manual treatment involving hand crews (i.e., work with hedge trimmers, hand-held chainsaws, weed-whippers, etc.), prescribed burning, or mechanical treatment if heavy machinery can be operated without ground disturbance from an existing road or other disturbed area devoid of burrows or rock piles(e.g., use of an articulating arm masticator operated from an existing road

or other disturbed, compacted area that contains no burrows or potential hibernaculum may be implemented during hibernating season.

- Temperature Restrictions: Mechanical vegetation removal, prescribed burning, and pile burning would be restricted to when temperatures are conducive to Alameda whipsnake movement, which is typically when soil surface temperatures reach 66°F (19°C) (Hammerson, 1979). Within areas determined by the qualified RPF or biologist to be suitable Alameda whipsnake habitat, mechanical treatment and prescribed burning would be avoided when temperatures are determined by the qualified RPF or biologist to be too low for Alameda whipsnake movement. Manual treatments may occur in cooler conditions, after the qualified RPF or biologist has thoroughly surveyed the area.
- Debris Management: Contractors would immediately (i.e., the same day) process (i.e., remove completely from the treatment area, chip, permanently place within the treatment area for soil stabilization) all cut materials (i.e., brush, stems, slash, logs) as they are produced to avoid attracting Alameda whipsnake to the vegetation piles. If processing within the same day is not feasible, the on-site biologist would advise crews on suitable location(s) outside of suitable scrub and directly adjacent woodland/grassland habitat (e.g., within landings or temporary refuge areas) for temporary storage of cut materials that cannot be processed immediately.
- Pile Burning: The following measures apply when work occurs in potential (non-isolated) Alameda whipsnake habitat:
    - Check for burrows before building piles. Avoid placing piles on large rodent burrows.
    - Light the pile from one end (generally the uphill side on slopes) to allow AWS to escape, rather than lighting the whole pile at once.
    - Limit material in the pile to 4-inch diameter or less to limit heat penetration into the ground and provide short escape distance.
    - Pile burning will not occur within suitable Alameda whipsnake habitat during the hibernation season (November 1 - March 31).
- Habitat function would be maintained for Alameda whipsnake through the following strategies:
- Create Shrub Islands: Vegetation removal in coastal scrub and chaparral habitat would be designed to create shrub islands. This includes all types of coastal scrub and chaparral, including coyote brush scrub. Shrub islands are described based on the USFWS definition of Alameda whipsnake “core” habitat use areas (USFWS 2000).
- Shrub vegetation patches that are at least 0.5 acre in size, or 0.2 acre in size but within 50 feet of another patch of scrub at least 0.5 acre in size, would be retained.
- Vegetation removal activities would retain patches of coastal scrub and chaparral in irregular, oblong shapes that maintain a natural looking condition on the landscape by only removing dead vegetation and branches and removing invasive plants.
- Protection of Refugia Habitat: Rock outcroppings, mammal burrows, and native shrubs within 50 feet of rock outcroppings that are suitable Alameda whipsnake refugia (as determined by the qualified RPF or biologist) would be maintained and protected from vehicles.
- Chipped vegetation would not be spread in AWS habitat.
- Work in AWS core scrub habitat will be restricted to hand tools only and will be restricted to at least one hour after sunrise when soil surface temperatures are 66°F (13°C), and AWS are

generally more active. A biologist will advise crews on where to broadcast chips, and chips will not be broadcast within AWS habitat. In addition, AWS surveys will be conducted, and AWS habitat function will be maintained, as described below.

- If these species are detected during pre-activity surveys or work, the animal will be allowed to leave the area of its own volition. Manual removal of these species is not anticipated during work but permitted biologists with applicable CDFW SCP and/or USFWS 10(a)(1)(A) permits will be on call during work activities to consult with the on-site biologist, as necessary.
- AWS surveys will be conducted, and AWS habitat function will be maintained, as described below.

Maintaining AWS Habitat Function. AWS suitable habitat is described in the USFWS Critical Habitat Designation (USFWS 2006) as comprising three habitat types: core scrub, dispersal/foraging habitat, and rocky outcrop habitat. Dispersal and foraging habitat are defined as woodland or annual grassland contiguous to core scrub habitat. The nature of shaded fuel break work will not change the functionality of dispersal and foraging habitat because large oak woodland trees will be retained, and scrub and grassland habitat will not be heavily targeted for treatment.

Core scrub habitat is described as shrub communities with a mosaic of open and closed canopy patches. USFWS defines scrub as coastal scrub, coyote brush scrub, or maritime chaparral areas (or "scrub") greater than 0.5 acre in size, or scrub areas greater than 0.2 acre in size that are within 50 feet of scrub patches greater than 0.5 acre in size (USFWS 2006). When work is occurring within core scrub habitat areas, the crew will work closely with the biologist to remove scrub selectively in a way that retains these dimensions and therefore the overall habitat function while still serving the needs of the shaded fuel break. This technique has been used on previous projects and aims to provide a "scrub mosaic" that retains AWS habitat function. Scrub mosaic recommendations may vary depending on site conditions. The following techniques will be implemented during treatment:

- Vegetation removal will occur in irregular, oblong shapes to maintain a natural condition;
- Vegetation removal will avoid rocky outcrops;
- The overall dominant habitat type will not be converted; and
- Vegetation removal will include only dead, woody vegetation and branches and removing invasive plants.

Preliminary and post-treatment surveys will be conducted that will assess the condition and acreage of AWS core scrub habitat. Post-treatment conditions will be assessed to ensure that there is no overall loss of habitat function within AWS core scrub.

It should be noted that scrub and chaparral are transitional habitat types and over time, canopy in these areas grows taller and denser, and larger tree species such as oak and madrone are naturally recruited and become increasingly dominant. Without any intervention over time, chaparral and scrub communities will natural be converted to woodland and forested habitat. Thoughtful treatment of

select areas that retains scrub islands suitable for AWS core scrub is expected to be more effective than complete inaction in these areas. This activity is consistent with AWS habitat protections described in CalVTP MM BIO-2b. With these additional focused MMs, impacts to AWS would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

The following additional measures apply to a variety of sensitive reptiles and amphibians with potential to occur in the Project area.

- All contractors, their employees, and agency personnel involved in the implementation of the project would check for the presence of Alameda whipsnake, California red-legged frog, California newt, Western pond turtle, or other sensitive wildlife under or next to stationary vehicles prior to operating their vehicles. If a special-status reptile or amphibian is found, the qualified RPF or biologist would determine necessary next steps to avoid impact.

- If pile burning is implemented, piles would be placed away from mammal burrows, rock outcrops, or scrub habitat that could serve as refugia for Alameda whipsnake, California newt, western pond turtle, or California red-legged frog. Within AWS habitat, prescribed burning and pile burning would be restricted to when temperatures are conducive to Alameda whipsnake movement, which is typically when soil surface temperatures reach 66°F (19°C) (Hammerson, 1979). Burn piles would be burned gradually and lit from one end (the uphill side on slopes) to allow animals that may be using the pile for refuge to escape. When feasible, a single pile would be ignited, and all other piles in the vicinity of the burning pile would be carried to the burning pile and burned in the same location as the initial burn pile. When feasible, this strategy would minimize risk to wildlife using piles for refuge. Burn piles would not be placed on mammal burrows which occur in oak woodland, grassland, or savannah within suitable upland, breeding, core, dispersal, or foraging habitat for Alameda whipsnake, California red-legged frog, California newt, or Western pond turtle.

- Whenever feasible in forested environments adjacent to scrublands (for AWS and CRLF) or in oak woodland or grasslands (for California newt, Western pond turtle, and CRLF), understory vegetation would be removed first, followed by trees, to facilitate visibility of sensitive reptiles and amphibians by a qualified RPF or biologist.

- Heavy equipment would occur exclusively from compacted surfaces such as established roads and trails.

Impacts to Golden Eagle and American Peregrine Falcon

Golden eagle is a Federally and state fully protected species that is Federally protected under the Bald and Golden Eagle Protection Act. Golden eagle was observed soaring and foraging within Work Area 4 during reconnaissance surveys and therefore is known to occur within the work areas. Peregrine falcon, also a state fully protected species, may also occur within the work areas. Golden eagle is known to forage and disperse over the work areas, and it is likely that peregrine falcon does as well.

Direct impacts to species could occur if nest trees are removed. Indirect impacts include disturbance of active nests within a zone of influence of Project activities (0.5 mile), depending on the equipment to be used, anticipated amount of time for construction at a given location, sensitivity to disturbance of any nesting birds present, and other factors. Limbing-up of nest trees or trees adjacent to nest trees could disturb nesting activity. Removal of vegetative cover could indirectly impact these raptors by reducing cover for prey species.

The Project is designed to avoid riparian habitat and type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and no new roads will be created (SPR HYD-2). Trees greater than 6 inches DBH will be retained unless they pose a fire hazard as determined by an RPF. Pre-treatment surveys would be combined with a focused nesting survey during nesting season (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify former and active golden eagle and American peregrine falcon nests within the Project footprint and a 0.5 mile buffer. Crew members and contractors would be trained to identify and avoid raptor nests if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance, as needed. If identified, active golden eagle and American peregrine falcon nests would be protected with an avoidance buffer (SPR AD-2). A Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation, and the Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants. SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb ground-supporting burrows for prey species such as rabbits and small mammals, and would reduce the potential for indirect impacts to this species. During prescribed herbivory activities, a wildlife-friendly fencing will be installed that will allow perching by avian species and prevent electrocution (SPR BIO-11).

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, the implementation of MM BIO-2a, BIO-2b, and BIO-4 including avoiding protected aquatic features, targeting removal of non-native vegetation, removing strategic native vegetation to retain habitat function and prevent type conversion, and restricting treatment activities to non-nesting season as possible avoid impacts to nest success and prey base. If active special-status bird nests are detected during focused surveys, a no-disturbance buffer of at least 8 acres would be established around active nests for golden eagle, 10 acres for American peregrine falcon, and at least 100 feet around the active nests of other special-status birds, and no treatment activities would occur within this buffer until the chicks have fledged, or the nest is otherwise no longer active, as determined by a qualified RPF or biologist. Additionally, trees containing golden eagle nests would not be removed pursuant to the Bald and Golden Eagle Protection Act. With these additional focused MMs, impacts to golden eagle and American peregrine falcon would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to Nesting Birds Protected by the Migratory Bird Treaty Act. Nesting birds are protected under the Migratory Bird Treaty Act (16 USC §§ 703–711), as administered by the USFWS. Under this act, it is unlawful to kill, injure, or harass birds or their eggs, or directly or indirectly cause the failure of an active nest through actions that result in birds abandoning their nests.

Birds have the potential to nest in all work areas if work is to occur within the typical nesting bird season (February 1 to September 15). A qualified biologist with familiarity and knowledge of the identification, life history, and ecological requirements of special-status avian species will conduct pre-activity surveys prior to work in priority work areas. Because of the wide variety of birds with potential to nest in the Project footprint, nests could occur in a wide variety of locations, including on the ground; in grassland; on mats in a wetland; in shrubs, trees, or cliffs; on buildings; or in rocky outcrops. Direct impacts to nesting birds could occur by crushing or destroying nests, force-fledging nestlings before completion of nestling period. Indirect impacts to nesting birds could occur by drawing attention to visual predators through the removal of vegetative cover around a nest that had been hidden from predators and to provide ample cover for parents to sneak on and off active nests. Indirect impacts could also include loss of habitat for nesting and resources for foraging.

Adverse effects on nesting birds can be avoided by conducting initial treatments between September 1 and December 31, outside of the nesting bird season (February 1-August 31). Initial and maintenance treatments, including manual and mechanical treatment activities, may be conducted during portions of the nesting bird season. These activities could result in direct loss of active nests or disturbance to active nests from auditory and visual stimuli (e.g., heavy equipment, chain saws, vehicles, personnel), potentially resulting in abandonment and loss of eggs or chicks. If treatments occur during the nesting season, then SPR BIO-12 would apply, and a survey for common nesting birds would be conducted within the treatment areas by a qualified biologist prior to treatment activities. If no active bird nests are observed during focused surveys, then additional mitigation would not be required. If active nests of common birds or raptors are observed during focused surveys, disturbance to the nests would be avoided by establishing an appropriate buffer around the nests, modifying treatments to avoid disturbance to the nests, or deferring treatment until the nests are no longer active as determined by a qualified biologist.

The Project is designed to avoid riparian habitat and type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and no new roads will be created (SPR HYD-2). Pre-treatment surveys would be combined with a focused nesting survey during nesting season (SPR BIO-10) to nests within the Project footprint and at minimum 50-foot buffer. Nesting bird surveys will occur no more than 7 days prior to work to ensure that no nests will be disturbed during vegetation management work. If work pauses for more than 7 days, a follow-up survey will be conducted prior to the restarting of work. Appropriate survey areas will be determined by the qualified biologist, depending on the project footprint, type of activity proposed, and suitable habitat for nesting birds. Surveys will be conducted during periods of high bird activity (i.e., 1-3 hours after sunrise and 1-3 hours before sunset). If the qualified biologist determines that visibility is significantly obstructed due to on-site conditions (e.g., access issues, rain, fog, smoke, or sound disturbance [including high wind]), surveys will be deferred until conditions are suitable for nest detection. Should the biologist encounter an active nest of a migratory bird species, the biologist will establish an avoidance buffer of at least 50 feet (SPR AD-2) until the nest is fledged and inactive. Per CDFW recommendations MOFD would implement a 10-acre buffer around active peregrine falcon nests, and an 8-acre buffer around active golden eagle nests within which no treatment activities will occur

during the critical period, defined as February 1st to April 1st (extended to July 15 for occupied nests) for peregrine falcon, and January 15th to April 15th (extended to September 1st or until birds have fledged for occupied nests) for the golden eagle.

Crew members and contractors would be trained to identify and avoid raptor nests if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance, as needed. A Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation, and the Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants. SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb ground-supporting burrows for prey species such as insects and small mammals, and would reduce the potential for indirect impacts to this species. During prescribed herbivory activities, a wildlife-friendly fencing will be installed that will allow perching by avian species and prevent electrocution (SPR BIO-11).

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MMs BIO-2a, BIO-2b, BIO-3a, and BIO-4 would be implemented, including avoiding protected aquatic features, targeting removal of non-native vegetation, removing strategic native vegetation to retain habitat function and prevent type conversion, and restricting treatment activities to non-nesting season as possible to avoid impacts to nest success and prey base. With these additional focused MMs, impacts to nesting birds would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to Special-Status Bats: Pallid Bat and Townsend's Big-Eared Bat

Bats are classified as non-game indigenous mammals and are protected by a variety of legislation and regulations through several agencies, including the CDFW. Where protected bats may occur, qualified biologists will conduct focused surveys and/or mitigation for impacts to bats. Two bat species that are both CSSC, pallid bat and Townsend's big-eared bat, may occur within the Project area. Some bat species, including Townsend's big-eared bat, that use caves, mines, tunnels, buildings, or bridges, would not be impacted by manual vegetation removal. Loud mechanical equipment used within the shaded fuel break could impact bat species roosting in buildings or structures in the area. Tree removal activities could impact colonial bat species such as the pallid bat, which select a variety of trees and roost features, including cavities, crevices, and deep fissures in the wood or bark of trees and/or exfoliating bark. Smoke from pile burning could also impact roosting bats by disturbing them during sleep, breeding, or hibernation. Depending on the species present, the size of the roost, the type of roost (e.g., maternity, day, night, hibernation), and the season when tree removal would occur, the removal of trees could affect bats through removal of the roost and injury to bats.

The Project is designed to avoid riparian habitat and type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and no new roads will be created (SPR HYD-2). Pre-treatment surveys would be combined with a focused bat roost survey (SPR BIO-10) required when working in potentially suitable habitat for

special status species, which includes roosting bats and during maternity roosting season (April-July 31). Due to the difficulty of detecting bats during traditional daytime surveys, bat surveys will focus on identifying potential bat habitat and roosting structures. Roosting habitat typically includes old buildings, bridges and culverts, large trees greater than 12 inches DBH, and large rock features such as cliffs, caves, and mines. If these structures occur in project areas, a qualified bat biologist may conduct a Level 1 survey for evidence of bat occupation, specifically looking for signs of day-roosting bats, fecal matter, staining, and carcasses. These surveys can be performed year-round. Based on the results of Level 1 surveys, day and night emergence Level 2 surveys may be performed (April 1-September 15), or bat exclusion or MMs taken.

Bats may be excluded from roosting structures in the work area only during the periods from mid-February until mid-April, and from late August until mid-October to avoid hibernation and maternity season. Bat elimination must include the combination of two actions: careful blockage of all openings that are large enough to allow bats to enter, and installation of one-way valves placed on the actively used openings to allow the bats to fly outside as they normally would but not to re-enter. After 7-10 days, the one-way valves are removed, and the remaining openings are blocked or sealed. Note that bats show a strong propensity to use any available openings to reclaim access to the roost when excluded, and blockages must be performed with great thoroughness and attention to detail. Bat exclusions must be overseen by a qualified bat biologist.

Crew members and contractors would be trained to identify and avoid bat roosts if encountered (SPR BIO-2), and a biological monitor will be present on site to provide guidance, as needed. If identified, active maternity or night roosts would be protected with an avoidance buffer (SPR AD-2). A Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation, and the Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants that could impact insects which are bat prey base.

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MM BIO-2a, BIO-2b, BIO-3a, and BIO-4 would be implemented, including avoidance of protected aquatic features, targeting removal of non-native vegetation, removing strategic native vegetation to retain habitat function and prevent type conversion, and restricting treatment activities to non-nesting season as possible avoid impacts bats and their insect prey base. If special-status bat roosts are identified during focused surveys, a no-disturbance buffer of 250 feet would be established around active pallid bat, Townsend's big-eared bat, and other special status bat roosts and mechanical treatments, manual treatments, and broadcast and pile burning would not occur within this buffer. With these additional focused MMs, impacts to special status bats would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; SFDFW) is a CSSC and one of 11 subspecies of dusky-footed woodrats living in the west. It is a medium-sized, native rodent with large ears and a long, scantily haired tail. SFDFW inhabit oak and riparian woodlands with a well-developed

understory as well as chaparral scrub habitats, where their conical stick nests are often visible. These nests may be as much as 6 feet tall and can occur on the ground and in the canopy. Woodrats exhibit high site fidelity, and their nests may last for several years. San Francisco dusky-footed woodrat is known to be locally present within the region. Woodrat nests were observed during reconnaissance surveys, and they are known within the Project area. Direct impacts could result in nest damage during manual or mechanical removal. Indirect impacts could include disturbing a woodrat from the safety of its nest putting at greater risk of predation.

The Project is designed to avoid riparian habitat, aquatic features and protection zones (SPR HYD-4), type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and creation of new roads (SPR HYD-2). SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb ground-supporting nests occupied by SFDFW, and would reduce potential for impacts to this species. Pre-treatment surveys would be combined with a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify nest sites within the Project footprint. SFDFW nests will be avoided entirely where possible. Nests that cannot be avoided by work will be given a 1-meter buffer to include surrounding vegetation, encompassing canopy above the nest. Nests that are deemed hazardous, such as those creating ladder fuels, may be dismantled under the supervision of a qualified biologist using a phased approach that allows woodrats to disperse safely.

Crews will be trained before the start of work to recognize woodrat nests and follow proper avoidance protocol (SPR BIO-2). If previously unknown nests are uncovered during work, crews will consult a biologist. Biologists will flag woodrat nest avoidance buffers during the pre-activity surveys (SPR AD-2).

To protect both aquatic and upland habitat, a Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation. The Project proponent will comply with water quality regulations (SPR HYD-1); will adhere to water quality protection measures when conducting prescribed herbivory (SPR HYD-3), herbicide application regulations (SPR HAZ-6), and restrict use of herbicide to avoid native plants; and will reduce the potential for impacts to habitat occupied by this species.

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MMs BIO-2a, BIO-2b, BIO-3a, and BIO-4 would be implemented including avoiding suitable habitat such as riparian, wetland, and aquatic habitat by with a minimum 50-foot buffer; providing a qualified biologist during treatment activities to provide avoidance advice during an encounter; and avoiding vegetation treatment within occupied habitat or conducting vegetation treatment outside the sensitive period in these species' life cycle. This scenario would be accomplished by avoiding all aquatic habitat identified during focused surveys prior to work. MM BIO-2b requires biological monitoring during treatment activities within or adjacent to sensitive habitat areas (e.g., streams, ponds, etc.), flagging areas for avoidance, and establishing no work-buffers. If a San Francisco Dusky-Footed Woodrat nest is identified during focused surveys, a minimum 10-foot no-disturbance buffer would be established around the nest which would be assumed to be occupied. The size of the buffer would be determined by the qualified RPF or biologist, and no treatment activities would occur within this buffer.

If any individual of this species is detected during pre-activity surveys or work, the animal will be allowed to leave the area of its own volition.

Per CDFW recommendations the following additional measures would be implemented to further reduce impacts to woodrats:

- Prior to any nest removal, safety measures should be employed to minimize potential human exposure to possible diseases carried by woodrats. Adequate protection, such as protective clothing, equipment and tools, gloves, and appropriate masks, to ensure safety regarding viruses and diseases potentially carried by rodents, is recommended.
- Vegetation immediately surrounding each nest to be removed will be cleared without disturbing the nest, to prevent displaced woodrats from taking cover in dense vegetation within the work area. All vegetation will be hauled off site immediately. No brush piles or dense understory vegetation that could be used for cover by woodrats will be retained in the nest removal area after the nest is removed.
- Nest removal efforts should not take place during inclement or extreme weather conditions and should take place at dusk or dawn when woodrats are least susceptible to predators. Each nest should be carefully dismantled using hand tools (e.g., a rake and pitchfork).
- If a litter of young is found or suspected, the nest material will be replaced and the nest left alone for 2 to 3 weeks; after this time, the nest will be rechecked to verify that the young are capable of independent survival before proceeding with nest dismantling.

With these additional MMs, impacts to San Francisco dusky-footed woodrat would be reduced to less than significant. This impact is consistent with the CalVTP PEIR.

Impacts to American Badger

American badger is a CSSC that occupies drier open stages of most shrub, forest, and herbaceous habitats with friable soils; they are also commonly associated with open grassland habitats. This species may occur within grassland habitats and the fringes of oakwood and scrub communities on site. Direct impacts could result during manual or mechanical vegetation removal due to degradation of habitat around an active underground burrow or crushing the burrow. Indirect impacts could include a reduction in their prey base through crushing burrows or habitat loss.

The Project is designed to avoid type-conversion of chaparral or coastal sage scrub (SPR BIO-5), and creation of new roads (SPR HYD-2). SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for Project activities to disturb burrows occupied by American badger and would reduce potential for impacts to this species. Pre-treatment surveys would be combined with a focused survey (SPR BIO-1, SPR BIO-3, SPR BIO-10) to identify nest sites within the Project footprint. American badger burrows will be avoided entirely by an appropriate buffer that will include surrounding vegetation, including canopy above the burrow, as applicable.

Crews will be trained before the start of work to recognize American badger and burrows and follow proper avoidance protocol (SPR BIO-2). If previously unknown burrows are uncovered during work, crews will consult a biologist. Biologists will flag burrow avoidance buffers during the pre-activity surveys (SPR AD-2). To protect habitat, a Spill Prevention and Response Plan (SPR HAZ-5) will be developed as part of project implementation. The Project proponent will comply with herbicide application regulations (SPR HAZ-6) and restrict use of herbicide to avoid native plants, and will reduce the potential for impacts to habitat occupied by this species. During prescribed herbivory activities, a wildlife-friendly fencing will be installed that will allow safe passage for American badger across the landscape (SPR BIO-11).

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MM BIO-2a, BIO-2b, BIO-3a, and BIO-4 would be implemented, including avoiding protected aquatic features, targeting removal of non-native vegetation, removing strategic native vegetation to retain habitat function and prevent type conversion. If American badger is detected during focused surveys or assumed present, a no-disturbance buffer would be established around the den or habitat assumed to be occupied, the size of which would be determined by the qualified RPF or biologist, and no treatment activities would occur within this buffer. If any individual of this species is detected during pre-activity surveys or work, the animal will be allowed to leave the area of its own volition. With these additional focused MMs, impacts to nesting birds would be reduced to less than significant. This impact is consistent with the CalVTP PEIR. Biological monitoring will occur during treatment activities within or adjacent to suitable habitat areas, and dens will be flagged for avoidance and establishing no-work buffers. Impacts would be less than significant with mitigation, consistent with the PEIR.

7.5.3 Impact BIO-3: Substantially Affect Riparian Habitat or Other Sensitive Natural Community Through Direct Loss or Degradation that Leads to Loss of Habitat Function – Less Than Significant With Mitigation

During botanical surveys, 12 sensitive natural communities were observed:

71.060.17 *Quercus agrifolia – Arbutus menziesii – Umbellularia californica*
71.060.48 *Quercus agrifolia – Umbellularia californica*
32.060.21 *Baccharis pilularis* / (*Nassella pulchra – Elymus glaucus – Bromus carinatus*)
32.010.11 *Artemisia californica – Diplacus aurantiacus*
37.940.02 *Toxicodendron diversilobum – Artemisia californica / Leymus condensatus*
43.200.02 *Lupinus bicolor*
41.080.02 *Leymus triticoides – Bromus* spp*. – Avena* spp*.*
41.080.04 *Leymus triticoides – Carduus pycnocephalus – Geranium dissectum*
41.150.01 *Nassella pulchra – Lolium perenne – Trifolium* spp.
41.150.05 *Nassella pulchra – Avena* spp*. – Bromus* spp*.*
41.150.06 *Nassella pulchra – Erodium* spp*. – Avena barbata*
43.300.02 *Plagiobothrys nothofulvus – Castilleja exserta – Lupinus nanus*

Initial vegetation treatments and maintenance treatments could result in direct or indirect adverse impacts on sensitive habitats, including designated sensitive natural communities. Direct impacts on sensitive habitats include direct loss or degradation of habitat quantity or quality through vegetation removal. Indirect impacts include inadvertent introduction of invasive plant species or pathogens that would result in a habitat loss and degradation, and disturbance of the ecosystem through loss of species community members (flora or fauna) through repeated presence of human activities.

The potential for adverse effects to riparian or sensitive natural communities is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and intensity of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (pp. 3.6-131–3.6-138). Impacts to special status wildlife would be reduced to less than significant with the following SPRs and MMs (Attachment A).

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5: Maintain Site Cleanliness

SPR BIO-1: Review and Survey Project-Specific Biological Resources and Determine whether avoidance is possible

SPR BIO-2: Require Biological Resource Training for Workers

SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats and map locations

SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub

SPR BIO-6: Prevent Spread of Plant Pathogens

SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife

SPR HYD-4: Identify and Protect Watercourse and Lake Protection Zones

SPR BIO-3: requires a survey for sensitive vegetation communities prior to treatment to ensure they are identified and treatment avoids communities with a rank of S1 or S2. Implementation of SPR BIO-1 and the survey required under SPR BIO-3 would ensure any riparian habitat, sensitive communities, or oak woodlands would be identified. In accordance with the Project description, all riparian areas would be avoided, and no work would occur within riparian habitats. Riparian habitats would be avoided with a 50-foot buffer, but buffers may be increased based on recommendations of a qualified biologist and/or factors such as slope, existing erosion, sensitivity of the vegetative habitat, or presence of sensitive resources. SPR BIO-5 would ensure that treatment is designed to maintain or enhance habitat function of coastal scrub communities, and the Project is currently designed to create scrub islands to avoid type conversion, and to remove only invasive plants and remove dead, woody native vegetation and branches. SPR BIO-6 requires that best management practices be employed to avoid the spread of plant pathogens; and SPR BIO-9 prescribes actions to prevent the spread of invasive plants.

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MMs BIO-3a would be implemented. Under MM BIO-3a, the qualified biologist would determine the natural fire regime, condition class, and fire return interval for each sensitive natural community and oak woodland type. Treatment activities in sensitive natural communities and oak woodlands would be designed to restore the natural fire regime and return vegetation composition and structure to their natural condition to maintain or improve habitat function.

MM BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands

The impact of the proposed Project is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR. Impacts would be less than significant with mitigation, consistent with the PEIR.

7.5.4 Impact BIO-4: Substantially Affect State or Federally Protected Wetlands – Less Than Significant With Mitigation

Aquatic resources were identified within the Project footprint as blue-line waters and ponds. Initial vegetation and maintenance treatments could result in direct or indirect adverse effects on Federally or state protected wetlands. The potential for adverse effects to wetlands is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and intensity of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (pp. 3.6-131–3.6-138). Impacts to wetlands would be reduced to less than significant with the following SPRs and MMs (Attachment A).

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5: Maintain Site Cleanliness

SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife

SPR HAZ-5: Spill Prevention and Response Plan

SPR HAZ-6: Comply with Herbicide Application Regulations

SPR HYD-1: Comply with Water Quality Regulations

SPR HYD-2: Avoid Construction of New Roads

SPR HYD-3: Water Quality Protections for Prescribed Herbivory

SPR HYD-4: Identify and Protect Watercourse and Lake Protection Zones

SPR HYD-5: Protect Non-Target Vegetation and Special-status Species from Herbicides

The aquatic habitat in the vicinity of the Project area has been excluded from the Project area during design of the treatments, and riparian habitat will be avoided at a minimum standard 50-foot buffer. Implementation of water quality protections in accordance with SPR HYD-1, identifying Watercourse and Lake Protection Zones and establishing no-work buffers in accordance with SPR HYD-4, and SPR BIO-

9 would minimize potential for invasive species spread in protected wetlands and riparian areas. With implementation of the SPRs described above, impacts to Federally and state protected wetlands and riparian corridors from the treatment Project would be less than significant with mitigation incorporated.

MM BIO-4: Avoid State and Federally Protected Wetlands

Even following the above SPRs, project impacts could still be considered potentially significant; therefore, MM BIO-4 would be implemented. Avoidance of Federally and state protected wetlands per MM BIO-4 would ensure no impacts to wetlands in the identified features. With implementation of the above listed SPRs and MMs, riparian habitat and sensitive natural communities would be retained. These impacts were found to be within the scope of the PEIR, and treatment activities proposed are consistent with those analyzed in the PEIR.

7.5.5 Impact BIO-5: Interfere Substantially with Wildlife Movement Corridors or Impede Use of Nurseries – Less Than Significant With Mitigation

The treatment areas have the potential to provide essential connectivity areas for wildlife. However, no known wildlife nursery sites or indications of nursery sites, such as deer-fawning habitat or potential rookery trees with whitewash, were identified within the Project area during the reconnaissance survey. Habitat within the treatment area may be used for movement (e.g., mule deer migration) and protective cover for common wildlife species. Noise during work may impede some movement, but work is generally within close proximity to urban landscapes, and wildlife inhabiting the area are likely habituated to regular noise disturbance. Tree limb removal, hazardous tree removal, and ground-disturbing activities have the potential to impact nursery sites for native wildlife. Use of noise-generating equipment could disturb roosting birds and bats, impeding use of nursery sites.

Manual, mechanical, prescribed burning, and prescribed herbivory treatments could result in some limited direct or indirect adverse effects on wildlife corridors and nurseries. The potential for treatment activities to result in impacts to special wildlife corridors and nurseries was examined in the PEIR and was found to be less than significant with mitigation (pp. 3.6-192–3.6-196).

Due to the history of fire suppression and dense understory vegetative growth throughout much of the Project footprint, it is expected that wildlife corridors for some species would be improved by the treatment activities. By minimizing the potential for catastrophic wildfire and thereby protecting the forest ecosystem, the wildlife corridors, while slightly degraded in the short term, would be protected from high-intensity wildfire in the future. Implementation of the SPRs and MMs listed below would minimize changes in habitat function within treatment areas that serve as wildlife-movement corridors.

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5: Maintain Site Cleanliness

SPR BIO-1: Review and Survey Project-Specific Biological Resources and Determine whether avoidance is possible

SPR BIO-2: Require Biological Resource Training for Workers

SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats and map locations

SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub

SPR BIO-10: Survey for Special-Status Wildlife and Nursery Sites

SPR BIO-11: Install Wildlife-Friendly Fencing during Prescribed Herbivory

SPR HYD-4: Identify and Protect Watercourse and Lake Protection Zones

SPR HYD-5: Protect Non-Target Vegetation and Special-status Species from Herbicides

Existing habitat would remain to permit movement of wildlife species. Vegetation management activities would not block or obstruct streams or creeks. SPR BIO-10 would generally apply to many areas where special-status species could occur. During prescribed herbivory activities, a wildlife-friendly fencing will be installed that will allow safe passage for common wildlife across the landscape (SPR BIO-11). With implementation of the above listed SPRs, areas of intact wildlife corridors would be retained. These impacts were found to be within the scope of the PEIR, and treatment activities proposed are consistent with those analyzed in the PEIR.

MM BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites

Even following the above SPRs, wildlife nursery sites could still be significantly impacted if not avoided; therefore, MM BIO-5 would be implemented. If wildlife nursery sites are identified during surveys conducted pursuant to SPR BIO-10, MM BIO-5 would apply, which requires that nursery habitat be marked for avoidance during treatment activities and a non-disturbance buffer be installed around the nursery site if activities are required to occur while the site is active or occupied.

7.5.6 Impact BIO-6: Substantially Reduce Habitat or Abundance of Common Wildlife – Less Than Significant

Initial vegetation treatment activities and treatment maintenance activities could result in direct or indirect adverse effects resulting in reduction of habitat or abundance of common wildlife, including nesting birds, because habitat suitable for these species is present throughout treatment areas.

The potential for adverse effects to special-status wildlife species is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and intensity of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (pp. 3.6-131–3.6-138). Impacts to special status wildlife would be reduced to less than significant with the following SPRs and MMs (Attachment A). In addition to the CalVTP PEIR SPRs and MMs, additional Project-specific measures are described below each applicable measure.

SPR AD-2: Delineate Protected Resources for avoidance

SPR AD-3: Consistency with Local Plans, Policies, and Ordinances

SPR AD-5: Maintain Site Cleanliness

SPR BIO-1: Review and Survey Project-Specific Biological Resources and Determine whether avoidance is possible

SPR BIO-2: Require Biological Resource Training for Workers

SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats and map locations

SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub

SPR BIO-12: Protect Common Nesting Birds, Including Raptors through the use of avoidance buffers, treatment modification, or treatment delay. Monitor Active Raptor Nest During Treatment and Retain Raptor Nest Trees

Regarding general common wildlife, implementation of SPR BIO-1, SPR BIO-2, SPR BIO-3, and SPR BIO-5 would limit the loss and degradation of high-quality habitat for common species within the Project site. SPR BIO-2 would require worker training in sensitive biological resources; SPR BIO-3 would ensure mapping of sensitive habitats; SPR BIO-5 would result in avoidance of type-conversion in scrub habitats. Therefore, Project treatment would remove vegetation and alter habitat structure locally but would not result in permanent habitat degradation or conversion.

The potential for adverse effects on common wildlife, including nesting birds, is within the scope of the PEIR because the treatment activities and extent of expected disturbance as a result of implementing vegetation treatments, including maintenance treatments, are consistent with those analyzed in the PEIR. The implementation of SPRs BIO-1, BIO-2, BIO-3, BIO-5, and BIO-12, in addition to measures described for special status species under Impact BIO-1, BIO-2, BIO-3, and BIO-5, would reduce the risk of this Project, resulting in less than significant adverse effects to habitat and the abundance of common wildlife. This impact of the proposed Project is consistent with the PEIR and would not constitute a more significant impact than what was covered in the PEIR.

The potential for treatment activities, including maintenance treatments, to result in adverse effects on these resources was examined in the PEIR and was found to be less than significant (pp 3.6-197–3.6-198).

7.5.7 Impact BIO-7: Conflict with Local Policies or Ordinances Protecting Biological Resources – No Impact

Local policies or ordinances would apply to resources that occur within the proposed Project area, particularly tree ordinances or noise ordinances. The potential for treatment activities to result in conflict with local policies or ordinances was examined in the PEIR (p. 3.6-199). The potential for the proposed Project to conflict with local policies or ordinances is within the scope of the activities and impacts addressed in the PEIR because the treatment projects implemented under the CalVTP are

required to comply with any applicable county, city, or other local policies, ordinances, and permitting procedures related to protection of biological resources.

SPR AD-3 Consistency with Local Plans, Policies, and Ordinances. Additionally, SPR AD-3 (Consistency with Local Plans, Policies, and Ordinances) requires that the Project proponent design and implement the treatment in a manner that is consistent with applicable local plans (e.g., general plans), policies, and ordinances to the extent the Project is subject to them. (See Section 4, Regulatory Setting, for more information.) Impacts would be less than significant and consistent with the PEIR.

7.5.8 Impact BIO-8: Conflict with the Provisions of an Adopted Natural Community Conservation Plan, Habitat Conservation Plan, or Other Approved Habitat Plan – No Impact

The CalVTP recognized eight (8) HCPs and/or NCCPs in the planning or implementation phase in the Central California Coast Section (p. 3.6-29). In addition, the EBMUD Low Effect East Bay HCP also lies within the Central California Coast Section and within proximity to the Project area. The proposed Project, including the areas outside the Treatable Landscape, does not fall within the boundaries of any of the nine (9) HCPs/NCCPs. The proposed Project does not fall under the jurisdiction of any known HCPs or NCCPs; therefore, this impact does not apply to the treatment areas.

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Attachment A

Applicable CalVTP PEIR Standard Project Requirements and Mitigation Measures

APPLICABLE STANDARD PROJECT REQUIREMENTS AND MITIGATION MEASURES EXCERPTED FROM CALVTP PEIR

- **SPR AD-1 Project Proponent Coordination**: For treatments coordinated with CAL FIRE, CAL FIRE will meet with the project proponent to discuss all natural and environmental resources that must be protected using SPRs and any applicable mitigation measures; identify any sensitive resources onsite; and discuss resource protection measures. For any prescribed burn treatments, CAL FIRE will also discuss the details of the burn plan in the incident action plan (IAP). This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR AD-2 Delineate Protected Resources**: The project proponent will clearly define the boundaries of the treatment area and protected resources on maps for the treatment area and with highly visible flagging or clear, existing landscape demarcations (e.g., edge of a roadway) prior to beginning any treatment to avoid disturbing the resource. "Protected Resources" refers to environmentally sensitive places within or adjacent to the treatment areas that would be avoided or protected to the extent feasible during planned treatment activities to sustain their natural qualities and processes. This work will be performed by a qualified person, as defined for the specific resource (e.g., qualified Registered Professional Forester or biologist). This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR AD-3 Consistency with Local Plans, Policies, and Ordinances**: The project proponent will design and implement the treatment in a manner that is consistent with applicable local plans (e.g., general plans, Community Wildfire Protection Plans, CAL FIRE Unit Fire Plans), policies, and ordinances to the extent the project is subject to them. This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR AD-5 Maintain Site Cleanliness**: If trash receptacles are used on-site, the project proponent will use fully covered trash receptacles with secure lids (wildlife proof) to contain all food, food scraps, food wrappers, beverages, and other worker generated miscellaneous trash. Remove all temporary non-biodegradable flagging, trash, debris, and barriers from the project site upon completion of project activities. This SPR applies to all treatment activities and all treatment types, including treatment maintenance.

- **SPR AQ-3 Create Burn Plan**: The project proponent will create a burn plan using the CAL FIRE burn plan template for all prescribed burns. The burn plan will include a fire behavior model output of First Order Fire Effects Model and BEHAVE or other fire behavior modeling simulation and that is performed by a qualified fire behavior technical specialist that predicts fire behavior, calculates consumption of fuels, tree mortality, predicted emissions, greenhouse gas emissions, and soil heating. The project proponent will minimize soil burn severity from broadcast burning to reduce the potential for runoff and soil erosion. The burn plan will be created with input from a qualified technician or certified State burn boss. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance.

- **SPR AQ-4 Minimize Dust**: To minimize dust during treatment activities, the project proponent will implement the following measures:
  - Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions, in accordance with the California Air Resources Board (CARB) Fugitive Dust protocol.
  - If road use creates excessive dust, the project proponent will wet appurtenant, unpaved, dirt roads using water trucks or treat roads with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material) during dry, dusty conditions. Any dust suppressant product used will be environmentally benign (i.e., non-toxic to plants and will not negatively impact water quality) and its use will not be prohibited by ARB, EPA, or the State Water Resources Control Board (SWRCB). The project proponent will not over-water exposed areas such that the water results in runoff. The type of dust suppression method will be selected by the project proponent based on soil, traffic, site-specific conditions, and air quality regulations.
  - Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available. The project proponent will remove dust, silt, and mud from vehicles at the conclusion of each workday, or at a minimum of every 24 hours for continuous treatment activities, in accordance with Vehicle Code Section 23113.
  - Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.

  This SPR applies to all treatment activities and treatment types, including treatment maintenance.

GENERAL BIOLOGICAL RESOURCES

- **SPR BIO-1: Review and Survey Project-Specific Biological Resources**. The project proponent will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to treatment, no more than one year prior to the submittal of the PSA, and no more than one year between completion of the PSA and implementation of the treatment project. The data reviewed will include the biological resources setting, species and sensitive natural communities tables, and habitat information in this PEIR for the ecoregion(s) where the treatment will occur. It will also include review of the best available, current data for the area, including vegetation mapping data, species distribution/range information, CNDDB, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, relevant BIOS queries, and relevant general and regional plans. Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the environmental setting of a project

site. The qualified surveyor will 1.) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural community, wetlands, or wildlife nursery site or habitat (including bird nests), and 2.) assess the suitability of habitat for special-status plant and animal species. The surveyor will also record any incidental wildlife observations. For each treatment project, habitat assessments will be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to the submittal of the PSA, unless it can be demonstrated in the PSA that habitat assessments older than one year remain valid (e.g., site conditions are unchanged and no treatment activity has occurred since the assessment). If more than one year passes between completion of the PSA and initiation of the treatment project, the project proponent will verify the continued accuracy of the PSA prior to beginning the treatment project by reviewing for any data updates and/or visiting the site to verify conditions. Based on the results of the data review and reconnaissance-level survey, the project proponent, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:

1. **Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided**. If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to initiating treatment and will remain in effect throughout the treatment:

    a. by physically avoiding the suitable habitat, or

    b. by conducting treatment outside of the season when a sensitive resource could be present within the suitable habitat or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).

    Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.

2. **Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided**. Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the SPRs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, CNPS, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment activity. Focused or protocol-level surveys will be conducted as necessary to determine presence/absence. If protocol surveys are conducted, survey procedures will adhere to methodologies approved by resource agencies and the scientific community, such as those that are available on the CDFW webpage at: https://www.wildlife.ca.gov/Conservation/Survey-

Protocols. Specific survey requirements are addressed for each resource type in relevant SPRs (e.g., additional survey requirements are presented for special-status plants in SPR BIO-7).

This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR BIO-2: Require Biological Resource Training for Workers**. The project proponent will require crew members and contractors to receive training from a qualified RPF or biologist prior to beginning a treatment project. The training will describe the appropriate work practices necessary to effectively implement the biological SPRs and mitigation measures and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified RPF, biologist, or biological technician. The qualified RPF, biologist, or biological technician will immediately contact CDFW or USFWS, as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on its own (without being handled). This SPR applies to all treatment activities and treatment types, including treatment maintenance.

SENSITIVE NATURAL COMMUNITIES AND OTHER SENSITIVE HABITATS

- **SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats**. If SPR BIO-1 determines that sensitive natural communities or sensitive habitats may be present and adverse effects cannot be avoided, the project proponent will:
  - require a qualified RPF or biologist to perform a protocol-level survey following the CDFW "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" (current version dated March 20, 2018) of the treatment area prior to the start of treatment activities for sensitive natural communities and sensitive habitats. Sensitive natural communities will be identified using the best means possible, including keying them out using the most current edition of *A Manual of California Vegetation* (including updated natural communities data at http://vegetation.cnps.org/), or referring to relevant reports (e.g., reports found on the VegCAMP website).
  - map and digitally record, using a Global Positioning System (GPS), the limits of any potential sensitive habitat and sensitive natural community identified in the treatment area.

  This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR BIO-4: Design Treatment to Avoid Loss or Degradation of Riparian Habitat Function**. Project proponents, in consultation with a qualified RPF or qualified biologist, will design treatments in

riparian habitats to retain or improve habitat functions by implementing the following within riparian habitats:

- Retain at least 75 percent of the overstory and 50 percent of the understory canopy of native riparian vegetation within the limits of riparian habitat identified and mapped during surveys conducted pursuant to SPR BIO-3. Native riparian vegetation will be retained in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of treatment activities.
- Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species.
- Removal of large, native riparian hardwood trees (e.g., willow, ash, maple, oak, alder, sycamore, cottonwood) will be minimized to the extent feasible and 75 percent of the pretreatment native riparian hardwood tree canopy will be retained. Because tree size varies depending on vegetation type present and site conditions, the tree size retention parameter will be determined on a site-specific basis depending on vegetation type present and setting; however, live, healthy, native trees that are considered large for that type of tree and large relative to other trees in that location will be retained. A scientifically based, project-specific explanation substantiating the retention size parameter for native riparian hardwood tree removal will be provided in the Biological Resources Discussion of the PSA. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, presence of sufficient seed trees, light availability, and changes in stream shading may inform the tree size retention requirements.
- Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see *Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service*).
- Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.
- Ground disturbance within riparian habitats will be limited to the minimum necessary to implement effective treatments. This will consist of the minimum disturbance area necessary to reduce hazardous fuels and return the riparian community to a natural fire regime (i.e., Condition Class 1) considering historic fire return intervals, climate change, and land use constraints.

- Only hand application of herbicides approved for use in aquatic environments will be allowed and only during low-flow periods or when seasonal streams are dry.
- The project proponent will notify CDFW pursuant to California Fish and Game Code Section 1602 prior to implementing any treatment activities in riparian habitats. Notification will identify the treatment activities, map the vegetation to be removed, identify the impact avoidance identification methods to be used (e.g., flagging), and appropriate protections for the retention of shaded riverine habitat, including buffers and other applicable measures to prevent erosion into the waterway.
- In consideration of spatial variability of riparian vegetation types and condition and consistent with California Forest Practice Rules Section 916.9(v) (February 2019 version), a different set of vegetation retention standards and protection measures from those specified in the above bullets may be implemented on a site-specific basis if the qualified RPF and the project proponent demonstrate through substantial evidence that alternative design measures provide a more effective means of achieving the treatment objectives and would result in effects to the Beneficial Functions of Riparian Zones equal or more favorable than those expected to result from application of the above measures. Deviation from the above design specifications, different protection measures and design standards will only be approved when the treatment plan incorporates an evaluation of beneficial functions of the riparian habitat and with written concurrence from CDFW.

This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR BIO-5**: **Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub**. The project proponent will design treatment activities to avoid type conversion where native coastal sage scrub and chaparral are present. An ecological definition of type conversion is used in the CalVTP PEIR for assessment of environmental effects: a change from a vegetation type dominated by native shrub species that are characteristic of chaparral and coastal sage scrub vegetation alliances to a vegetation type characterized predominantly by weedy herbaceous cover or annual grasslands. For the PEIR, type conversion is considered in terms of habitat function, which is defined here as the arrangement and capability of habitat features to provide refuge, food source, and reproduction habitat to plants and animals, and thereby contribute to the conservation of biological and genetic diversity and evolutionary processes (de Groot et al. 2002). Some modification of habitat characteristics may occur provided habitat function is maintained (i.e., the location, essential habitat features, and species supported are not substantially changed).

  During the reconnaissance-level survey required in SPR BIO-1, a qualified RPF or biologist will identify chaparral and coastal sage scrub vegetation to the alliance level and determine the condition class and fire return interval departure of the chaparral and/or coastal sage scrub present in each treatment area.

For all treatment types in chaparral and coastal sage scrub, the project proponent, in consultation with a qualified RPF or qualified biologist will:

- Develop a treatment design that avoids environmental effects of type conversion in chaparral and coastal sage scrub vegetation alliances, which will include evaluating and determining the appropriate spatial scale at which the proponent would consider type conversion, and substantiating its appropriateness. The project proponent will demonstrate with substantial evidence that the habitat function of chaparral and coastal sage scrub would be at least maintained within the identified spatial scale at which type conversion is evaluated for the specific treatment project. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, spatial needs of sensitive species, presence of sufficient seed plants and nurse plants, light availability, and edge effects may inform the determination of an appropriate spatial scale.
- The treatment design will maintain a minimum percent cover of mature native shrubs within the treatment area to maintain habitat function; the appropriate percent cover will be identified by the project proponent in the development of treatment design and be specific to the vegetation alliances that are present in the identified spatial scale used to evaluate type conversion. Mature native shrubs that are retained will be distributed contiguously or in patches within the stand. If the stand consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity, to the extent needed to avoid type conversion.

These SPR requirements apply to all treatment activities and all treatment types, including treatment maintenance.

Additional measures will be applied to ecological restoration treatment types:

- For ecological restoration treatment types, complete removal of the mature shrub layer will not occur in native chaparral and coastal sage scrub vegetation types.
- Ecological restoration treatments will not be implemented in vegetation types that are within their natural fire return interval (i.e., time since last burn is less than the average time listed as the fire return interval range in Table 3.6-1) unless the project proponent demonstrates with substantial evidence that the habitat function of chaparral and coastal sage scrub would be improved.
- A minimum of 35 percent relative cover of existing shrubs and associated native vegetation will be retained at existing densities in patches distributed in a mosaic pattern within the treated area or the shrub canopy will be thinned by no more than 20 percent from baseline density (i.e., if baseline shrub canopy density is 60 percent, post treatment shrub canopy density will be no less than 40 percent). A different percent relative cover can be retained if the project proponent demonstrates with substantial evidence that alternative treatment design measures would result in effects on the habitat function of chaparral and coastal sage scrub that are equal or

more favorable than those expected to result from application of the above measures. Biological considerations that may inform a deviation from the minimum 35 percent relative cover retention include but are not limited to soil moisture requirements, increased soil temperatures, changes in light/shading, presence of sufficient seed plants and nurse plants, erosion potential, and site hydrology.

- If the stand within the treatment area consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity.

These SPR requirements apply to all treatment activities and only the ecosystem restoration treatment type, including treatment maintenance.

A determination of compliance with the SB 1260 prohibition of type conversion in chaparral and coastal sage scrub is a statutory issue separate from CEQA compliance that may involve factors additional to the ecological definition and habitat functions presented in the PEIR, such as geographic context. It is beyond the legal scope of the PEIR to define SB 1260 type conversion and statutory compliance. The project proponent, acting as lead agency for the proposed later treatment project, will be responsible for defining type conversion in the context of the project and making the finding that type conversion would not occur, as required by SB 1260. The project proponent will determine its criteria for defining and avoiding type conversion and, in making its findings, may draw upon information presented in this PEIR.

- **SPR BIO-6: Prevent Spread of Plant Pathogens**. When working in sensitive natural communities, riparian habitats, or oak woodlands that are at risk from plant pathogens (e.g., Ione chaparral, blue oak woodland), the project proponent will implement the following best management practices to prevent the spread of *Phytopthora* and other plant pathogens (e.g., pitch canker (*Fusarium*), goldspotted oak borer, shot hole borer, bark beetle):

  - clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving at a treatment site and when leaving a contaminated site, or a site in a county where contamination is a risk;
  - include training on *Phytopthora* diseases and other plant pathogens in the worker awareness training;
  - minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment;
  - minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination;
  - clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and

- follow the procedures listed in Guidance for plant pathogen prevention when working at contaminated restoration sites or with rare plants and sensitive habitat (Working Group for *Phytopthoras* in Native Habitats 2016).

This SPR applies to all treatment activities and treatment types, including treatment maintenance.

SPECIAL-STATUS PLANTS

- **SPR BIO-7: Survey for Special-Status Plants**. If SPR BIO-1 determines that suitable habitat for special-status plant species is present and cannot be avoided, the project proponent will require a qualified RPF or botanist to conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment prior to initiation of the treatment. The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities."

  Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.

  If potentially occurring special-status plants are listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.

  For other special-status plants not listed under CESA or ESA, as defined in Section 3.6.1 of this PEIR, surveys will not be required under the following circumstances:

  - If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.
  - If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.

  This SPR applies to all treatment activities and treatment types, including treatment maintenance.

INVASIVE PLANTS AND WILDLIFE

- **SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife**. The project proponent will take the following actions to prevent the spread of invasive plants, noxious weeds, and invasive wildlife (e.g., New Zealand mudsnail):

  - clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;
  - for all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area from an area with infestations of invasive plants, noxious weeds, or invasive wildlife. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;
  - inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the treatment area. If the equipment is not clean, the qualified RPF or biological technician will deny entry to the work areas;
  - stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area;
  - identify significant infestations of invasive plant species (i.e., those rated as invasive by Cal-IPC or designated as noxious weeds by California Department of Food and Agriculture) during reconnaissance-level surveys and target them for removal during treatment activities. Treatment methods will be selected based on the invasive species present and may include herbicide application, manual or mechanical treatments, prescribed burning, and/or herbivory, and will be designed to maximize success in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present. Treatments will be focused on removing invasive plant species that cause ecological harm to native vegetation types, especially those that can alter fire cycles;
  - treat invasive plant biomass onsite to eliminate seeds and propagules and prevent reestablishment or dispose of invasive plant biomass offsite at an appropriate waste collection facility (if not kept on site); transport invasive plant materials in a closed container or bag to prevent the spread of propagules during transport; and
  - implement Fire and Fuel Management BMPs outlined in the “Preventing the Spread of Invasive Plants: Best Management Practices for Land Mangers” (Cal-IPC 2012, or current version).

  This SPR applies to all treatment activities and treatment types, including treatment maintenance.

WILDLIFE

- **SPR BIO-10: Survey for Special-Status Wildlife and Nursery Sites**. If SPR BIO-1 determines that suitable habitat for special-status wildlife species or nurseries of any wildlife species is present and cannot be avoided, the project proponent will require a qualified RPF or biologist to conduct focused or protocol-level surveys for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries, monarch overwintering sites) with potential to be directly or indirectly affected by a treatment activity. The survey area will be determined by a qualified RPF or biologist based on the species and habitats and any recommended buffer distances in agency protocols.

  The qualified RPF or biologist will determine if following an established protocol is required, and the project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no more than 14 days prior to the beginning of treatment activities. Focused or protocol surveys for a special-status species with potential to occur in the treatment area may not be required if presence of the species is assumed.

  This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR BIO-11. Install Wildlife-Friendly Fencing (Prescribed Herbivory)**. If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly fencing design will be used. The project proponent will require a qualified RPF or biologist to review and approve the design before installation to minimize the risk of wildlife entanglement. The fencing design will meet the following standards:

  - Minimize the chance of wildlife entanglement by avoiding barbed wire, loose or broken wires, or any material that could impale or snag a leaping animal; and, if feasible, keeping electric netting-type fencing electrified at all times or laid down while not in use.
  - Charge temporary electric fencing with intermittent pulse energizers; continuous output fence chargers will not be permitted.
  - Allow wildlife to jump over easily without injury by installing fencing that can flex as animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult ungulates to jump over it. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.
  - Be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers.

  This SPR applies only to prescribed herbivory and all treatment types, including treatment maintenance.

- **SPR BIO-12. Protect Common Nesting Birds, Including Raptors**. The project proponent will schedule treatment activities to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the treatment site, if feasible. Common native

birds are species not otherwise treated as special status in the CalVTP PEIR. The active nesting season will be defined by the qualified RPF or biologist.

If active nesting season avoidance is not feasible, a qualified RPF or biologist will conduct a survey for common nesting birds, including raptors. Existing records (e.g., CNDDB, eBird database, State Wildlife Action Plan) should be reviewed in advance of the survey to identity the common nesting birds, including raptors, that are known to occur in the vicinity of the treatment site. The survey area will encompass reasonably accessible areas of the treatment site and the immediately surrounding vicinity viewable from the treatment site. The survey area will be determined by a qualified RPF or biologist, based on the potential species in the area, location of suitable nesting habitat, and type of treatment. For vegetation removal or project activities that would occur during the nesting season, the survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 3 weeks before treatment. The survey will occur in a single survey period of sufficient duration to reasonably detect nesting birds, including raptors, typically one day for most treatment projects (depending on the size, configuration, and vegetation density in the treatment site), and conducted during the active time of day for target species, typically close to dawn and/or dusk. The survey may be conducted concurrently with other biological surveys if they are required by other SPRs. Survey methods will be tailored by the qualified RPF or biologist to site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting behavior that is typical of breeding (e.g., delivering food).

If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on nesting bird behavior, the project proponent will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:

- **Establish Buffer**. The project proponent will establish a temporary, species-appropriate buffer around the nest sufficient to reasonably expect that breeding would not be disrupted. Treatment activities will be implemented outside of the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining buffer location will include: presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected treatment activities. Nests of common birds within the buffer need not be monitored during treatment. However, buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.
- **Modify Treatment**. The project proponent will modify the treatment in the vicinity of an active nest to avoid disturbance of active nests (e.g., by implementing manual treatment methods, rather than mechanical treatment methods). Treatment modifications will be determined by the project proponent in coordination with the qualified RPF or biologist.
- **Defer Treatment**. The project proponent will defer the timing of treatment in the portion(s) of the treatment site that could disturb the active nest. If this avoidance strategy is implemented,

treatment activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.

Feasible actions will be taken by the project proponent to avoid loss of common native bird nests. The feasibility of implementing the avoidance strategies will be determined by the project proponent based on whether implementation of this SPR will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. Considerations may include limitations on the presence of environmental and atmospheric conditions necessary to execute treatment prescriptions (e.g., the limited seasonal windows during which prescribed burning can occur when vegetation moisture, weather, wind, and other physical conditions are suitable). If it is infeasible to avoid loss of common bird nests (not including raptor nests), the project proponent will document the reasons implementation of the avoidance strategies is infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).

The following avoidance strategies may also be considered together with or in lieu of other actions for implementation by a project proponent to avoid disturbance to raptor nests:

- **Monitor Active Raptor Nest During Treatment**. A qualified RPF, biologist, or biological technician will monitor an active raptor nest during treatment activities to identify signs of agitation, nest defense, or other behaviors that signal disturbance of the active nest is likely (e.g., standing up from a brooding position, flying off the nest). If breeding raptors are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify treatment or defer treatment) will be implemented or a pause in the treatment activity will occur until the disturbance behavior ceases.
- **Retention of Raptor Nest Trees**. Trees with visible raptor nests, whether occupied or not, will be retained.

This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR GEO-1 Suspend Disturbance during Heavy Precipitation**: The project proponent will suspend mechanical, prescribed herbivory, and herbicide treatments if the National Weather Service forecast is a “chance” (30 percent or more) of rain within the next 24 hours. Activities that cause mechanical soil disturbance may resume when precipitation stops and soils are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without

blading wet soil or surfacing materials. This SPR applies only to mechanical, prescribed herbivory, and herbicide treatment activities and all treatment types, including treatment maintenance.

- **SPR GEO-3 Stabilize Disturbed Soil Areas**: The project proponent will stabilize soil disturbed during mechanical prescribed herbivory treatments, and prescribed burns that result in exposure of bare soil over 50 percent or more of the treatment area with mulch or equivalent immediately after treatment activities, to the maximum extent practicable, to minimize the potential for substantial sediment discharge. If mechanical, prescribed herbivory, or prescribed burn treatment activities could result in substantial sediment discharge from soil disturbed by machinery animal hooves, or being bare, organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion. Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface. This SPR only applies to mechanical, prescribed herbivory, and prescribed burns that result in exposure of bare soil over 50 percent of the project area treatment activities and all treatment types, including treatment maintenance.

- **SPR GEO-4 Erosion Monitoring**: The project proponent will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event per SPR GEO-3 and GEO-8. Additionally, the project proponent will inspect for evidence of erosion after the first large storm or rainfall event (i.e., ≥ 1.5 inches in 24 hours) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours per the methods stated in SPRs GEO-3 and GEO-8. This SPR applies only to mechanical, prescribed herbivory, and prescribed burning treatment activities and all treatment types, including treatment maintenance.

- **SPR GEO-5 Drain Stormwater via Water Breaks**: The project proponent will drain compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules (February 2019 version). Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks cause surface run-off to be concentrated on downslopes, other erosion controls will be installed as needed to maintain site productivity by minimizing soil loss. This SPR applies only to mechanical, manual, and prescribed burn treatment activities and all treatment types, including treatment maintenance.

- **SPR GEO-7 Minimize Erosion**: To minimize erosion, the project proponent will:

  (1) Prohibit use of heavy equipment where any of the following conditions are present:

  (i) Slopes steeper than 65 percent.

  (ii) Slopes steeper than 50 percent where the erosion hazard rating is high or extreme.

(iii) Slopes steeper than 50 percent that lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake.

(2) On slopes between 50 percent and 65 percent where the erosion hazard rating is moderate, and all slope percentages are for average slope steepness based on sample areas that are 20 acres, or less, heavy equipment will be limited to:

(i) Existing tractor roads that do not require reconstruction, or

(ii) New tractor roads flagged by the project proponent prior to the treatment activity.

(3) Prescribed herbivory treatments will not be used in areas with over 50 percent slope.

This SPR applies to all treatment activities and all treatment types, including treatment maintenance.

- **SPR HAZ-5 Spill Prevention and Response Plan:** The project proponent or licensed Pest Control Advisor (PCA) will prepare a Spill Prevention and Response Plan (SPRP) prior to beginning any herbicide treatment activities to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants. The SPRP will include (but not be limited to):

  - a map that delineates staging areas, and storage, loading, and mixing areas for herbicides;
  - a list of items required in an onsite spill kit that will be maintained throughout the life of the activity;
  - procedures for the proper storage, use, and disposal of any herbicides, adjuvants, or other chemicals used in vegetation treatment.

  This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance.

- **SPR HAZ-6 Comply with Herbicide Application Regulations**: The project proponent will coordinate pesticide use with the applicable County Agricultural Commissioner(s), and all required licenses and permits will be obtained prior to herbicide application. The project proponent will prepare all herbicide applications to do the following:

  - Be implemented consistent with recommendations prepared annually by a licensed PCA.
  - Comply with all appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the EPA, DPR, and applicable local jurisdictions.
  - Adhere to label directions for application rates and methods, storage, transportation, mixing, container disposal, and weather limitations to application such as wind speed, humidity, temperature, and precipitation.
  - Be applied by an applicator appropriately licensed by the State.

This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance.

- **SPR HYD-1 Comply with Water Quality Regulations:** Project proponents must also conduct proposed vegetation treatments in conformance with appropriate RWQCB timber, vegetation and land disturbance related Waste Discharge Requirements (WDRs) and/or related Conditional Waivers of Waste Discharge Requirements (Waivers), and appropriate Basin Plan Prohibitions. Where these regulatory requirements differ, the most restrictive will apply. If applicable, this includes compliance with the conditions of general waste discharge requirements (WDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. In general, WDR and Waivers of waste discharge requirements for fuel reduction and forest health activities require that wastes, including but not limited to petroleum products, soil, silt, sand, clay, rock, felled trees, slash, sawdust, bark, ash, and pesticides must not be discharged to surface waters or placed where it may be carried into surface waters; and that Water Board staff must be allowed reasonable access to the property in order to determine compliance with the waiver conditions. The specifications for each WDR and Waiver vary by region. Regions 2 (San Francisco Bay), 4 (Los Angeles), 8 (Santa Ana), and 7 (Colorado River) are highly urban or minimally forested and do not offer WDRs or Waivers for fuel reduction or vegetation management activities. The current applicable WDRs and Waivers for timber and vegetation management activities are included in Appendix HYD-1. This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR HYD-2 Avoid Construction of New Roads:** The project proponent will not construct or reconstruct (i.e., cutting or filling involving less than 50 cubic yards/0.25 linear road miles) any new roads (including temporary roads). This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR HYD-3 Water Quality Protections for Prescribed Herbivory:** The project proponent will include the following water quality protections for all prescribed herbivory treatments:

  - Environmentally sensitive areas such as waterbodies, wetlands, or riparian areas will be identified in the treatment prescription and excluded from prescribed herbivory project areas using temporary fencing or active herding. A buffer of approximately 50 feet will be maintained between sensitive and actively grazed areas.
  - Water will be provided for grazing animals in the form of an on-site stock pond or a portable water source located outside of environmentally sensitive areas.
  - Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed.

  This SPR applies to prescribed herbivory treatment activities and all treatment types, including treatment maintenance.

- **SPR HYD-4 Identify and Protect Watercourse and Lake Protection Zones:** The project proponent will establish Watercourse and Lake Protection Zones (WLPZs) on either side of watercourses as defined in the table below, which is based on 14 CCR Section 916 .5 of the California Forest Practice Rules (February 2019 version). WLPZ's are classified based on the uses of the stream and the presence of aquatic life. Wider WLPZs are required for steep slopes.

Procedures for Determining Watercourse and Lake Protection Zone (WLPZ) widths

Water Class	Class I	Class II	Class III	Class IV
Water Class Characteristics or Key Indicator Beneficial Use	1) Domestic supplies, including springs, on site and/or within 100 feet downstream of the operations area and/or 2) Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning.	1) Fish always or seasonally present offsite within 1000 feet downstream and/or 2) Aquatic habitat for non-fish aquatic species. 3) Excludes Class III waters that are tributary to Class I waters.	No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high-water flow conditions after completion of timber operations.	Manmade watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use.
WLPZ Width (ft) – Distance from top of bank to the edge of the protection zone				
< 30 % Slope	75	50	Sufficient to prevent the degradation of downstream beneficial uses of water. Determined on a site-specific basis.	
30-50 % Slope	100	75		
>50 % Slope	150	100		

Source: 14 CCR Section 916.5 [936.5, 956.5] (February 2019 version)

The following WLPZ protections will be applied for all treatments:

- Treatment activities with WLPZs will retain at least 75 percent surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation and for wildlife habitat. If this percentage is reduced, a qualified RPF will provide the project proponent with a site- and/or treatment activity-specific explanation for the percent surface cover reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced percent as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report). This requirement is based on 14 CCR Section 916.4 [936.4, 956.4] Subsection (b)(6) (February 2019 version) and 14 CCR Section 916.5 (February 2019 version). Equipment, including tractors and vehicles, must not be driven in wet areas or WLPZs, except over existing roads or watercourse crossings where vehicle tires or tracks remain dry.

- Equipment used in vegetation removal operations will not be serviced in WLPZs, within wet meadows or other wet areas, or in locations that would allow grease, oil, or fuel to pass into lakes, watercourses, or wet areas.
- WLPZs will be kept free of slash, debris, and other material that harm the beneficial uses of water. Accidental deposits will be removed immediately.
- Burn piles will be located outside of WLPZs.
- No fire ignition (nor use of associated accelerants) will occur within WLPZs however low intensity backing fires may be allowed to enter or spread into WLPZs.
- Within Class I and Class II WLPZs, locations where project operations expose a continuous area of mineral soil 800 square feet or larger shall be treated for reduction of soil loss. Treatment shall occur prior to October 15th and disturbances that are created after October 15th shall be treated within 10 days. Stabilization measures shall be selected that will prevent significant movement of soil into water bodies and may include but are not limited to mulching, rip-rap, grass seeding, or chemical soil stabilizers.

  Where mineral soil has been exposed by project operations on approaches to watercourse crossings of Class I, II, or III within a WLPZ, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts that would adversely affect the quality and beneficial uses of the watercourse.

  Where necessary to protect beneficial uses of water from project operations, protection measures such as seeding, mulching, or replanting shall be used to retain and improve the natural ability of the ground cover within the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.
- Equipment limitation zones (ELZs) will be designated adjacent to Class III and Class IV watercourses with minimum widths of 25 feet where side-slope is less than 30 percent and 50 feet where side-slope is 30 percent or greater. An RPF will describe the limitations of heavy equipment within the ELZ and, where appropriate, will include additional measures to protect the beneficial uses of water.

This SPR applies to all treatment activities and treatment types, including treatment maintenance.

- **SPR HYD-5 Protect Non-Target Vegetation and Special-status Species from Herbicides**: The project proponent will implement the following measures when applying herbicides:

  - Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.
  - Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand application of herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry.

- No terrestrial or aquatic herbicides will be applied within WLPZs of Class I and II watercourses, if feasible. If this is not feasible, hand application of herbicides labeled for use in aquatic environments may be used within the WLPZ provided that the project proponent notifies the applicable regional water quality control board no fewer than 15 days prior to herbicide application. The feasibility of avoiding herbicide application within WLPZ of Class I and II watercourses will be determined by the project proponent and may be based on whether doing so will preclude achieving CalVTP program objectives, including, but not limited to, protection of vulnerable communities. The reasons for infeasibility will be documented in the PSA.
- No herbicides will be applied within a 50-foot buffer of ESA or CESA listed plant species or within 50 feet of dry vernal pools.
- For spray applications in and adjacent to habitats suitable for special-status species, use herbicides containing dye (registered for aquatic use by DPR, if warranted) to prevent overspray.
- Application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative); and
- No herbicide will be applied during precipitation events or if precipitation is forecast 24 hours before or after project activities.

This SPR applies to herbicide treatment activities and all treatment types, including treatment maintenance.

Mitigation Measures

Mitigation Measure BIO-1a: Avoid Loss of Special-Status Plants Listed under ESA or CESA

If listed plants are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will avoid and protect these species by establishing a no-disturbance buffer around the area occupied by listed plants and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway), exceptions to this requirement are listed later in this measure. The no-disturbance buffers will generally be a minimum of 50 feet from listed plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid killing or damaging listed plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate buffer size will be determined based on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. For example, paint-on or wicking application of herbicides to invasive plants may be implemented within 50 feet of listed plant species without posing a risk, especially if the listed plants are dormant at the time of application. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform the determination of buffer width. If a no-disturbance buffer is reduced below 50 feet from a listed plant, a qualified RPF or botanist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the PSA. After completion of the PSA and

prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report) with a science-based justification for the deviation. No fire ignition (and associated use of accelerants) will occur within 50 feet of listed plants.

For species listed under ESA or CESA, if the project proponent cannot avoid loss by implementing no-disturbance buffers, the project proponent will implement Mitigation Measure BIO-1c.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist, in consultation with CDFW and USFWS, as appropriate depending on species status and location, that the listed plants would benefit from treatment in the occupied habitat area even though some of the listed plants may be lost during treatment activities. For a treatment to be considered beneficial to listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to listed plants, no compensatory mitigation for loss of individuals will be required.

Mitigation Measure BIO-1b: Avoid Loss of Special-Status Plants Not Listed Under ESA or CESA

If non-listed special-status plant species (i.e., species not listed under ESA or CESA, but meeting the definition of special-status as stated in Section 3.6.1 of the Program EIR) are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will implement the following measures to avoid loss of individuals and maintain habitat function of occupied habitat:

- Physically avoid the area occupied by the special-status plants by establishing a no-disturbance buffer around the area occupied by species and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The no-disturbance buffers will generally be a minimum of 50 feet from special-status plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid loss of or damaging to special-status plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate size and shape of the buffer zone will be determined by a qualified RPF or botanist and will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform an appropriate buffer size and shape.
- Treatments may be conducted within this buffer if the potentially affected special-status plant species is a geophytic, stump-sprouting, or annual species, and the treatment can be conducted outside of the growing season (e.g., after it has completed its annual life cycle) or during the

dormant season using only treatment activities that would not damage the stump, root system or other underground parts of special-status plants or destroy the seedbank.

- Treatments will be designed to maintain the function of special-status plant habitat. For example, for a fuel break proposed in treatment areas occupied by special-status plants, if the removal of shade cover would degrade the special-status plant habitat despite the requirement to physically or seasonally avoid the special-status plant itself, habitat function would be diminished and the treatment would need to be modified or precluded from implementation.
- No fire ignition (and associated use of accelerants) will occur within the special-status plant buffer.

A qualified RPF or botanist with knowledge of the special-status plant species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment would not maintain habitat function of the special-status plant habitat (i.e., the habitat would be rendered unsuitable) or because the loss of special-status plants would substantially reduce the number or restrict the range of a special-status plant species. If the project proponent determines the impact on special-status plants would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status plants or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-1c will be implemented.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the special-status plants would benefit from treatment in the occupied habitat area even though some of the non-listed special-status plants may be killed during treatment activities. For a treatment to be considered beneficial to non-listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status plants, no compensatory mitigation will be required.

Mitigation Measure BIO-2a: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Listed Wildlife Species and California Fully Protected Species (All Treatment Activities)

If California Fully Protected Species or species listed under ESA or CESA are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid adverse effects to the species by implementing the following.

Avoid Mortality, Injury, or Disturbance of Individuals

- The project proponent will implement one of the following 2 measures to avoid mortality, injury, or disturbance of individuals:

    1. Treatment will not be implemented within the occupied habitat. Any treatment activities outside occupied habitat will be a sufficient distance from the occupied habitat such that mortality, injury, or disturbance of the species will not occur, as determined by a qualified RPF or biologist using the most current and commonly accepted science and considering published agency guidance; OR

    2. Treatment will be implemented outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, CDFW and/or USFWS/NOAA Fisheries will be consulted to determine if there is a period of time within which treatment could occur that would avoid mortality, injury, or disturbance of the species.

- For species listed under ESA or CESA, if the project proponent cannot avoid mortality, injury or disturbance by implementing one of the two options listed above, the project proponent will implement Mitigation Measure BIO-2c.
- Injury or mortality of California Fully Protected Species is prohibited pursuant to Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code and will be avoided.

Maintain Habitat Function

- The project proponent will design treatment activities to maintain the habitat function, by implementing the following:
    - While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; dens; tree snags; large raptor nests [including inactive nests]; downed woody debris; food sources). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.
    - If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that listed or fully protected wildlife with specific requirements for high canopy cover (e.g., Humboldt marten, fisher, spotted owl, coastal California gnatcatcher, riparian woodrat) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat

association information, or other documented standards that are commonly accepted [e.g., 50 percent for coastal California gnatcatcher]) such that habitat function is maintained.

- A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. Because this measure pertains to species listed under CESA or ESA or are fully protected, the qualified RPF or biologist will consult with CDFW and/or USFWS/NOAA Fisheries regarding the determination that habitat function is maintained. If consultation determines that the treatment will not maintain habitat function for the special-status species, the project proponent will implement Mitigation Measure BIO-2c.

Mitigation Measure BIO-2b: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Other Special-Status Wildlife Species (All Treatment Activities)

If other special-status wildlife species (i.e., species not listed under CESA or ESA or California Fully Protected, but meeting the definition of special status as stated in Section 3.6.1 of the Program EIR) are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid or minimize adverse effects to the species by implementing the following.

Avoid Mortality, Injury, or Disturbance of Individuals

- The project proponent will implement the following to avoid mortality, injury, or disturbance of individuals:

For all treatment activities except prescribed burning, the project proponent will establish a no-disturbance buffer around occupied sites (e.g., nests, dens, roosts, middens, burrows, nurseries). Buffer size will be determined by a qualified RPF or biologist using the most current, commonly accepted science and will consider published agency guidance; however, buffers will generally be a minimum of 100 feet, unless site conditions indicate a smaller buffer would be sufficient for protection or a larger buffer would be needed. Factors to be considered in determining buffer size will include, but not be limited to, the species' tolerance to disturbance; the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; baseline levels of noise and human activity; and treatment activity. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the nest, den, burrow, or other occupied site. If a no-disturbance buffer is reduced below 100 feet from an occupied site, a qualified RPF or biologist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).

  - No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). No activity will occur within the

buffer areas until the qualified RPF or biologist has determined that the young have fledged or dispersed; the nest, den, or other occurrence is no longer active; or reducing the buffer would not likely result in disturbance, mortality, or injury. A qualified RPF, biologist, or biological technician will be required to monitor the effectiveness of the no-disturbance buffer around the nest, den, burrow, or other occurrence during treatment. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in mortality, injury or disturbance to special-status species.

- For prescribed burning, the project proponent will implement the treatment outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, the qualified RPF or biologist will determine the period of time within which prescribed burning could occur that will avoid or minimize mortality, injury, or disturbance of the species. The project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate limited operating periods.

Maintain Habitat Function

- For all treatment activities, the project proponent will design treatment activities to maintain the habitat function by implementing the following:
  - While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; tree snags; large raptor nests [including inactive nests]; downed woody debris). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.
  - If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that special-status wildlife with specific requirements for high canopy cover (e.g., northern goshawk, Sierra Nevada snowshoe hare) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat association information, or other documented standards that are commonly accepted) such that the habitat function is maintained.
- A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding habitat function.

A qualified RPF or biologist with knowledge of the special-status wildlife species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat function of the special-status wildlife species' habitat or because the loss of special-status wildlife would substantially reduce the number or restrict the range of a special-status wildlife species. If the project proponent determines the impact on special-status wildlife would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status wildlife or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-2c will be implemented.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or biologist that the non-listed special-status wildlife would benefit from treatment in the occupied habitat area even though some of the non-listed special-status wildlife may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to non-listed special-status wildlife, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status wildlife, no compensatory mitigation will be required. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination that a non-listed special-status species would benefit from the treatment.

Mitigation Measure BIO-2e: Design Treatment to Retain Special-Status Butterfly Host Plants (All Treatment Activities)

If federally listed butterflies are identified as occurring or having potential to occur during review and surveys for SPR BIO-1 and confirmed during protocol-level surveys per SPR BIO-10, then the following measures will be implemented:

- Treatment areas within the range of these species will be surveyed for the host plant for each species (Table 3.6-34).
- Host plants for federally listed butterflies within the occupied habitat will be marked with high-visibility flagging, fencing, or stakes, and no treatment activities will occur within 10 feet of these plants.
- Because prescribed herbivory could result in the indiscriminate removal of the host plants for federally listed butterflies, this treatment type will not be used within occupied habitat of any federally listed butterfly species, unless it is known that the host plant is unpalatable to the herbivore.
- Treatment areas that are not occupied but are within the range of the federally listed butterfly will be divided into as many treatment units as feasible such that the entirety of the habitat is not

treated within the same year.

- Treatments will be conducted in a patchy pattern to the extent feasible in areas that are not occupied but are within the range of the federally listed butterfly, such that the entirety of the habitat is not burned or removed and untreated portions of suitable habitat are retained.

If the project proponent cannot implement the measures above to avoid mortality, injury, or disturbance of federally listed butterflies or degradation of occupied habitat (host plants) such that its function would not be maintained, the project proponent will implement Mitigation Measure BIO-2c.

CESA and ESA Listed Species. A qualified RPF or biologist will determine if, after implementation of any feasible impact avoidance measures (potentially including others not listed above), the treatment will result in mortality, injury, or disturbance, or if after implementation of the treatment, habitat function will remain for the affected species. For species listed under CESA or ESA or that are fully protected, the qualified RPF or biologist will consult with CDFW and/or USFWS regarding this determination. If consultation determines that mortality, injury, or disturbance of listed butterflies or degradation of occupied habitat such that its function would not be maintained would occur, the project proponent will implement Mitigation Measure BIO-2c.

Table 3.6-34 Special-status Butterflies and Associated Host Plants

Butterfly Species	Host Plants
bay checkerspot butterfly	dwarf plantain (*Plantago virginica*), purple owl's clover (*Castilleja exserta*)
Behren's silverspot butterfly	blue violet (*Viola adunca*)
callippe silverspot butterfly	California golden violet (*Viola pedunculata*)
Carson wandering skipper	salt grass (*Distichlis spicata*)
El Segundo blue butterfly	seacliff buckwheat (*Eriogonum parvifolium*)
Hermes copper butterfly	spiny redberry (*Rhamnus crocea*)
Kern primrose sphinx moth	plains evening-primrose (*Camissonia contorta*), field primrose (*Camissonia campestris*)
Laguna Mountains skipper	Cleveland's horkelia (*Horkelia clevelandii*), sticky cinquefoil (*Drymocallis glandulosa*)
Lange's metalmark butterfly	naked-stemmed buckwheat (*Eriogonum nudum*)
lotis blue butterfly	seaside bird's foot trefoil (*Hosackia gracilis*)
Mission blue butterfly	lupine (*Lupinus* spp.)
Myrtle's silverspot butterfly	blue violet
Oregon silverspot butterfly	blue violet
Palos Verdes blue butterfly	Santa Barbara milkvetch (*Astragalus trichopodus*), common deerweed (*Acmispon glaber*)

Butterfly Species	Host Plants
San Bruno elfin butterfly	broadleaf stonecrop (*Sedum spathulifolium*), manzanita (*Arctostaphylos* spp.), huckleberry (*Vaccinuum* spp.)
Smith's blue butterfly	seacliff buckwheat, seaside buckwheat (*Eriogonum latifolium*)
Quino checkerspot butterfly	dwarf plantain, purple owl's clover

Other Special-status Species. A qualified RPF or biologist with knowledge of the special-status species' habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA, because implementation of the treatment will not maintain habitat function of the special-status species' habitat or because the loss of special-status individuals would substantially reduce the number or restrict the range of a special-status species. If the project proponent determines the impact on special-status butterflies would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status butterflies or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-2c will be implemented.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or biologist that the special-status butterfly species would benefit from treatment in the occupied habitat area even though some may be killed, injured or disturbed during treatment activities. For a treatment to be considered beneficial to special-status butterfly species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources). If it is determined that treatment activities would be beneficial to special-status butterflies, no compensatory mitigation will be required.

Mitigation Measure BIO-2g: Design Treatment to Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Special-Status Bumble Bees (All Treatment Activities)

If special-status bumble bees are identified as occurring during review and surveys under SPR BIO-1 and confirmed during protocol-level surveys per SPR BIO-10, or if suitable habitat for special-status bumble bees is identified during review and surveys under SPR BIO-1 (e.g., wet meadow, forest meadow, riparian, grassland, or coastal scrub habitat containing sufficient floral resources within the range of the species), then the project proponent will implement the following measures, as feasible:

- Prescribed burning within occupied or suitable habitat for special-status bumble bees will occur from October through February to avoid the bumble bee flight season.

- Treatment areas in occupied or suitable habitat will be divided into a sufficient number of treatment units such that the entirety of the habitat is not treated within the same year; the objective of this measure is to provide refuge for special-status bumble bees during treatment activities and temporary retention of suitable floral resources proximate to the treatment area.
- Treatments will be conducted in a patchy pattern to the extent feasible in occupied or suitable habitat, such that the entirety of the habitat is not burned or removed and untreated portions of occupied or suitable habitat are retained (e.g., fire breaks will be aligned to allow for areas of unburned floral resources for special-status bumble bees within the treatment area).
- Herbicides will not be applied to flowering native plants within occupied or suitable habitat to the extent feasible during the flight season (March through September).

CESA and ESA Listed Species. A qualified RPF or biologist will determine if, after implementation of feasible avoidance measures (potentially including others not listed above), the treatment will result in mortality, injury, or disturbance to the species, or if after implementation of the treatment, habitat function will remain for the affected species. For species listed under CESA or ESA or that are fully protected, the qualified RPF or biologist will consult with CDFW and/or USFWS regarding this determination. If consultation determines that mortality, injury, or disturbance of listed bumble bees (in the event the Candidate listing is confirmed) or degradation of occupied (or assumed to be occupied) habitat such that its function would not be maintained would occur, the project proponent will implement Mitigation Measure BIO-2c.

Other Special-status Species. A qualified RPF or biologist with knowledge of the special-status species' habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat function of the special-status species' habitat or because the loss of special-status individuals would substantially reduce the number or restrict the range of a special-status species. If the project proponent determines the impact on special-status bumble bees would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status bumble bees or degradation of occupied (or assumed to be occupied) habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-2c will be implemented.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or biologist that the special-status bumble bee species would benefit from treatment in the occupied (or assumed to be occupied) habitat area even though some of the non-listed special-status bumble bees may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to special-status bumble bee species, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise

reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status bumble bees, no compensatory mitigation will be required.

Mitigation Measure BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands

The project proponent will implement the following measures when working in treatment areas that contain sensitive natural communities identified during surveys conducted pursuant to SPR BIO-3:

- Reference the *Manual of California Vegetation*, Appendix 2, Table A2, *Fire Characteristics* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/) or other best available information to determine the natural fire regime of the specific sensitive natural community type (i.e., alliance) present. The condition class and fire return interval departure of the vegetation alliances present will also be determined.
- Design treatments in sensitive natural communities and oak woodlands to restore the natural fire regime and return vegetation composition and structure to their natural condition to maintain or improve habitat function of the affected sensitive natural community. Treatments will be designed to replicate the fire regime attributes for the affected sensitive natural community or oak woodland type including seasonality, fire return interval, fire size, spatial complexity, fireline intensity, severity, and fire type as described in *Fire in California's Ecosystems* (Van Wagtendonk et al. 2018) and the *Manual of California Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/). Treatments will not be implemented in sensitive natural communities that are within their natural fire return interval (i.e., time since last burn is less than the average time required for that vegetation type to recover from fire) or within Condition Class 1.
- To the extent feasible, no shaded fuel breaks will be created in sensitive natural communities with rarity ranks of S1 (critically imperiled) and S2 (imperiled).
- To the extent feasible, shaded fuel breaks will not remove more than 20 percent of the native vegetation relative cover from a stand of sensitive natural community vegetation in sensitive natural communities with a rarity rank of S3 (vulnerable) or in oak woodlands. In forest and woodland sensitive natural communities with a rarity rank of S3, and in oak woodlands, only shaded fuel breaks will be installed, and they will not be installed in more than 20 percent of the stand of sensitive natural community or oak woodland vegetation (i.e., if the sensitive natural community covers 100 acres, no more than 20 acres will be converted to create the shaded fuel break).
- Use prescribed burning as the primary treatment activity in sensitive natural communities that are fire dependent (e.g., closed-cone forest and woodland alliances, chaparral alliances characterized by fire-stimulated, obligate seeders), to the extent feasible and appropriate based on the fire regime attributes as described in *Fire in California's Ecosystems* (Van Wagtendonk et al. 2018) and the *Manual*

of California Vegetation (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/).

- Time prescribed herbivory to occur when non-target vegetation is not susceptible to damage (e.g., non-target vegetation is dormant or has completed its reproductive cycle for the year). For example, use herbivores to control invasive plants growing in sensitive habitats or sensitive natural communities when sensitive vegetation is dormant but invasive plants are growing. Timing of herbivory to avoid non-target vegetation will be determined by a qualified botanist, RPF, or biologist based on the specific vegetation alliance being treated, the life forms and life conditions of its characteristic plant species, and the sensitivity of the non-target vegetation to the effects of herbivory.

The feasibility of implementing the avoidance measures will be determined by the project proponent based on whether implementation of this mitigation measure will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. If the avoidance measures are determined by the project proponent to be infeasible, the project proponent will document the reasons implementation of the avoidance strategies are infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).

A qualified RPF or botanist with knowledge of the affected sensitive natural community will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat functions of the sensitive natural community or oak woodland. If the project proponent determines the impact on sensitive natural communities or oak woodlands would be less than significant, no further mitigation will be required. If the project proponent determines that the loss or degradation of sensitive natural communities or oak woodlands would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-3b will be implemented.

The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the sensitive natural community or oak woodland would benefit from treatment in the occupied habitat area even though some loss may occur during treatment activities. For a treatment to be considered beneficial to a sensitive natural community or oak woodland, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the community (or similar community) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to sensitive natural communities or oak woodlands, no compensatory mitigation will be required.

Mitigation Measure BIO-3b: Compensate for Loss of Sensitive Natural Communities and Oak Woodlands

If significant impacts on sensitive natural communities or oak woodlands cannot feasibly be avoided or reduced as specified under Mitigation Measure BIO-3a, the project proponent will implement the following actions:

- Compensate for unavoidable losses of sensitive natural community and oak woodland acreage and function by:
  - restoring sensitive natural community or oak woodland functions and acreage within the treatment area;
  - restoring degraded sensitive natural communities or oak woodlands outside of the treatment area at a sufficient ratio to offset the loss of acreage and habitat function; or
  - preserving existing sensitive natural communities or oak woodlands of equal or better value to the sensitive natural community lost through a conservation easement at a sufficient ratio to offset the loss of acreage and habitat function.
- The project proponent will prepare a Compensatory Mitigation Plan that identifies the residual significant effects on sensitive natural communities or oak woodlands that require compensatory mitigation and describes the compensatory mitigation strategy being implemented to reduce residual effects, and:
  1. For preserving existing habitat outside of the treatment area in perpetuity, the Compensatory Mitigation Plan will include a summary of the proposed compensation lands (e.g., the number and type of credits, location of mitigation bank or easement), parties responsible for the long-term management of the land, and the legal and funding mechanism for long-term conservation (e.g., holder of conservation easement or fee title). The project proponent will submit evidence that the necessary mitigation has been implemented or that the project proponent has entered into a legal agreement to implement it and that compensatory habitat will be preserved in perpetuity.
  2. For restoring or enhancing habitat within the treatment area or outside of the treatment area, the Compensatory Mitigation Plan will include a description of the proposed habitat improvements, success criteria that demonstrate the performance standard of maintained habitat function has been met, legal and funding mechanisms, and parties responsible for long-term management and monitoring of the restored or enhanced habitat.

  The project proponent will consult with CDFW and/or any other applicable responsible agency prior to finalizing the Compensatory Mitigation Plan in order to satisfy that responsible agency's requirements (e.g., permits, approvals) within the plan.

Mitigation Measure BIO-4: Avoid State and Federally Protected Wetlands

Impacts to wetlands will be avoided using the following measures:

- The qualified RPF or biologist will delineate the boundaries of federally protected wetlands according to methods established in the USACE wetlands delineation manual (Environmental Laboratory 1987) and the appropriate regional supplement for the ecoregion in which the treatment is being implemented.
- The qualified RPF or biologist will delineate the boundaries of wetlands that may not meet the definition of waters of the United States, but would qualify as waters of the state, according to the state wetland procedures (California Water Boards 2019 or current procedures).
- A qualified RPF or biologist will establish a buffer around wetlands and mark the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The buffer will be a minimum width of 25 feet but may be larger if deemed necessary. The appropriate size and shape of the buffer zone will be determined in coordination with the qualified RPF or biologist and will depend on the type of wetland present (e.g., seasonal wetland, wet meadow, freshwater marsh, vernal pool), the timing of treatment (e.g., wet or dry time of year), whether any special-status species may occupy the wetland and the species' vulnerability to the treatment activities, environmental conditions and terrain, and the treatment activity being implemented.
- A qualified RPF or biological technician will periodically inspect the materials demarcating the buffer to confirm that they are intact and visible, and wetland impacts are being avoided.
- Within this buffer, herbicide application is prohibited.
- Within this buffer, soil disturbance is prohibited. Accordingly, the following activities are not allowed within the buffer zone: mechanical treatments, prescribed herbivory, equipment and vehicle access or staging.
- Only prescribed (broadcast) burning may be implemented in wetland habitats if it is determined by a qualified RPF or biologist that:
  - No special-status species are present in the wetland habitat;
  - The wetland habitat function would be maintained;
  - The prescribed burn is within the normal fire return interval for the wetland vegetation types present; and
  - Fire containment lines and pile burning are prohibited within the buffer.
- No fire ignition (and associated use of accelerants) will occur within the wetland buffer.

Mitigation Measure BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites

The project proponent will implement the following measures while working in treatment areas that contain nursery sites identified in surveys conducted pursuant to SPR BIO-10:

- **Retain Known Nursery Sites**. A qualified RPF or biologist will identify the important habitat features of the wildlife nursery and, prior to treatment activities, will mark these features for avoidance and retention during treatment.

- **Establish Avoidance Buffers**. The project proponent will establish a non-disturbance buffer around the nursery site if activities are required while the nursery site is active/occupied. The appropriate size and shape of the buffer will be determined by a qualified RPF or biologist, based on potential effects of project-related habitat disturbance, noise, visual disturbance, and other factors. No treatment activity will commence within the buffer area until a qualified RPF or biologist confirms that the nursery site is no longer active/occupied. Monitoring of the effectiveness of the non-disturbance buffer around the nursery site by a qualified RPF, biologist, or biological technician during and after treatment activities will be required. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in potential adverse effects to special-status species.

Attachment B

Representative Site Photos

Photo 1. View of Work Area 3, showing valleys and grasslands bordered by coastal oak woodland.

Photo 2. View of the towers on Work Area 3, showing the Wilder Fields location.

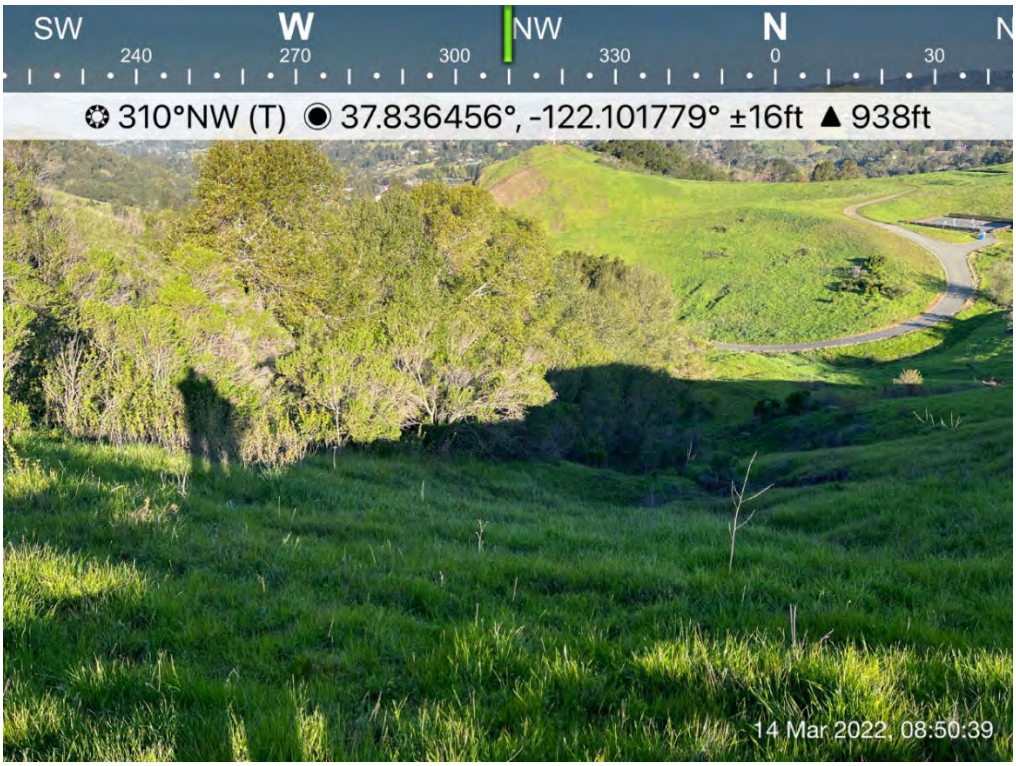

Photo 3. Representative photo of Work Area 5.

Photo 4. Representative photo of the grasslands on Work Area 4.

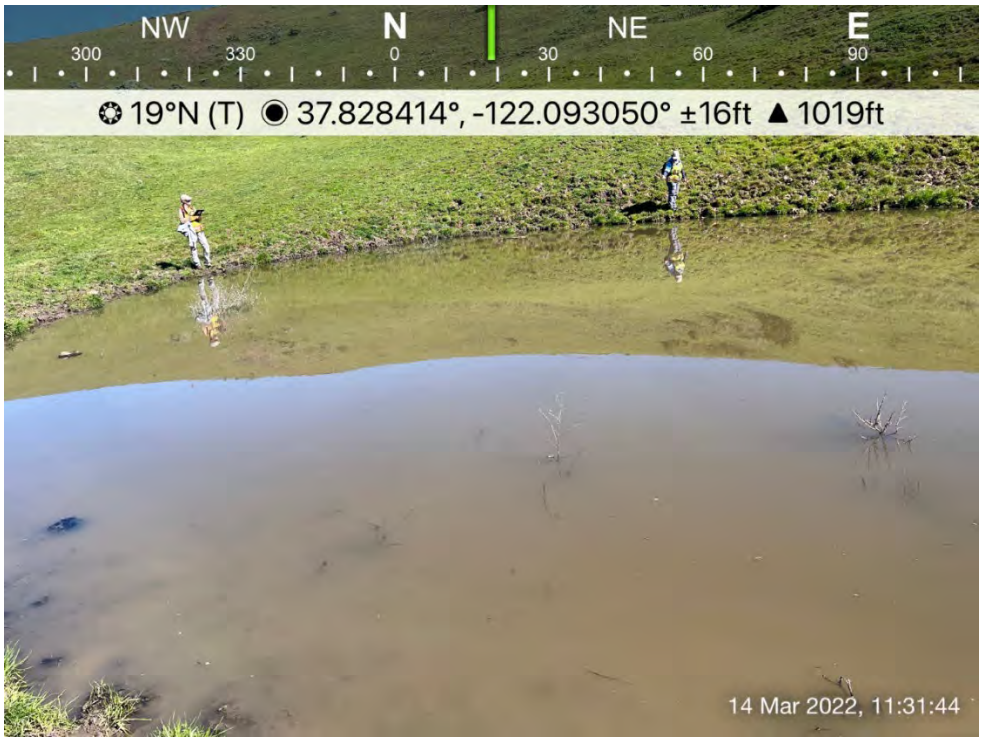

Photo 5. Cattle pond located in Work Area 4.

Photo 6. Example of scrub/chaparral habitat in Work Area 4.

Attachment C

Species Observed During Site Visits

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Acacia melanoxylon	blackwood acacia	Fabaceae
Acacia sp.	acacia	Fabaceae
Acacia dealbata	silver wattle	Fabaceae
Acer macrophyllum	bigleaf maple	Sapindaceae
Achillea millefolium	yarrow	Asteraceae
Achyrachena mollis	blow wives	Asteraceae
Acmispon americana	Spanish lotus	Fabaceae
Acmispon brachycarpus	hill lotus	Fabaceae
Acmispon wrangelianus	Chilean trefoil	Fabaceae
Adelinia (Cynoglossum) grande	Pacific houndstongue	Boraginaceae
Adiantum jordanii	five finger fern	Pteridaceae
Aegilops triuncialis	barbed goatgrass	Poaceae
Aesculus californica	California buckeye	Sapindaceae
Agrostis avenacea	Pacific bentgrass	Poaceae
Alisma lanceolata	lanceleaf water plantain	Alismataceae
Allium triquetrum	three-cornered leek	Alliaceae
Amsinckia menziesii	farmer fiddleneck	Boraginaceae
Anaphalis margaritacea	lady tobacco	Asteraceae
Anthemis cotula	dog fennel	Asteraceae
Arbutus menziesii	madrone	Ericaceae
Arctostaphylos manzanita	common manzanita	Ericaceae
Artemesia californica	California sagebrush	Asteraceae
Artemisia douglasiana	California mugwort	Asteraceae
Arum italiacum	Italian lords-and-ladies	Araceae
Asclepias fascicularis	narrowleaf milkweed	Apocynaceae
Avena barbata	slender wild oats	Poaceae
Avena fatua	wild oats	Poaceae
Baccharis pilularis ssp. *consanguinea*	coyote brush	Asteraceae
Barbarea americanus	American wintercress	Brassicaceae
Brassica nigra	black mustard	Brassicaceae
Bellardia trixago	Mediterranean lineseed	Scrophulariaceae
Brachypodium distachyon	purple false brome	Poaceae
Brodiaea elegans	harvest brodiaea	Themidaceae
Bromus carinatus	California brome	Poaceae
Bromus diandrus	ripgut brome	Poaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Bromus hordeaceus	soft chess	Poaceae
Bromus madritensis ssp. *rubens*	red brome	Poaceae
Calindrinia ciliata	red-maids	Montiaceae
Calochortus luteum	yellow mariposa lily	Liliaceae
Calochortus venustus	butterfly mariposa lily	Liliaceae
Calystegia purpurata ssp. *purpurata*	Pacific false bindweed	Convolvulaceae
Calystegia subacaulis	hillside false bindweed	Convolvulaceae
Capsella bursa-pastoris	sheperd's purse	Brassicaceae
Cardamine californica	milk maids	Brassicaceae
Cardamine hirsuta	bittercress	Brassicaceae
Cardamine oligosperma	Idaho bittercress	Brassicaceae
Carex barbarae	valley sedge	Cyperaceae
Carex tumulicola	foothill sedge	Cyperaceae
Castilleja affinis	common Indian paintbrush	Orobanchaceae
Castilleja exserta ssp. *exserta*	purple owl's clover	Orobanchaceae
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	Asteraceae
Ceanothus thyrsiflorus	blue blossom	Rhamnaceae
Centaurea calcitrapa	purple star thistle	Asteraceae
Centaurea melitensis	tocalote	Asteraceae
Centaurea solstitialis	yellow star thistle	Asteraceae
Cerastium glomeratum	mouse chickweed	Caryophyllaceae
Chlorogalum pomeridianum var. *pomeridianum*	wavyleaf soaproot	Agavaceae
Cicorium intybus	chicory	Asteraceae
Cirsium vulgare	bull thistle	Asteraceae
Clarkia purpurea	winecup clarkia	Onagraceae
Clarkia unguliculata.	clarkia	Onagraceae
Claytonia parviflora ssp. *parviflora*	miner's lettuce	Montiaceae
Claytonia perfoliate ssp. *perfoliata*	miner's lettuce	Montiaceae
Collinsia heterophylla	Chinese houses	Plantaginaceae
Conium maculatum	poison hemlock	Apiaceae
Convolvulus arvensis	field bindweed	Convolvulaceae
Cornus sericea	red osier dogwood	Cornaceae
Corylus cornuta	beaked hazelnut	Betulaceae
Crassula connata	pygmyweed	Crassulaceae
Cryptantha flaccida	weakstem cryptantha	Boraginaceae
Cynara cardunculus	artichoke thistle	Asteraceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Cynosurus echinatus	dogstail grass	Poaceae
Cyperus eragrostis	tall flatsedge	Cyperaceae
Diplacus aurantiacus	sticky bush monkeyflower	Phrymaceae
Dipsacus fullonum	teasel	Dipsacaceae
Dipterostemmon capitatum	blue dicks	Themidaceae
Dirca occidentalis	western leatherwood	Thymelaceae
Distichlis spicata	saltgrass	Poaceae
Dittrichia graveolens	stinkwort	Asteraceae
Dryopteris arguta	wood fern	Dryopteridaceae
Elymus caput-medusae	medusa head	Poaceae
Elymus glaucus	blue wild rye	Poaceae
Elymus triticoides	creeping wild rye	Poaceae
Epilobium canum	California fuschia	Onagraceae
Epilobium ciliatum ssp. *ciliatum*	fringed willowherb	Onagraceae
Epilobium ciliatum ssp. *watsonii*	Watson's willowherb	Onagraceae
Epilobium brachycarpum	autumn willowherb	Onagraceae
Epilobium sp.	willowherb	Onagraceae
Epipactus helleborine	helleborine	Orchidaceae
Equisetum arvense	common horsetail	Equisetaceae
Erigeron canadensis	Canada horseweed	Asteraceae
Eriogonum nudum	buckwheat	Polygonaceae
Erodium botrys	cranesbill	Geraniaceae
Erodium cicutarium	redstem filaree	Geraniaceae
Erodium moschatum	whitestem filaree	Geraniaceae
Erythranthe guttata	common monkeyflower	Phrymaceae
Eschscholzia californica	California poppy	Papaveraceae
Eucalyptus globulus	blue gum	Myrtaceae
Euphorbia peplus	petty spurge	Euphorbiaceae
Euphorbia spathulata	eggleaf spurge	Euphorbiaceae
Euthamia occidentalis	western goldenrod	Asteraceae
Festuca arundinacea	Pacific bentgrass	Poaceae
Festuca microstachys	small sixweeks fescue	Poaceae
Festuca myuros	rattail fescue	Poaceae
Festuca perennis	Italian ryegrass	Poaceae
Fragaria vesca	woodland strawberry	Rosaceae
Frangula californica ssp. *californica*	California coffeeberry	Rhamnaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Frangula californica ssp. *tomentosa*	hoary California coffeeberry	Rhamnaceae
Galium aparine	common cleavers	Rubiaceae
Galium murale	small bedstraw	Rubiaceae
Genista monspessulana	French broom	Fabaceae
Geranium dissectum	cutleaf geranium	Geraniaceae
Geranium robertianum	herb-Robert	Geraniaceae
Grindelia hirsutula	gumweed	Asteraceae
Helianthella californica	California helianthella	Asteraceae
Helianthella castanea	Diablo helianthella	Asteraceae
Helminthotheca echioides	bristly ox tongue	Asteraceae
Hemizonia congesta ssp. *luzulifolia*	hayfield tarweed	Asteraceae
Heracleum maximum	cow parsnip	Apiaceae
Heteromeles arbutifolia	toyon	Rosaceae
Heterotheca sessilifolia	sessile flowered false golden aster	Asteraceae
Hirschfeldia incana	shortpod mustard	Brassicaceae
Holodiscus discolor	oceanspray	Rosaceae
Hordeum brachyantherum	California barley	Poaceae
Hordeum marinum	seaside barley	Poaceae
Hordeum murinum ssp. *gussoneanum*	squirreltail barley	Poaceae
Hypocharis glabra	smooth cats ear	Asteraceae
Hypocharis radicata	rough cats ear	Asteraceae
Juncus articulatus	articulated rush	Juncaceae
Juncus balticus	baltic rush	Juncaceae
Juncus bufonius	toad rush	Juncaceae
Juncus patens	common rush	Juncaceae
Juncus xiphioides	iris-leaved rush	Juncaceae
Lactuca serriola	prickly lettuce	Asteraceae
Lactuca virosa	poison lettuce	Asteraceae
Lathyrus vestitus	common Pacific pea	Fabaceae
Lepidium didymum	lesser swine cress	Brassicaceae
Lepidium nitidum	shining pepperweed	Brassicaceae
Linum bienne	pale flax	Linaceae
Logfia gallica	common logfia	Asteraceae
Lonicera hispidula	hairy honeysuckle	Caprifoliaceae
Lotus corniculatus	birds foot trefoil	Fabaceae
Lupinus albifrons	silver bush lupine	Fabaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Lupinus bicolor	bicolor lupine	Fabaceae
Lupinus nanus	sky lupine	Fabaceae
Lupinus succulentus	arroyo lupine	Fabaceae
Lysimachia arvensis	scarlet pimpernel	Myrsinaceae
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae
Madia gracilis	weedy tarweed	Asteraceae
Madia sativa	coast tarweed	Asteraceae
Malva neglecta	common mallow	Malvaceae
Matricaria discoidea	pineappleweed	Asteraceae
Marah fabacea	California manroot	Cucurbitaceae
Medicago polymorpha	bur clover	Fabaceae
Melica californica	California melic grass	Poaceae
Melilotus indica	yellow sweet clover	Fabaceae
Mentha pulegium	pennyroyal	Lamiaceae
Monardella villosa ssp. *villosa*	coyote mint	Lamiaceae
Myriophyllum verticillatum	verticulate milfoil	Haloragaceae
Nasturtium officinale	watercress	Brassicaceae
Navarretia squarrosa	skunk navarretia	Polemoniaceae
Nemophila heterophylla	variable nemophila	Boraginaceae
Nerium oleander	oleander	Apocynaceae
Oemleria cerasiformis	oso berry	Rosaceae
Opuntia ficus-indica	tuna	Cactaceae
Osmorhiza bertoroi	sweet cicely	Apiaceae
Oxalis pes-caprae	Bermuda buttercup	Oxalidaceae
Parentucellia viscosa	yellow glandweed	Orobanchaceae
Paspalum dilatatum	dallis grass	Poaceae
Pellaea mucronata	bird's-foot cliffbreak	Pteridaceae
Pentagramma triangularis	goldback fern	Pteridaceae
Perideridia oregana	Oregon yampah	Apiaceae
Phacelia imbricata	imbricate phacelia	Boraginaceae
Phalaris paradoxa	hood canarygrass	Poaceae
Phoradendron leucarpum	American mistletoe	Viscaceae
Phyla nodiflora	common lippia	Scrophulariaceae
Physocarpus capitatus	Pacific ninebark	Rosaceae
Pinus radiata	Monterey pine	Pinaceae
Plagiobothrys nothofulvus	foothill snowdrops	Boraginaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Plantago erecta	California plantain	Plantaginaceae
Plantago lanceolata	lance leaf plantain	Plantaginaceae
Platago major	English plantain	Plantaginaceae
Poa annua	annual bluegrass	Poaceae
Poa pratensis	Kentucky bluegrass	Poaceae
Polygonum arviculare	common knotweed	Polygonaceae
Polypogon mospesulana	rabbitsfoot grass	Poaceae
Populus alba	white poplar	Salicaceae
Populus fremontii	Fremont's cottonwood	Salicaceae
Primula hendersonii	Henderson's shooting stars	Primulaceae
Prosartes hookeri	Hooker's fairy bells	Liliaceae
Prunus cerasifera	cherry plum	Rosaceae
Prunus subcordata	Klamath plum	Rosaceae
Pseudognaphalium californica	California cudweed	Asteraceae
Pseudognaphalium luteoalbum	Jersey cudweed	Asteraceae
Psilocarphus oregana	Oregon wooly marbles	Asteraceae
Pteridium aquilinum var. *pubescens*	bracken fern	Dennstaedtiaceae
Quercus agrifolia	coast live oak	Fagaceae
Quercus lobata	valley oak	Fagaceae
Ranunculus californica	California buttercup	Ranunculaceae
Ranunculus muricatus	spinyfruit buttercup	Ranunculaceae
Ranunculus occidentalis	western buttercup	Ranunculaceae
Raphanus sativus	wild radish	Brassicaceae
Ribes californicum var. *californicum*	hillside gooseberry	Grossulariaceae
Ribes sanguineum var. *glutinosum*	flowering currant	Grossulariaceae
Rosa californica	California rose	Rosaceae
Rosa gymnocarpa	dwarf rose	Rosaceae
Rubus armeniacus	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex acetosella	sheep sorrel	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Rumex pulcher	clustered dock	Polygonaceae
Rupertia physoides	California tea	Fabaceae
Salix exigua	Pacific willow	Salicaceae
Salix laevigata	red willow	Salicaceae
Salix lasiolepis	arroyo willow	Salicaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Salix scouleriana	Scouler's willow	Salicaceae
Sambucus mexicana	blue elderberry	Adoxaceae
Sanicula bipinnatifida	purple blacksnakeroot	Apiaceae
Sanicula crassicaulis	common blacksnakeroot	Apiaceae
Scandix pecten-veneris	sheperd's needle	Apiaceae
Sherardia arvensis	field madder	Rubiaceae
Schoenoplectus sp.	bulrush	Cyperaceae
Scrophularia californica	California beeplant	Scrophulariaceae
Senecio vulgaris	common grounsel	Asteraceae
Sequoia sempervirens	coast redwood	Cupressaceae
Sidalcea malviflora ssp. *laciniata*	lacinate checker mallow	Malvaceae
Sidalcea malviflora ssp. *malviflora*	dwarf checkerbloom	Malvaceae
Silybum marianum	milk thistle	Asteraceae
Sisirhynchium bellum	blue eyed grass	Iridaceae
Sisymbrium	hedge mustard	Brassicaceae
Solanum xanti	chaparral nightshade	Solanaceae
Sonchus asper ssp. *asper*	spiny sow thistle	Asteraceae
Sonchus oleraceus	common sow thistle	Asteraceae
Spergularia rubra	red sandspurry	Caryophyllaceae
Stachys bullata	hedgenettle	Lamiaceae
Stellaria media	mouse ear chickweed	Caryophyllaceae
Stipa pulchra	purple needlegrass	Poaceae
Stuckenia pectinata	sago pondweed	Potamogetonaceae
Symphyotrichum chilense	Pacific aster	Asteraceae
Symphoricarpos albus ssp. *laevigata*	common snowberry	Caprifoliaceae
Symphoricarpos mollis	creeping snowberry	Caprifoliaceae
Thysanocarpus curvipes	fringepod	Brassicaceae
Torilis arvensis	field hedgeparsley	Apiaceae
Toxicodendron diversilobum	poison oak	Ancardiaceae
Tragopogon porrifolius	purple salsify	Asteraceae
Trifolium cernuum	nodding clover	Fabaceae
Trifolium dubium	hop clover	Fabaceae
Trifolium hirtum	rose clover	Fabaceae
Trifolium incarnatum	crimson clover	Fabaceae
Trifolium resupinatum	reversed clover	Fabaceae
Trifolium subterraneum	subterranean clover	Fabaceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Plants

Scientific Name	Common Name	Family
Trifolium tomentosa	wooly clover	Fabaceae
Trifolium wildenovii	tomcat clover	Fabaceae
Trillium chloropetalum	giant wakerobin	Melanthiaceae
Trillium ovatum	white wakerobin	Melanthiaceae
Triphysaria versicolor ssp. *faucibarbata*	yellow owl's-clover	Orobanchaceae
Tritaleia laxa	Ithuriel's spear	Themidaceae
Triticum aestivum	wheat	Poaceae
Typha latifolia	broadleaf cattail	Typhaceae
Umbellularia californica	California bay laurel	Lauraceae
Urtica dioica	stinging nettle	Utricaceae
Veronica americana	American speedwell	Plantaginaceae
Vicia sativa	garden vetch	Fabaceae
Vicia villosa ssp. *varia*	smooth vetch	Fabaceae
Vicia villosa ssp. *villosa*	hairy vetch	Fabaceae
Wyethia glabra	smooth mule's ears	Asteraceae
Wyethia helenioides	gray mule's ears	Asteraceae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Wildlife

Scientific Name	Common Name	Family
Amphibians		
Pseudacris [Hyla] cadaverina	California treefrog	Hylidae
Pseudacris [Hyla] regilla	Pacific treefrog	Hylidae
*Taricha torosa***	California newt	Salamandridae
Reptiles		
Elgaria sp.	alligator lizard	Anguidae
Thamnophis spp.	garter snake	Colubridae
Birds		
Callipepla californica	California quail	Odontophoridae
Meleagris gallopavo	wild turkey	Odontophoridae
Cathartes aura	turkey vulture	Cathartidae
Accipiter cooperii	Cooper's hawk	Accipitridae
Buteo lineatus	red-shouldered hawk	Accipitridae
Buteo jamaicensis	red-tailed hawk	Accipitridae
Falco sparverius	American kestrel	Falconidae
Charadrius vociferus	killdeer	Charadriidae

Species Observed on the Tunnel East Bay Hills Shaded Fuel Break Project Site: Wildlife

Scientific Name	Common Name	Family
*Columba livia**	rock pigeon	Columbidae
Zenaida macroura	mourning dove	Columbidae
Patagioenas fasciata	band-tailed pigeon	Columbidae
Calypte anna	Anna's hummingbird	Trochilidae
Melanerpes formicivorus	acorn woodpecker	Picidae
Picoides nuttallii	Nuttall's woodpecker	Picidae
Leuconotopicus villosus	hairy woodpecker	Picidae
Sayornis nigricans	black phoebe	Tyrannidae
Sayornis saya	Say's phoebe	Tyrannidae
Vireo huttoni	Hutton's vireo	Vireonidae
Aphelocoma californica	California scrub-jay	Corvidae
Cyanocitta stelleri	Steller's jay	Corvidae
Corvus brachyrhynchos	American crow	Corvidae
Corvus corax	common raven	Corvidae
Baeolophus inornatus	oak titmouse	Paridae
Sitta carolinensis	white-breasted nuthatch	Sittidae
Regulus calendula	ruby-crowned kinglet	Regulidae
Certhia americana	creeper	Certhiidae
Catharus guttatus	hermit thrush	Turdidae
Turdus migratorius	American robin	Turdidae
Toxostoma redivivum	California thrasher	Mimidae
*Sturnus vulgaris**	European starling	Sturnidae
Dendroica coronata	yellow-rumped warbler	Parulidae
Melozone [*Pipilo*] *crissalis*	California towhee	Emberizidae
Passerella iliaca	fox sparrow	Emberizidae
Melospiza lincolnii	Lincoln's sparrow	Emberizidae
Zonotrichia leucophrys	white-crowned sparrow	Emberizidae
Zonotrichia atricapilla	golden-crowned sparrow	Emberizidae
Junco hyemalis	dark-eyed junco	Emberizidae
Carpodacus purpureus	purple finch	Fringillidae
Carpodacus mexicanus	house finch	Fringillidae
Spinus [Carduelis] psaltria	lesser goldfinch	Fringillidae
Mammals		
Odocoileus virginianus	white-tailed deer	Cervidae

Key: * introduced species; ** roadkill located 5 inches outside of Work Area 3